



**ESTIMATE
INTERMEDIATE USER
GUIDE**

PROJECT COST MANAGEMENT

INEIGHT 

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INTERMEDIATE INTRODUCTION

Course Description

This course covers the concepts and functionality you need to know in order to use the InEight Estimate software successfully. As a result, you will be able to build cost estimates and bid proposals with precision and efficiency.

Course Objectives

As a result of this course, you will be able to use the InEight Estimate software to:

- Review and report on project information
- Integrate with MS Excel and scheduling software (MS Project or Oracle Primavera)
- Manage quotes and use additional time-saving tools

How to Use this Manual

This training manual serves as the working guide during the *E101 Essentials of Project Modeling and Estimating* instructor-led course. The first seven lessons of this document follow a natural progression of putting an estimate together, from set up of a project to finalization of a bid. The remaining lessons cover additional functionality that will help you build and review your project estimate more effectively.

Lessons

The following lessons are covered in this course:

Course Lessons	
Lesson	Topic
Lesson 8	Quote Management
Lesson 9	Reporting
Lesson 10	Data Reproduction
Lesson 11	Excel Integration
Lesson 12	Schedule Integration
Lesson 13	Cash Flow
Lesson 14	InEight Estimate Calculators
Lesson 15	Cost Item Assemblies

Lesson Format

This manual is designed to be a “hands on” learning guide. As such, each lesson is organized into sections:

Section	Description
Objectives	Specify what you will learn in each lesson.
Topics	Organize the subject matter, with explanations of key concepts and terms.
Step by Steps	Walk you through the “mechanics” of how to perform specific functions in the software. For each step by step, you will use the Training Job that comes pre-loaded in the InEight Estimate Estimating software.
Exercises	Allow you to practice and reinforce what you learn. For each exercise, you will use the Training Job that comes pre-loaded in the InEight Estimate Estimating software.
Review	Asks you questions to check what you have learned within each lesson.

Call-Outs

Throughout the document, you will also find important call-out banners.

TIP

Tips are for important notes and information you want to remember.

NOTE

Notes are for critical information you need to know.

Ongoing Use

This manual is also designed to be a comprehensive reference guide you can use outside of the classroom and revisit as needed. Each lesson is compartmentalized so that you can refer back to each lesson as needed.

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LESSON 2 – REPORTING

Lesson Duration: 30 Minutes

Lesson Objectives

After completing this lesson, you will be able to:

- Run reports from the Reports menu
- Create and run reports from register forms

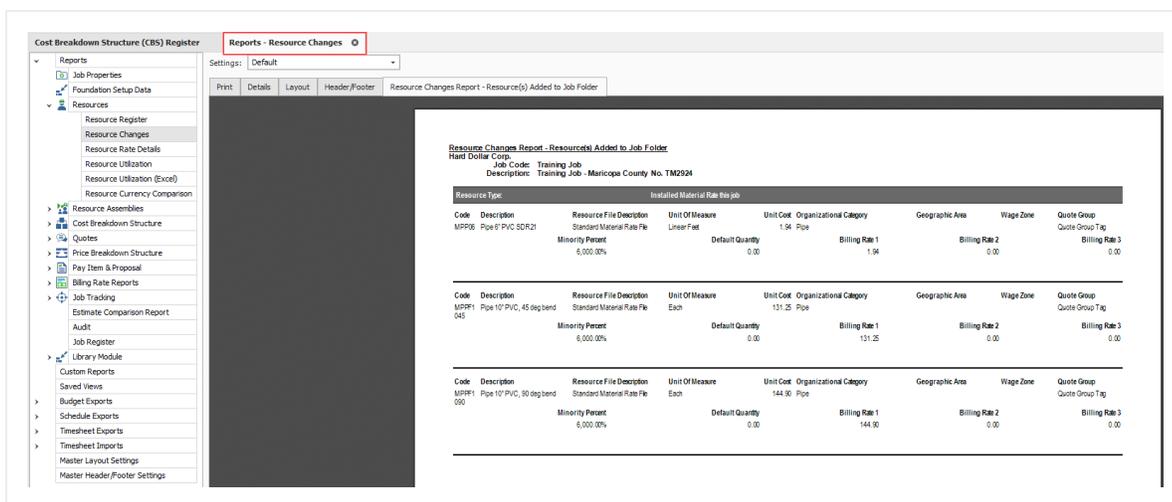
Lesson Topics

2.1 REPORTS MENU

InEight Estimate provides a lot of out of the box reports, referred to as “canned” or “system” reports, that can help you review and analyze your estimate.

2.1.1 Non-Modal Report dialog box

The Reports dialog is docked along with the other forms and registers. You can continue to work with your estimate without being forced to close the Reports dialog box.



The screenshot shows the InEight Estimate software interface. On the left is a navigation tree with 'Reports' expanded. The 'Reports - Resource Changes' dialog box is docked, showing a report titled 'Resource Changes Report - Resource(s) Added to Job Folder'. The report header includes 'Hard Dollar Costs', 'Job Code: Training Job', and 'Description: Training Job - Mericope County No. TM2924'. The report content is a table with columns: Code, Description, Resource File Description, Unit Of Measure, Unit Cost, Organizational Category, Geographic Area, Wage Zone, and Quote Group. The table lists three resource items: MPR06 (Pipe 6" PVC SDR21), MPR01 (Pipe 12" PVC, 45 deg bend), and MPR01 (Pipe 12" PVC, 90 deg bend). Each item has a 'Minority Percent' of 0.00000% and a 'Default Quantity' of 0.00. Billing rates are also shown for each item.

Code	Description	Resource File Description	Unit Of Measure	Unit Cost	Organizational Category	Geographic Area	Wage Zone	Quote Group
MPR06	Pipe 6" PVC SDR21	Standard Material Rate File	Linear Feet	1.94	Pipe			
		Minority Percent	Default Quantity		Billing Rate 1		Billing Rate 2	Billing Rate 3
		0.00000%	0.00		1.94		0.00	0.00
MPR01	Pipe 12" PVC, 45 deg bend	Standard Material Rate File	Each	131.25	Pipe			
		Minority Percent	Default Quantity		Billing Rate 1		Billing Rate 2	Billing Rate 3
		0.00000%	0.00		131.25		0.00	0.00
MPR01	Pipe 12" PVC, 90 deg bend	Standard Material Rate File	Each	144.00	Pipe			
		Minority Percent	Default Quantity		Billing Rate 1		Billing Rate 2	Billing Rate 3
		0.00000%	0.00		144.00		0.00	0.00

If the report becomes undocked, the job code shows in the reports dialog box header.

2.1.2 Adjustable Reports

Most of the reports within InEight Estimate can be adjusted to output the specific data and reporting format you need. Each report has its own set of output settings for configuring and formatting the report.

All InEight Estimate adjustable reports are accessed from the Reports menu. You may even run the same report multiple times and choose different output settings based on what you want to see or who the intended audience is.

For example, you may choose to run the CBS Details Report several times to satisfy different needs or for different audiences, and include or exclude specific data depending on what you or the report recipients want to see.

- For a group of *estimators*, you may want to run a CBS Details Report that shows all cost and productivity data for a job
- For *field personnel*, you may want to run a CBS Details Report that shows no cost data, but all production and resource data
- Finally, for *executive management*, you may want to run a CBS Details Report that shows summary level information only

The following steps take you through a brief overview of the Reports menu and how you can access it.

Step by Step — Get to Know the Reports Menu

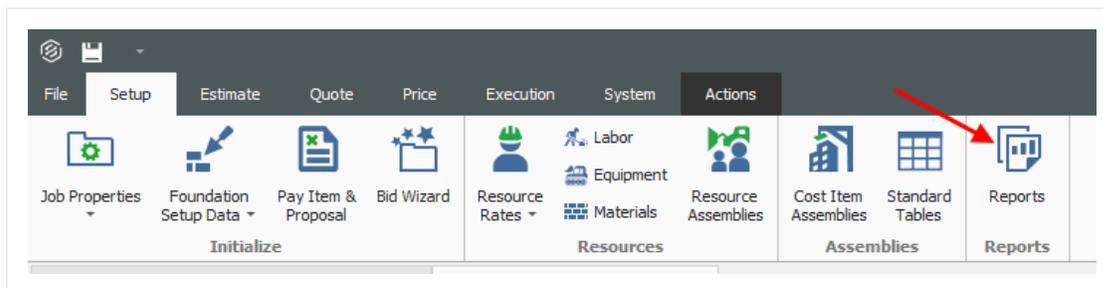
1. Open the **Training Job**, and select **Setup** tab.

- You access the Reports menu by clicking on the Reports icon

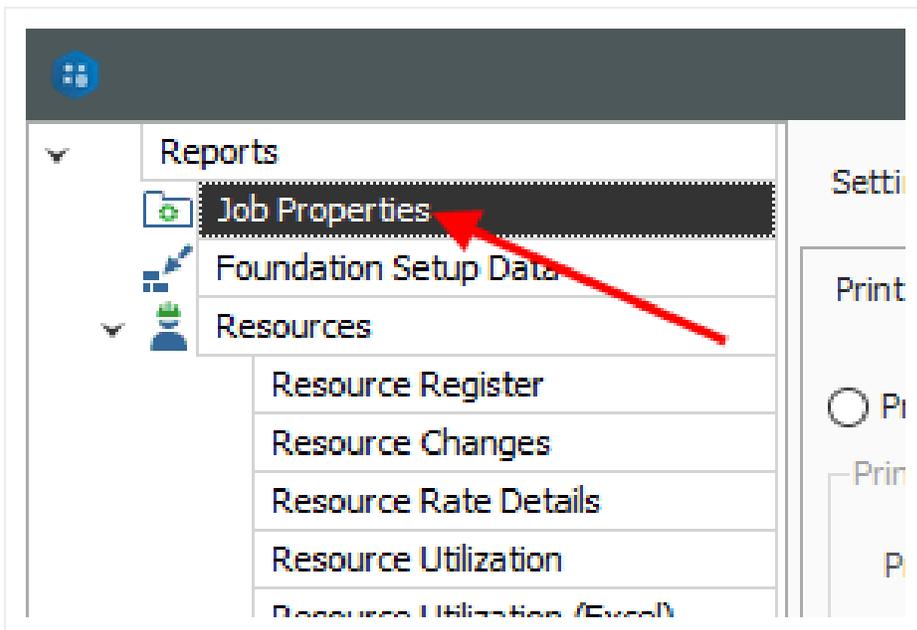
TIP

You can access the Reports menu from the Setup, Estimate, Quote, Price, and Execution tabs.

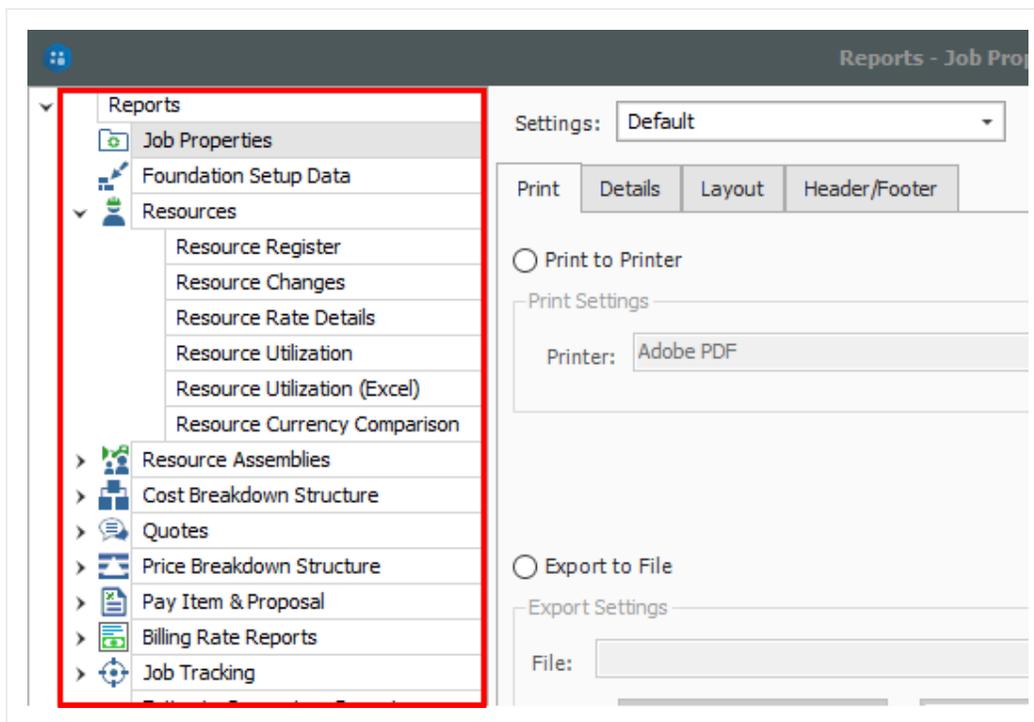
2. Select **Reports**.



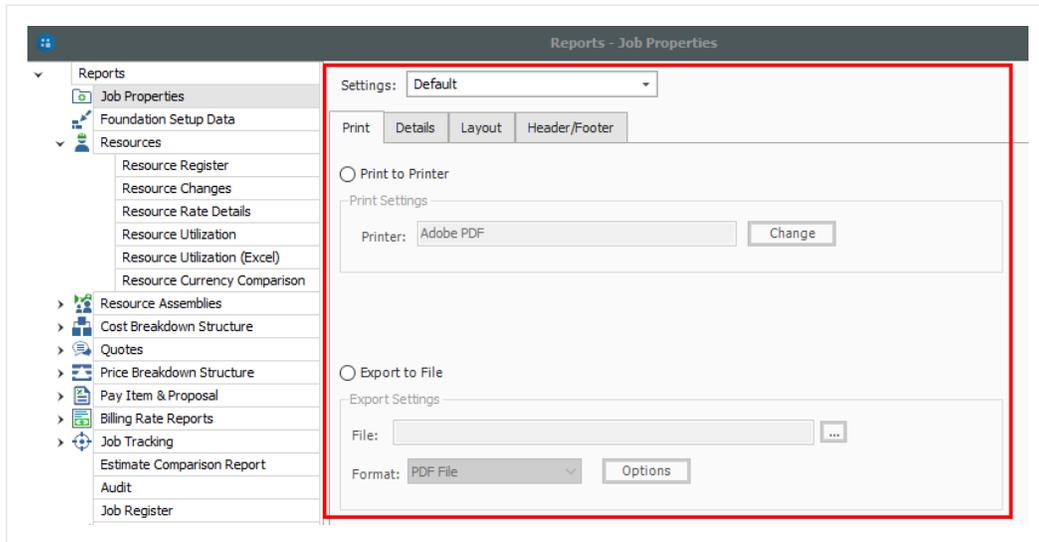
3. Here you select the Report of your choice. For this example, select the first option, **Job Properties**.



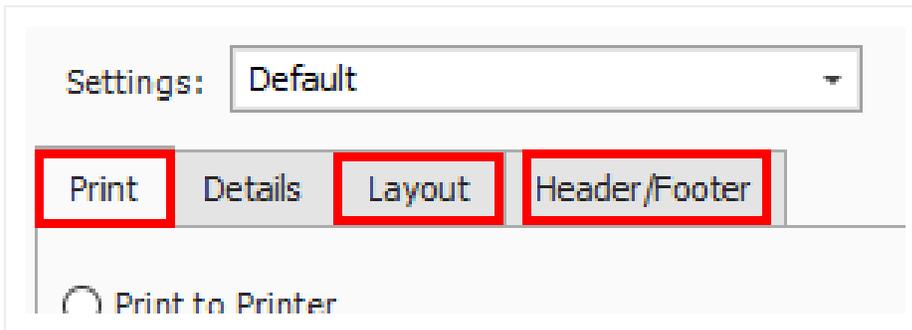
- You will see a split screen with the reports available on the left side bar
- The side bar on the left of the Reports form contains a “tree” of all InEight Estimate adjustable reports



- On the right, when you select a report node on the left, note that it displays the Output Settings on the right side of the form, from which the report settings can be adjusted and the report can then be run

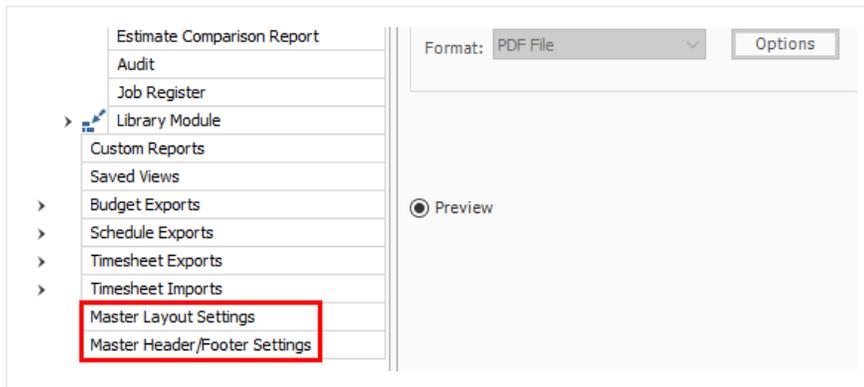


4. Each report has a Print tab, a Layout tab and a Header/ Footer tab specific to that report.



- There are also Master Layout Settings and Master Header/Footer Settings located at the bottom of the left-hand side bar tree. Here you can define settings that will apply to all

reports



2.1.3 Output Settings

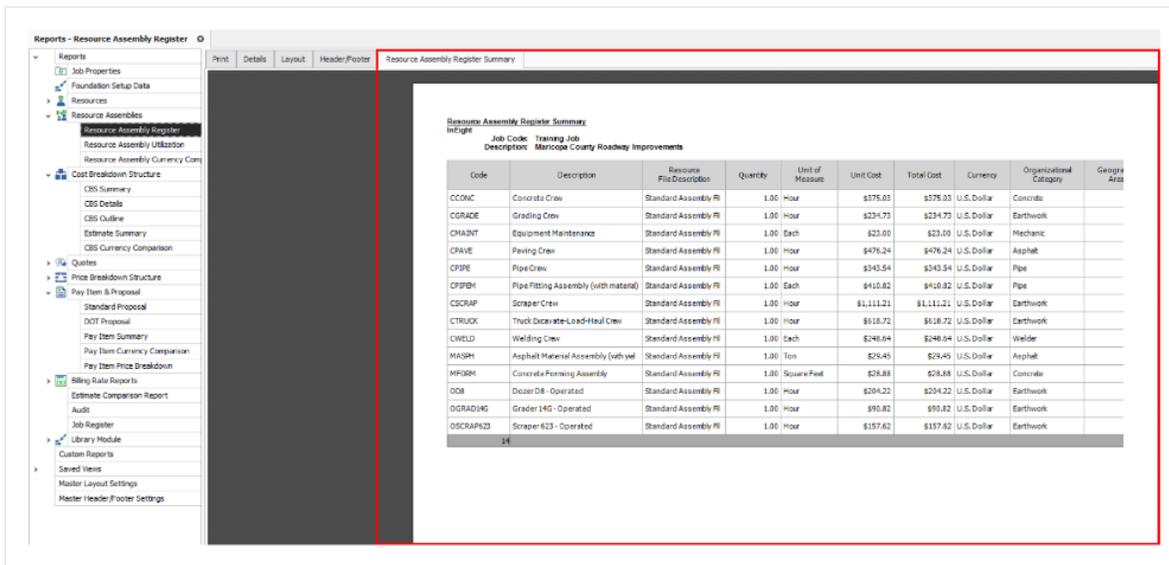
This section provides a more detailed explanation of the output setting tabs.

2.1.3.1 Report Printing Options

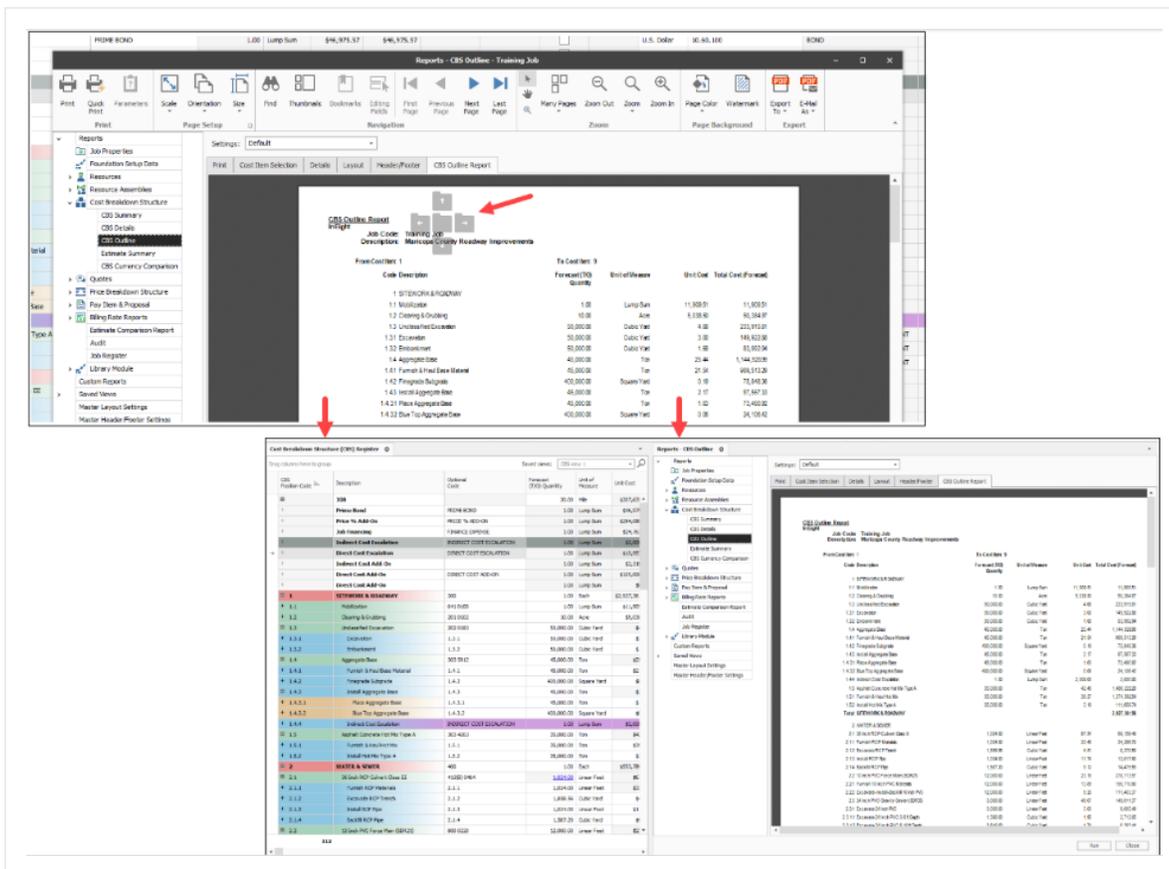
The Print tab includes three options for printing output: Print to Printer, Export to File, and Preview. Export file outputs include PDF, Excel, text, and more.

Print Preview

The Reports print previews opens in its own tab in the Report Dialog. This lets you keep the report open while continuing to use other parts of the application.

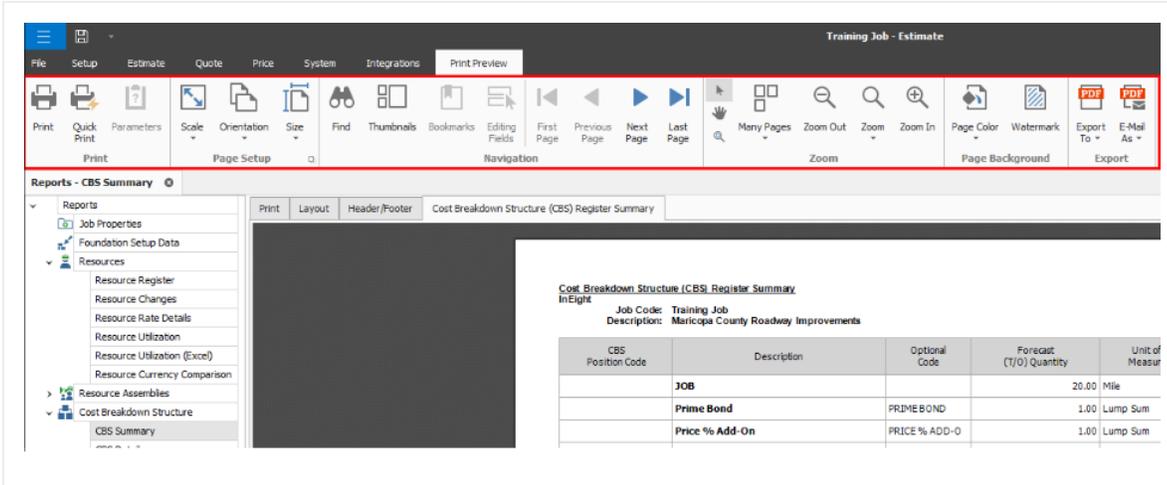


You can also undock and float a report on a different form, or you can tile it side by side with another register to view and compare them.



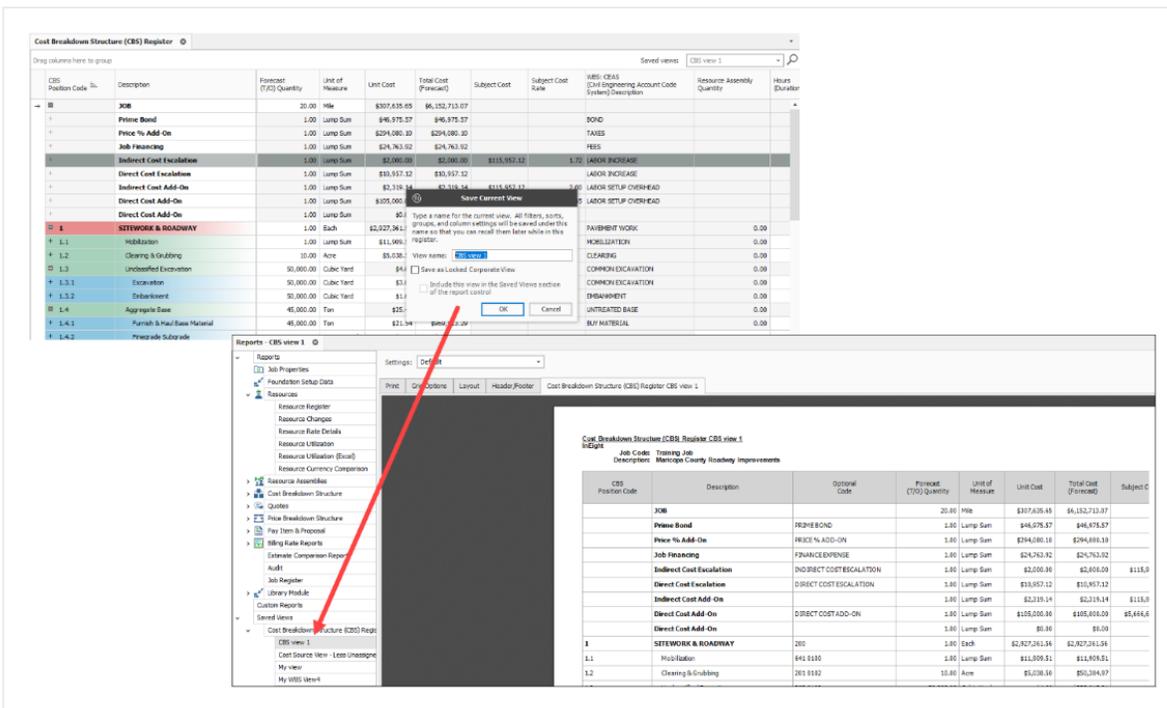
Print Preview Ribbon

The Print Preview menu is displayed on its own ribbon. Menu commands are shown in the ribbon as a contextual Print Preview menu when navigating to Reports > Print > Preview > **Run**.

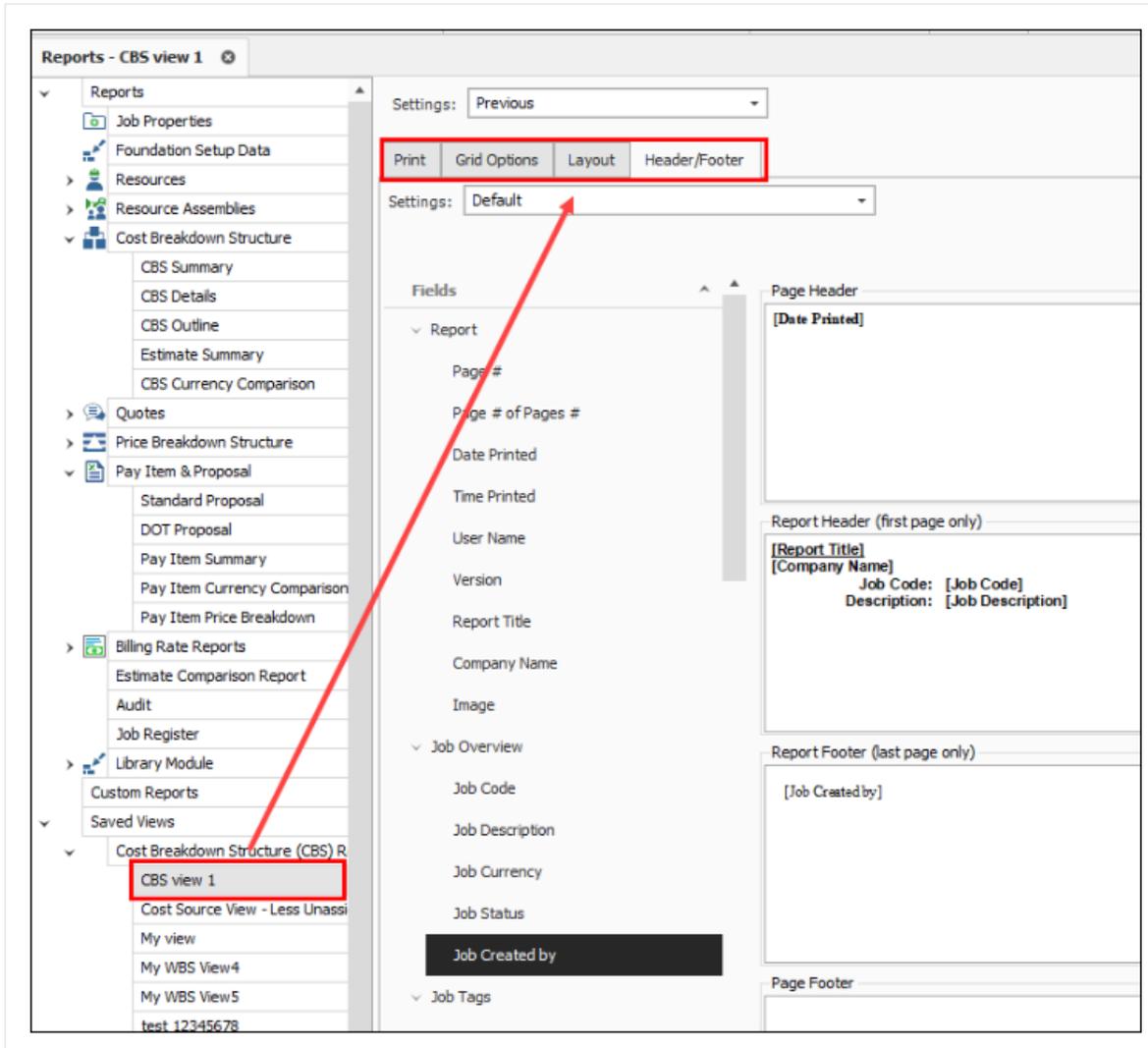


2.1.3.2 Apply custom Layouts and Headers/Footers to register reports

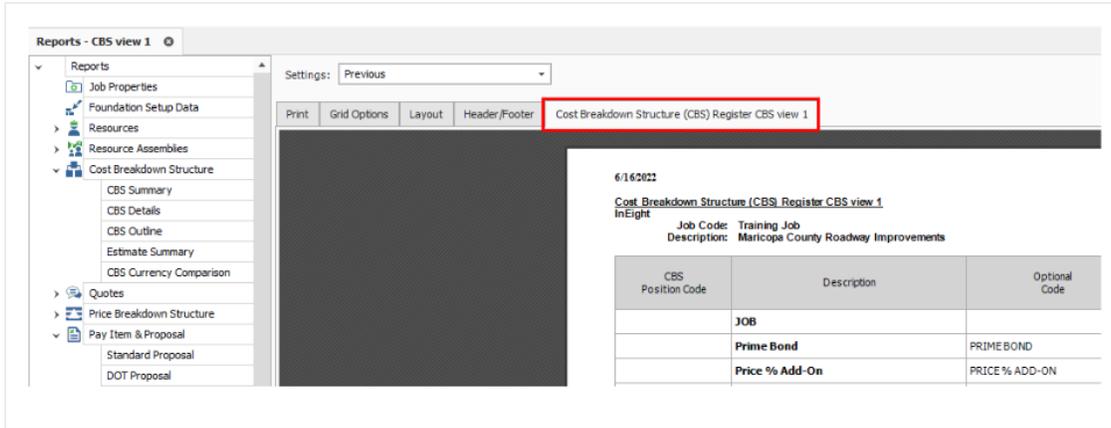
You can apply custom Layouts and header/footers to register based reports. Upon saving a view in any register, selecting the option to save it as a corporate view and include the view in the reports dialog box.



When selecting a Saved View from the Reports register you can use the Print tab to customize the printing preferences, use the Grid Options tab to change the font type/size, use the Layout tab to modify the design style, and use the Header/Footer tab to insert a header and footer to your report.



When you click on the Run button it will create a new register-style report. You can modify the layout or header/footer directly in this register. You can also toggle between any of the four other tabs to make modifications and see the changes on the saved view report.



2.1.3.3 Report Layout Settings

Many of the InEight Estimate adjustable reports include formatting options for the general layout of the report, located under the Layout tab of the report’s output settings. Settings for the report include: Orientation, Margins, Font, and Number Format.

Print Details Layout **Header/Footer**

Settings: **Default (Letter)**

Orientation

Portrait

Landscape

Paper Size: **Letter**

Margins

Top: **0.50** Header: **0.25**

Left: **0.50** Right: **0.50**

Bottom: **0.50** Footer: **0.25**

Font

Header Level 1: **Arial Narrow, 8, Bold**

Detail Level 1: **Arial Narrow, 8, Regular**

Header Level 2: **Arial Narrow, 8, Bold**

Detail Level 2: **Arial Narrow, 8, Regular**

Number Format

	Decimal Precision	Significant Figures
Cost summary:	2	<input type="checkbox"/> 1
Unit cost:	2	<input type="checkbox"/> 1
Quantity:	2	<input type="checkbox"/> 1
Percent:	2	<input type="checkbox"/> 1

Use thousands separator

Use currency symbol

Show zero values as blank

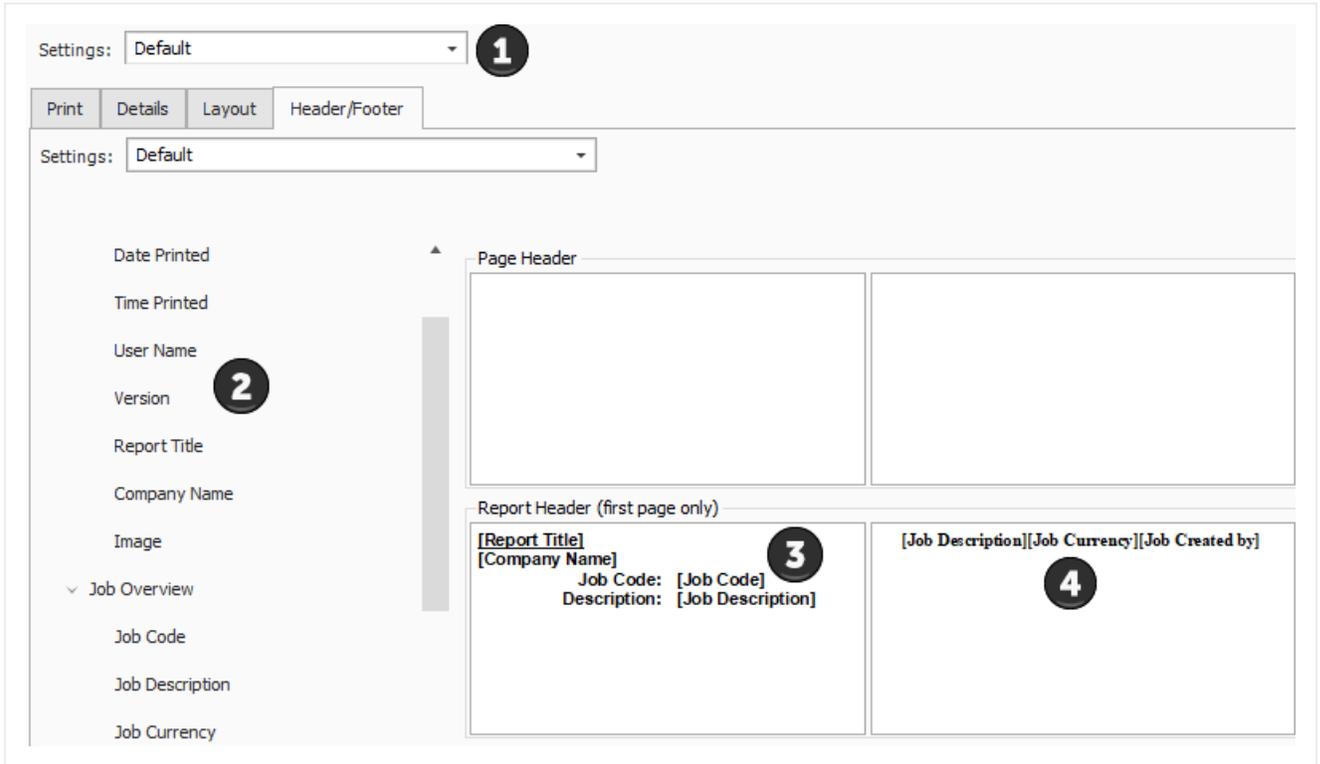
Currency: **As-Entered**

2.1.3.4 Report Header/Footer Settings

Many of the InEight Estimate adjustable reports include the option to define and insert headers and footers into the report. You can add information to the left, middle, or right of the header and footer sections of the report.

1. Once you define headers and footers, you can save them for use on other reports.
2. You can add page, time, and date stamps as needed, as well as images (e.g., company logo).
3. You can also use brackets to have it “stamp” the report with the Job Code and Job Description.

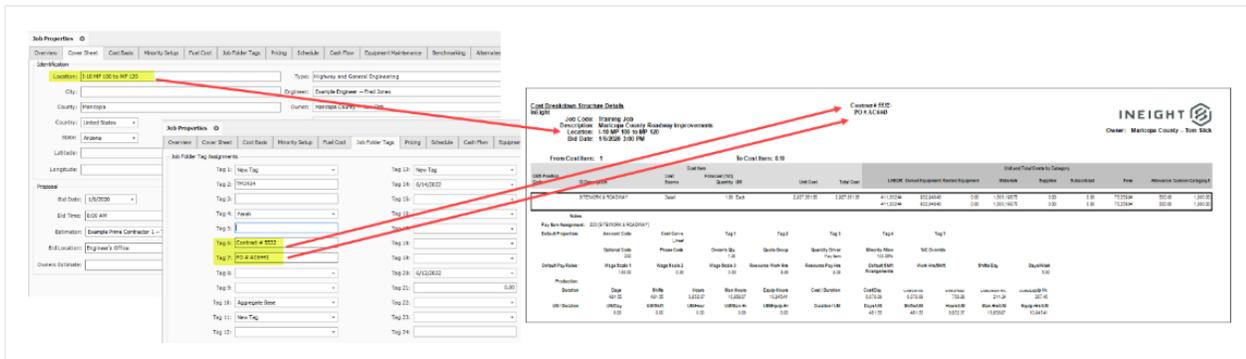
4. You can enter your own information as desired.



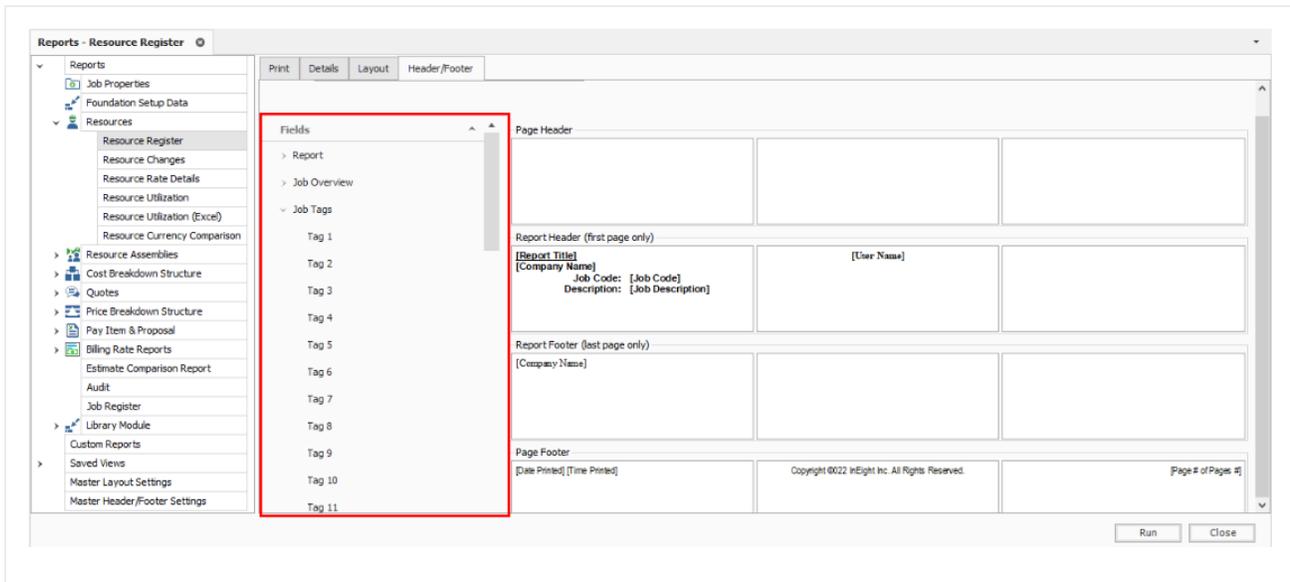
Cover Sheet fields and Job folder tags

In addition to the existing job code and job description tags in Job Properties, you can use the Cover Sheet fields and Job Folder tags for your headers and footers in all standard reports.

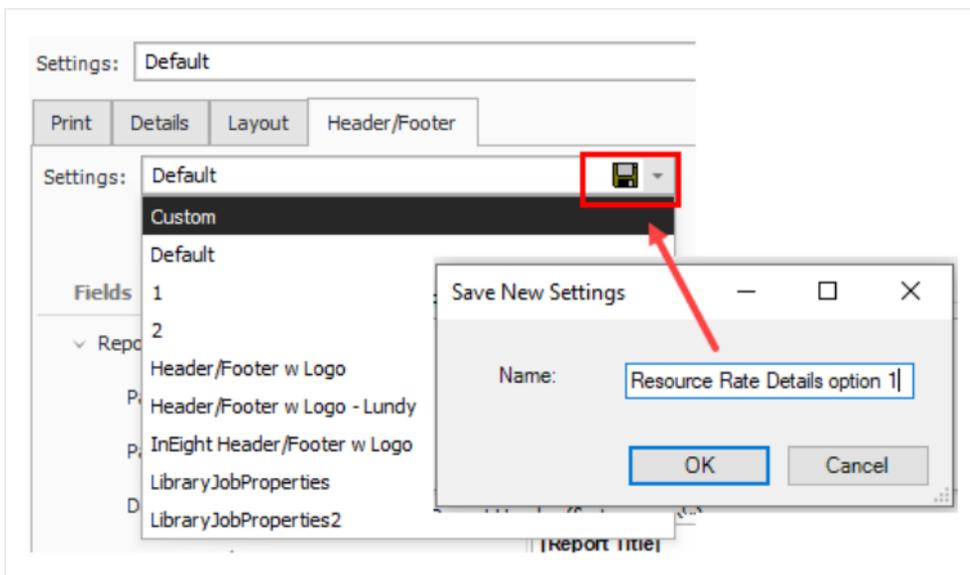
Additional tag values such as contract numbers, work order numbers, PO numbers, company logos, or any other tag fields can also be included. These additions help you customize headers and footers to give the recipients more transparency in the reports.



A Header and Footer field menu exists to the left of the Page Header and Page Footer grid, for all standard reports. This lets you choose which fields from Job Folder Tags and the Cover sheet to include in your report.



You can customize your header and footer layout settings, save them, and re-use them in other reports.



2.1.3.5 Report Detail Settings

Most reports have a Details tab with various options to configure what information is included on the report.

Settings: Default

Print Details Layout Header/Footer

Show the below Pay item details

- Line Number
- Pay Item Number
- Position Code
- Subtotals
- Running Totals
- Suspended Items

Filter by currency: No Filter

Show the below Proposal header items

- Job Code
- Job Description
- Bid Date
- Bid Time
- Job Location
- Job City
- Job County
- Job State
- Job Country

Include Additional Proposal pages

- Cover Sheet
- Preferences Sheet

Unit Price precision

- Truncate values based on decimal precision
- Do not truncate values (show decimal precision)

Term for Document

- Proposal/Bid
- Tender
- Custom

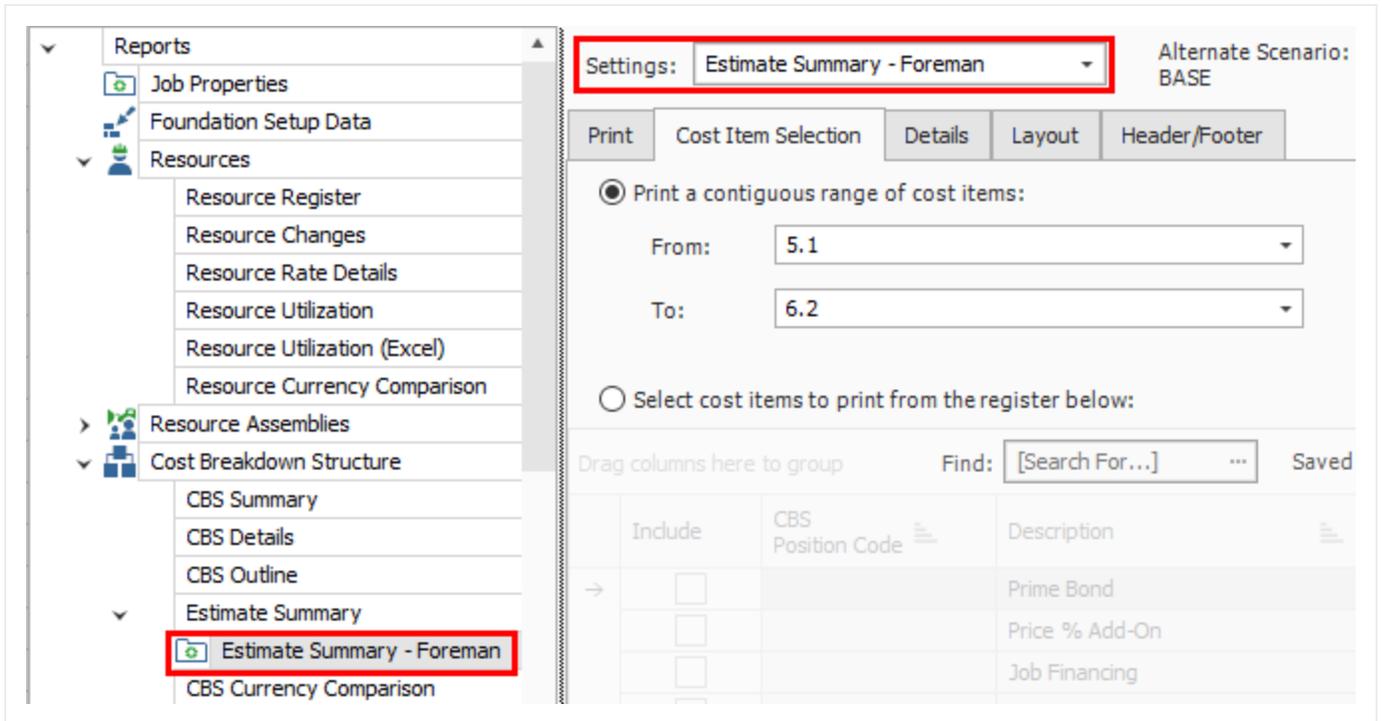
Certification Text: None Custom

Signature Block:

- Submitted By
- Include Signature Line
- Include Title Line
- Include Date Line

2.1.3.6 Save Output Settings

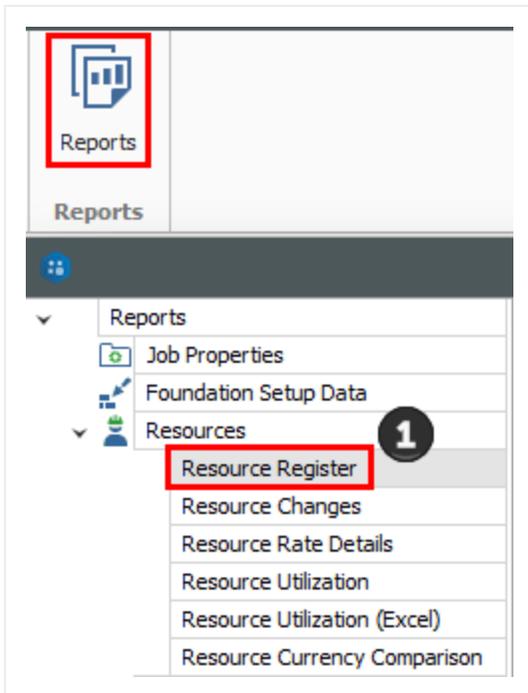
Once you've configured your settings for the report, you can save them as a custom version of that report.



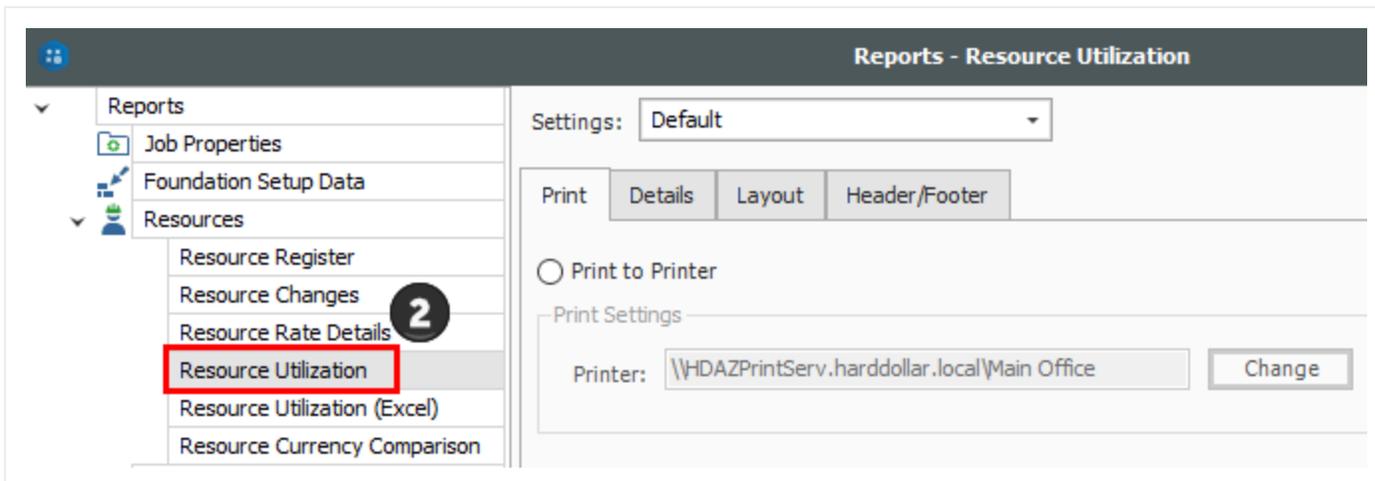
The following steps walk you through configuring the settings and formatting for two different reports.

Step by Step — Configure Report Output Settings (Report 1)

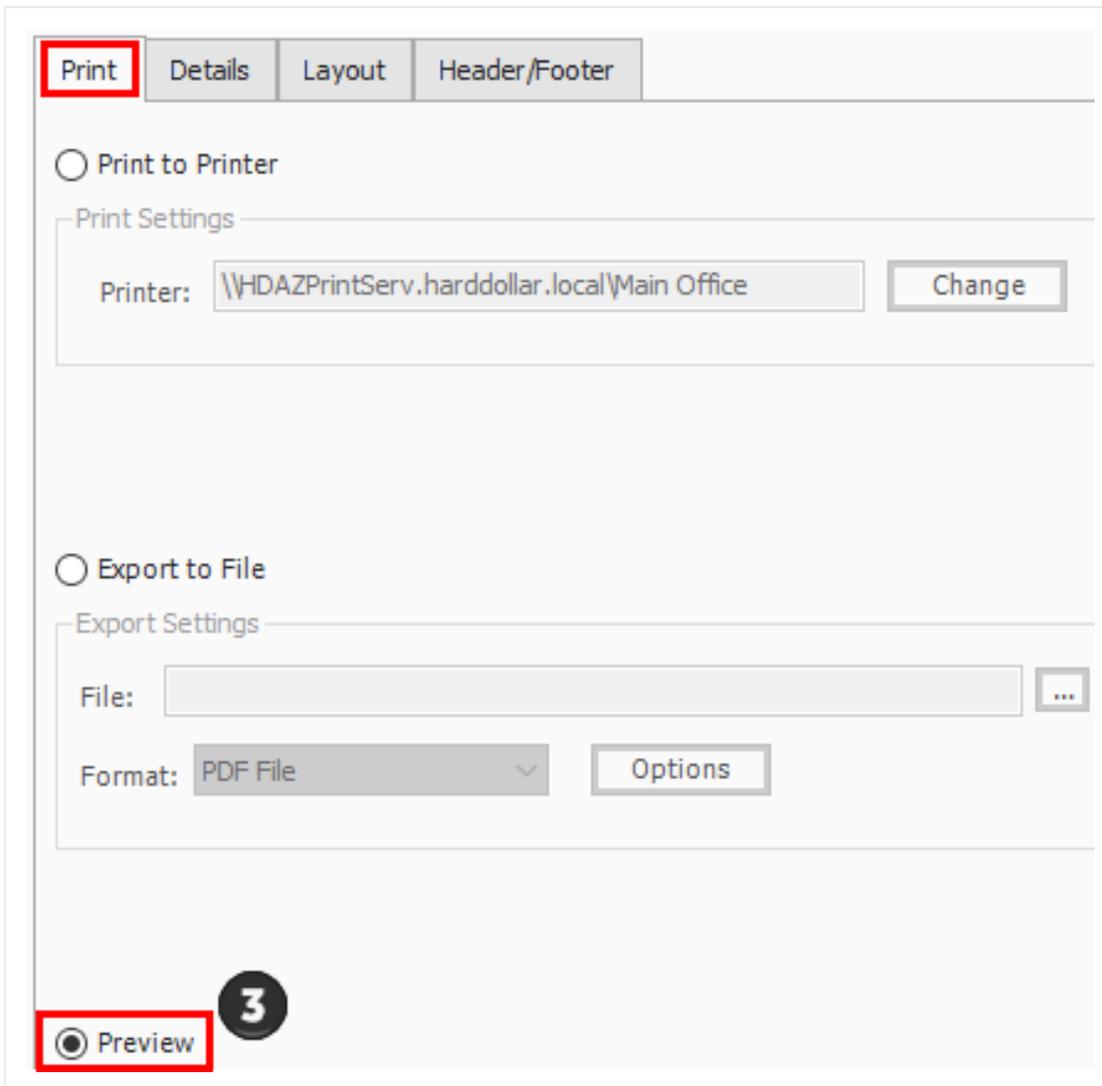
1. Open the **Training Job** and select **Setup >Report>Resources**.



2. Under Resources on the left side bar, select **Resource Utilization**.



- 3. On the Print tab there are three options. A best practice is to always set to **Preview** so you can review before printing.



- 4. On the Layout tab you can make adjustments based on your preferences.

Print Details **Layout** Header/Footer **4**

Settings: Default (Letter, Landscape)

Orientation

Portrait

Landscape

Paper Size: Letter

Font

Header Level 1: Arial Narrow, 8, Bold ...

Detail Level 1: Arial Narrow, 8, Regular ...

Header Level 2: Arial Narrow, 8, Bold ...

Detail Level 2: Arial Narrow, 8, Regular ...

Margins

Top: 0.50

Header: 0.25

Left: 0.50

Right: 0.50

Bottom: 0.50

Footer: 0.25

Number Format

	Decimal Precision	Significant Figures
Cost summary:	2	<input type="checkbox"/> 1
Unit cost:	2	<input type="checkbox"/> 1
Quantity:	2	<input type="checkbox"/> 1
Percent:	2	<input type="checkbox"/> 1

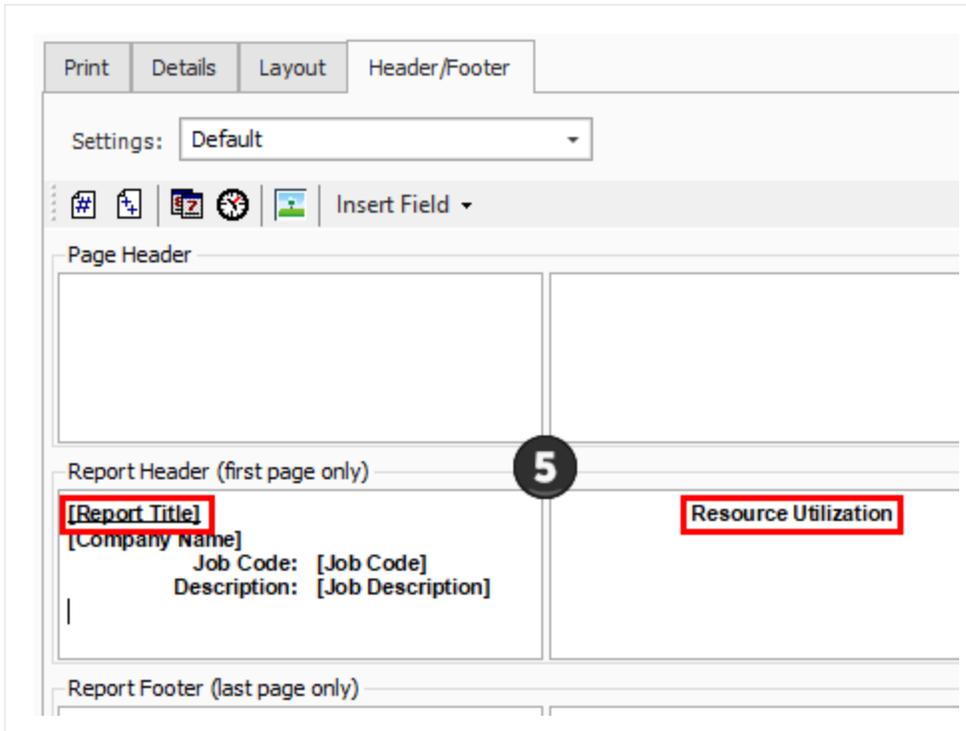
Use thousands separator

Use currency symbol

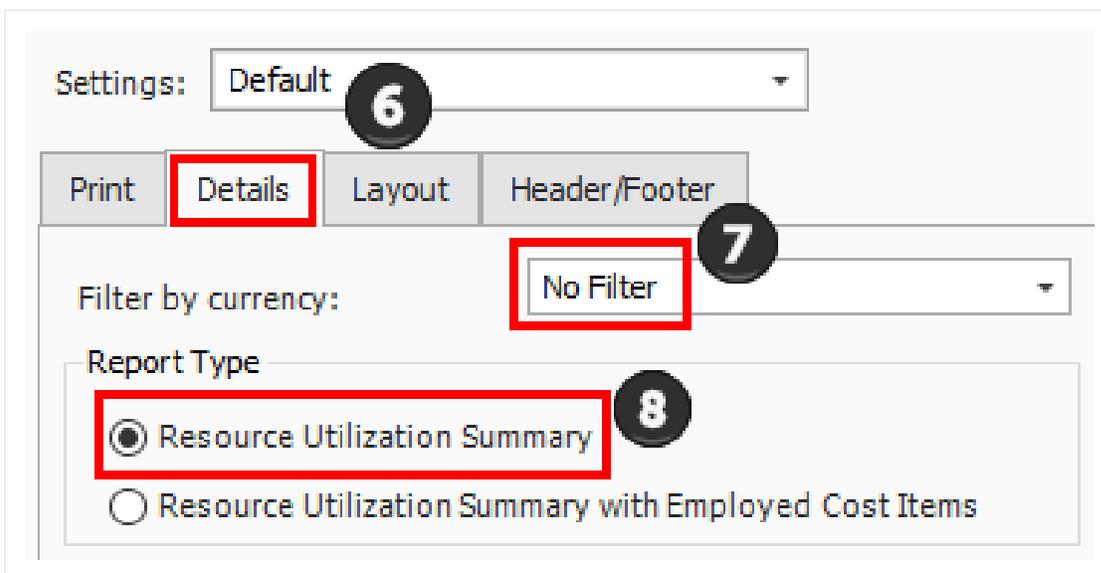
Show zero values as blank

Currency: As-Entered

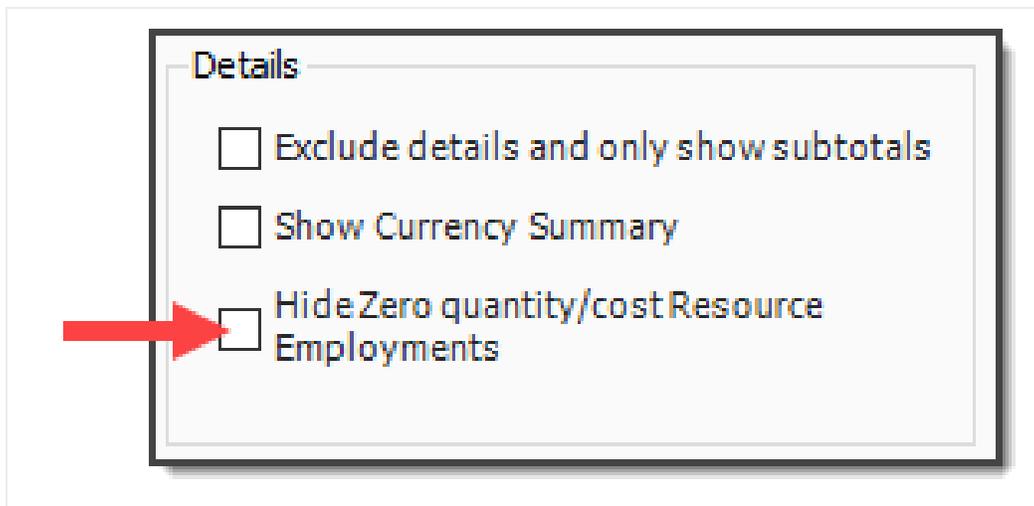
5. Move to the Header / Footer tab. Remove the default **Report Title** from the first page Header only and enter **Resource Utilization** in the center Report Header box as a title that will appear on the first page only.



- 6. Go to the **Details** tab, and you can see the details and options you can select to customize and adjust the report.
- 7. For this navigation, you will not Filter by currency; leave the selection as **No Filter**.
- 8. Under Report Type, choose the first option, **Resource Utilization Summary**.



- You can choose to select the Hide Zero quantity/cost Resources Employments Details box if you prefer to have your printed report not show any resources that have a dollar value of zero

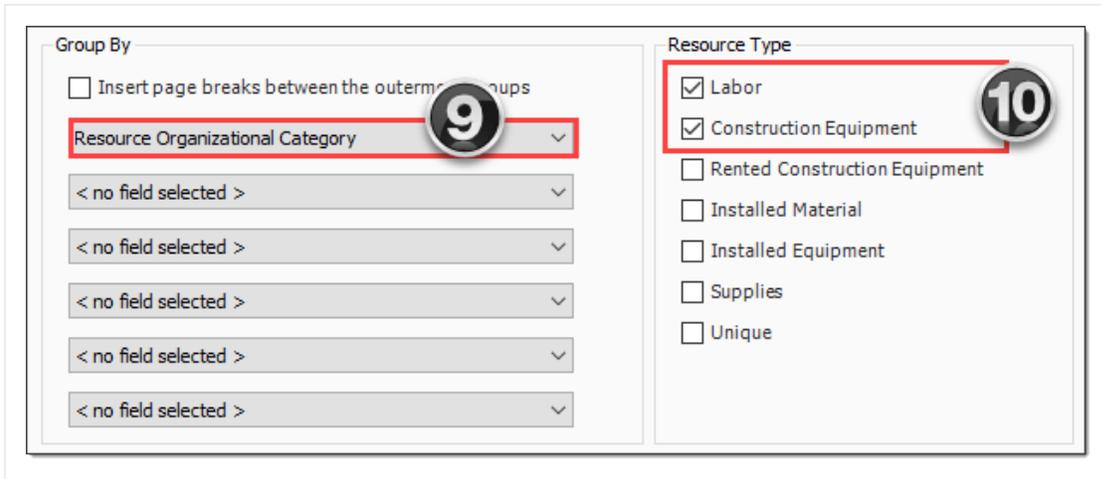


- You can choose if you want the report at a summary level, or if you want it to reference your cost items when you are looking at a resource
- If you choose Resource Utilization Summary with Employed Cost Items, it adds CBS position to the structure of the report
- You would select this if you wanted to see cost items and resources by the cost item

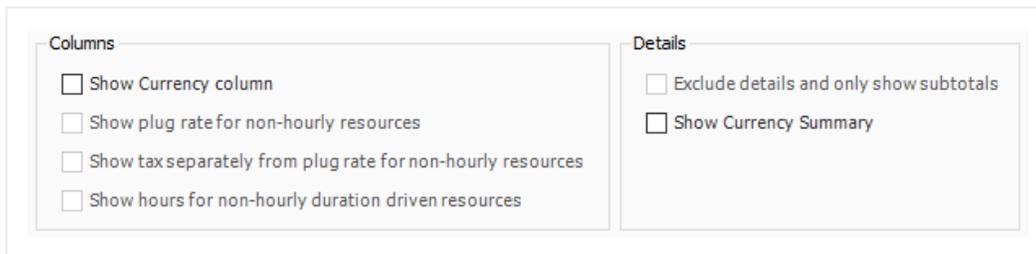
TIP

The Details settings are “sticky” features, meaning they default to what was selected the last time.

9. You can use grouping to group by different tags and user-defined fields. Most of them are related to the Resource Rate Register, for example: Geographic Area, Organizational Category, Wage Zone, etc. For this example, group by **Resource Organizational Category**.
10. Next, you can choose the resources you want to see. For this example, select the **Labor** and **Construction Equipment** Resource Types.



- For this example, you will not make any selections under Columns or Details



- This is just one of many ways to organize and adjust your report.

11. Click **Run** to run the report.

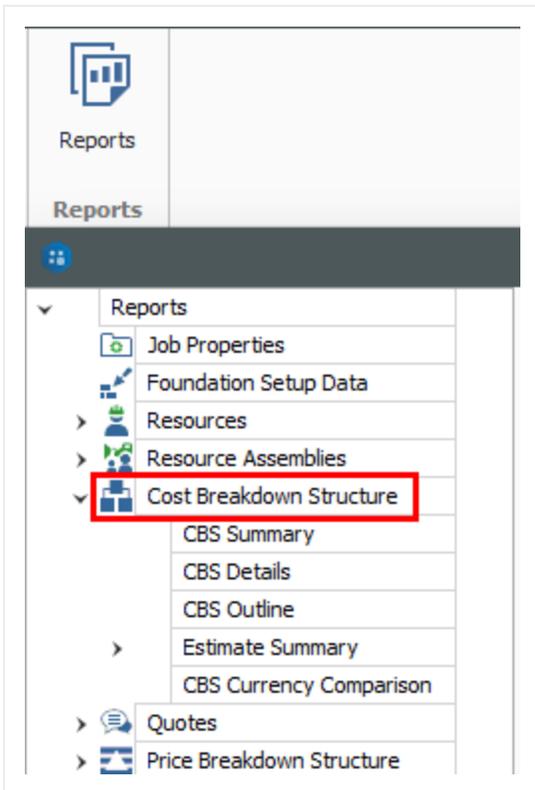
- This report can be helpful for seeing your utilization hours, broken down by regular time and overtime hours

12. Click the red **X** to close this page and open the Construction Equipment page.

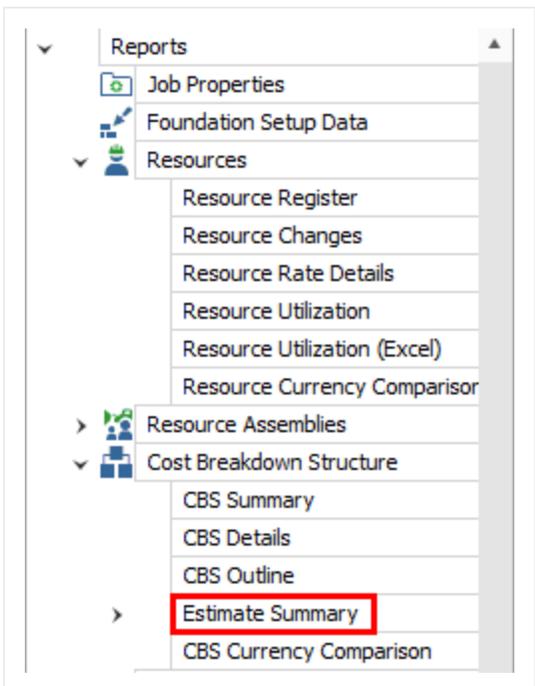
13. Click the red **X** to close the Construction Equipment report.

Step by Step — Configure Report Output Settings (Report 2)

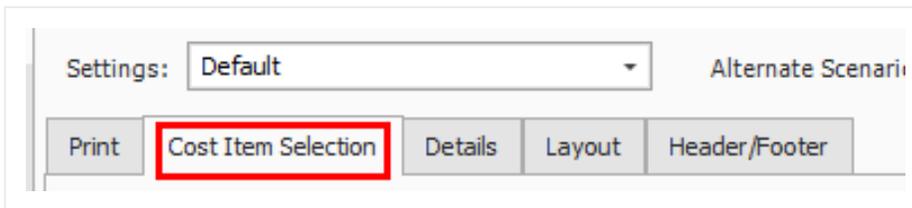
1. Open the **Training Job** and select **Setup >Reports**, then expand the **Cost Breakdown Structure** node.



2. Under Cost Breakdown Structure on the left side bar, select **Estimate Summary**.



3. Along with the Print, Details, Layout, and Header / Footer tabs, there is an additional tab called **Cost Item Selection**. Select this tab.



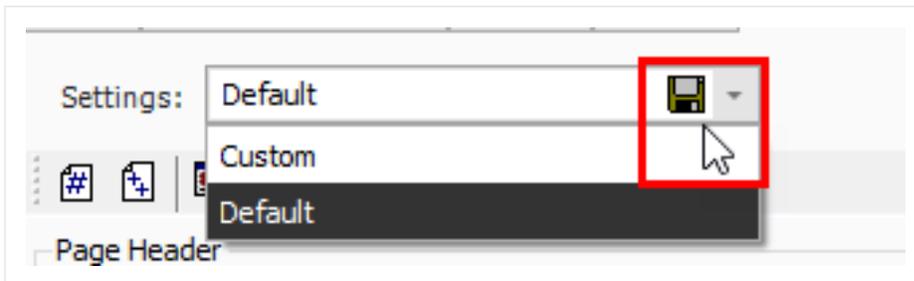
4. The Cost Item Selection tab allows you to report on a selection of cost items:
 - Print a contiguous range of cost items: Allows you to print a series of cost items in a row. In this case, print just items: select 4.1 in the From field and 4.3.2 in the To field.
 - Select cost items to print from the register below: Allows you to use column filters to select the cost items to include in the report; leave this button unselected.
5. You can roll up your cost items to a certain CBS level for the report as well, depending on the level of detail you need.
6. On the **Details** tab, select **Days** for Cost item production field 1, and **Man-Hours / UM** for Cost item production field 2 (this report allows you to report on two production values).
7. Under **Resource Types**, uncheck all of the boxes except **Labor**, **ConstructionEquipment**, and **Installed Material**.

8. Leave the rest of the settings at their defaults, then select the **Header / Footer** tab.
9. In the center **Page Footer** field delete the existing text, then type **Confidential –Internal Use Only**.

10. To save the settings you’ve configured, click on the **Settings** drop-down arrow above the output setting tabs.

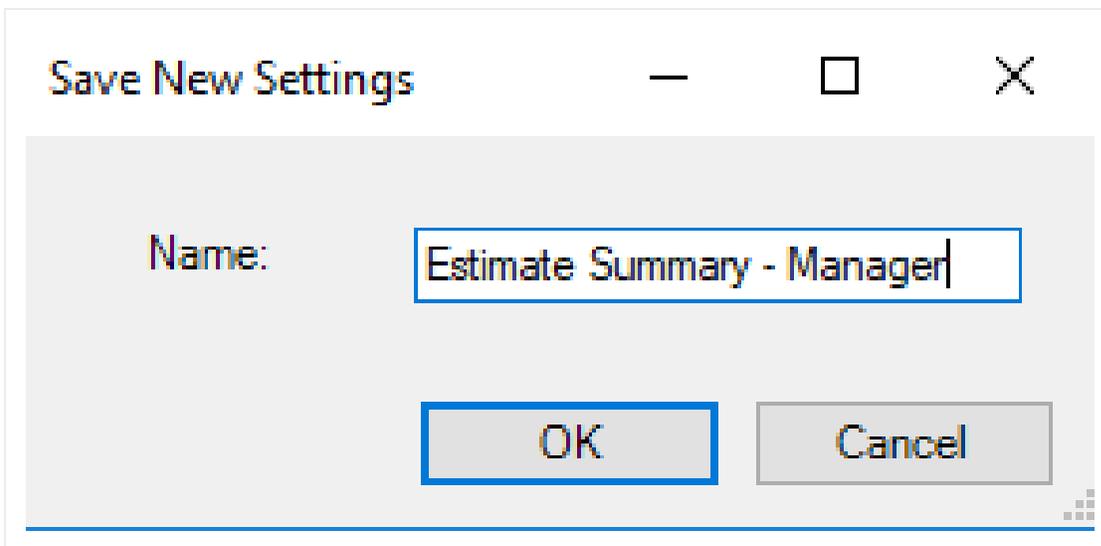


11. Select the **Save disk**  icon to save the new settings.

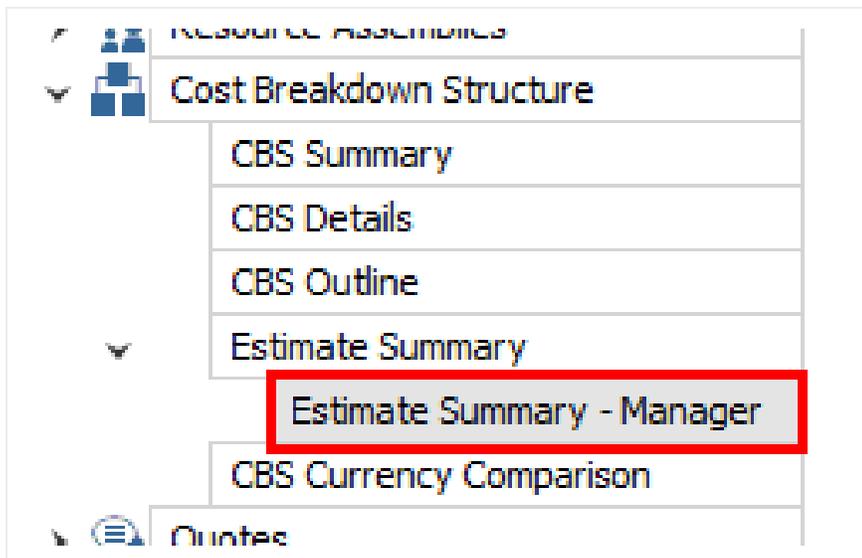


12. Type **Estimate Summary – Manager**.

13. Click **OK**.



- Notice that a custom version of the report now displays under Estimate Summary on the Reports tree on the left



2.1.4 Helpful Reports

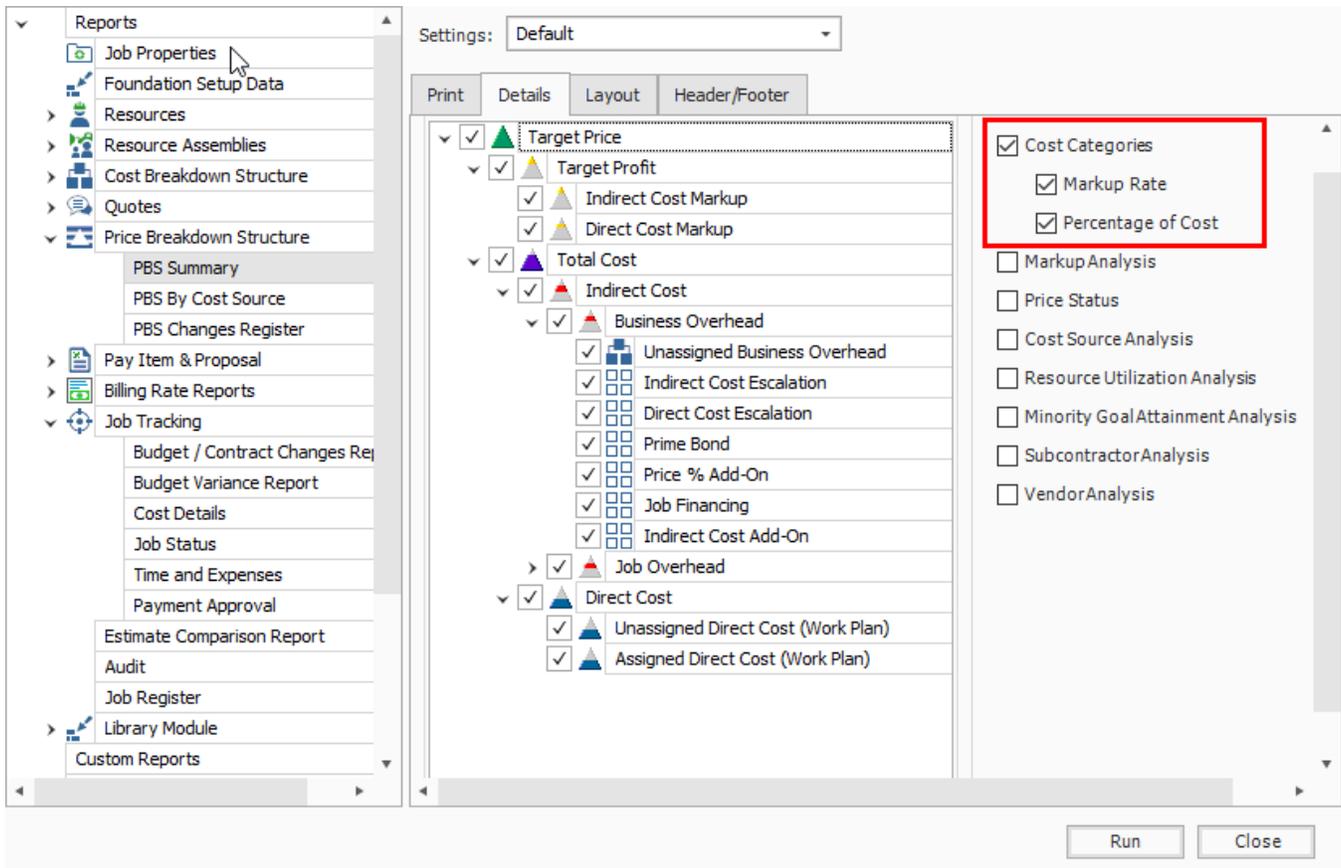
2.1.4.7 PBS Summary

Under the Price Breakdown Structure Report node, the PBS Summary Report gives a good overview of how your price breaks down by cost category. This provides a high-level overview that is cost category driven, providing information based on the total value of the project.

When selecting your settings on the Details tab, a best practice is to select and include:

- Cost Categories
- Markup Rate
- Percentage of Cost

This allows you to see your costs and markup broken out by cost category.



TIP You can also select to show markup rate and what percentage the markup is of your cost.

2.1.5 Standard Proposal

Located under the Pay Item & Proposal report node, the Standard Proposal report can be used for contractors required to submit a pricing proposal to a client. It lists all the pay items with the client provided quantities and your final pricing. You can include subtotals (defined on the Pay Item & Proposal Register), cover sheet information, and a signature block.

Proposal
ACME Company
Job Code: Training Job
Description: Training Job - Maricopa County No. TM2924

				Proposal			
Position Code	Line No.	Pay Item No.	Description	Quantity	Unit of Measure	Unit Price	Total Price
			Subtotal Description				
1	22	200	SITWORK & ROADWAY				3,402,700.00
1.1	10	641 0100	Mobilization	1.00	Lump Sum	395,600	395,600.00
1.2	20	201 0102	Clearing & Grubbing	10.00	Acre	5,900.00	59,000.00
1.3	30	202 0183	Unclassified Excavation	50,000.00	Cubic Yard	5.50	275,000.00
1.4	40	303 5912	Aggregate Base	40,000.00	Ton	26.50	1,060,000.00
1.5	50	303 4263	Asphalt Concrete Hot Mix Type A	38,000.00	Ton	42.45	1,613,100.00
2	18	400	WATER & SEWER				718,550.00
2.1	50	413(B) 0464	36 Inch RCP Culvert Class III	1,000.00	Linear Feet	97.45	97,450.00
2.2	70	800 0220	10 Inch PVC Force Main (SDR21)	12,000.00	Linear Feet	29.50	354,000.00
2.3	90	800 0330	24 Inch PVC Gravity Sewer (SDR35)	3,000.00	Linear Feet	64.50	193,500.00
2.4	90	800 0400	4 Foot Diameter Manhole	16.00	Each	4,600.00	73,600.00

2.1.6 CBS Details

Under the Cost Breakdown Structure report node, the CBS Details report can be a helpful report for bid review. On the Details tab you can include or not include any of the information contained in the CBS Register, including cost items with production, costs by category, shift arrangements, resources, and notes.

Cost Breakdown Structure Details
INEIGHT - PAUL TRIPP
Job Code: Training Job
Description: Training Job - Maricopa County No. TM2924

From Cost Item: 1 To Cost Item: 0.10

CBS Position Code	DI Description	Cost Source	Forecast (FIO)	Quantity	UM	Unit Cost	Total Cost	Unit and Total Costs by Category						
								Labor	Owned Equipment	Rented Equipment	Materials	Supplies	Subcontract	
1	Mobilization	Detail	1.00	Lump Sum		11,909.51	11,909.51	2,449.51	8,960.00	0.00	0.00	0.00	0.00	0.00
<p>Note: There are 10 loads. Figure Mob in only. The next job will pick up the Mob out.</p> <p>Added \$500 Contingency Allowance in case extra permits are required</p> <p>Pay Item Assignment: 541 0100 (Mobilization)</p> <p>Default Properties: Account Code 1020 Cost Curve Linear Tag 1 Estimator 1 Tag 2 Robstay Tag 3 Tag 4 Tag 5</p> <p>Optional Code 641 0100 Phase Code Owner's City 1.00 Quote Group Quantity Driver Pay Item Minority Allow 100.00% WC Override</p> <p>Default Pay Rules: Wage Scale 1 100.00 Wage Scale 2 0.00 Wage Scale 3 0.00 Resource Work Hrs 8.00 Resource Pay Hrs 8.00 Default Shift Arrangements Work Hrs/Shift 8.00 Shifts/Day 1.00 Days/Week 5.00</p> <p>Production:</p> <p>Duration: Days 10.00 Shifts 10.00 Hours 80.00 Man-Hours 80.00 Equip-Hours 180.00 Cost / Duration Cost/Day 1,190.95 Cost/Shift 149.87 Cost/Hour 149.87 Cost/Man-Hr 74.43 Cost/Equip-Hr 74.43</p> <p>UM / Duration: UM/Day 0.10 UM/Shift 0.10 UM/Hour 0.01 UM/Man-Hr 0.01 UM/Equip-Hr 0.01 Duration / UM Days/UM 10.00 Shifts/UM 10.00 Hours/UM 80.00 Man-Hrs/UM 80.00 Equip-Hrs/UM 180.00</p>														
Resource Code	Description	Quantity	Pay Hours	UM	Unit Cost	Total Cost	Unit and Total Costs by Category							
	Assembly	Cost Driver	Account Code				Tag 1	Tag 2	Tag 3	Workers Comp %				

2.1.7 Audit

Under the Job Tracking node, the Audit Report is a very important report to run during estimate review to make sure you didn't leave anything out of the estimate. It checks for a number of potential errors in the estimate, including:

- Zero Price Pay Items
- Zero-value cost items
- Pay items without Cost Items assigned
- Resources with a quantity of zero

Exercise 2.1 – Run a System Report

You can adjust InEight Estimate system reports to report on the particular information you need. Complete the following steps to configure and run the Pay Item Summary report, using the Training Job:

1. From the Reports window, expand the **Pay Item & Proposal** report node.

2. On the Reports tree, select **Pay Item Summary**.

3. On the Details tab, select a **Pay Item Range from 303 4263 – 800 0220**.

4. Choose to **Include Assigned Cost Items**.

5. Show Costs As: **Unit**.

6. Include **Profit Analysis** columns and **Include Pay Item Price** columns

7. Run the report.

You should end up with the following results

ABC Contractors
Job Code: Training Job
Description: Training Job - Maricopa County No. TM2924

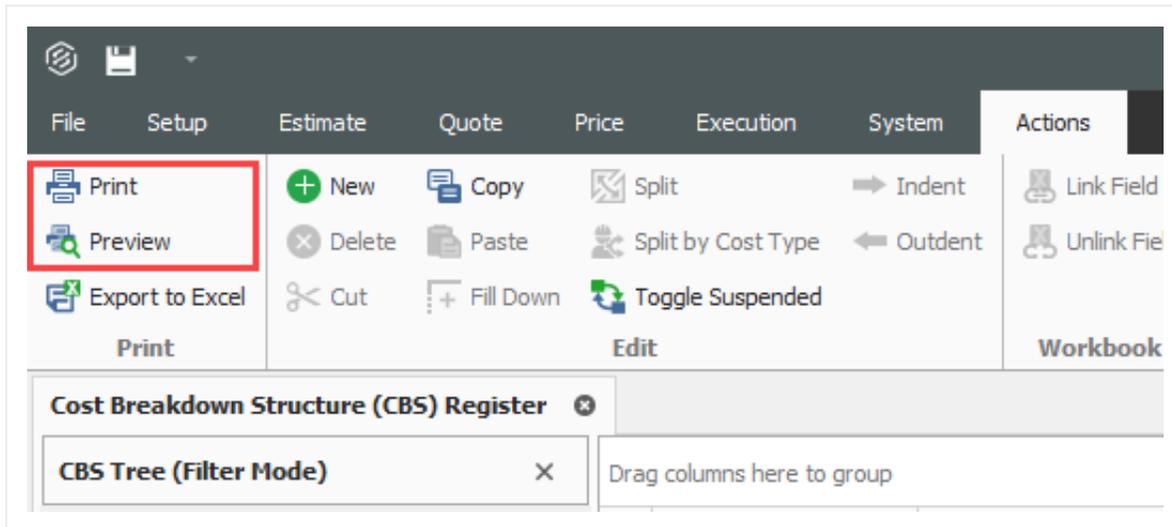
From Item: 303 4263 To Item: 800 0220

Pay/Coast Item			Unit Cost by Category								
Code	Description	Quantity UM	Assigned Direct Cost	Labor	Owned Equipment	Rented Equipment	Materials	Supplies	Subcontract	Fees	Allowance
303 4263	Asphalt Concrete Hot Mix Type A	38,000.00 Ton	42.62	3.11	6.43	0.00	31.50	0.00	0.00	1.58	0.00
	5 Asphalt Concrete Hot Mix Type A	38,000.00 Ton	1,619,430.35	3.11	6.43	0.00	31.50	0.00	0.00	1.58	0.00
	5.1 Furnish & Haul Hot Mix	38,000.00 Ton	1,492,382.18	1.43	4.77	0.00	31.50	0.00	0.00	1.58	0.00
	5.2 Install Hot Mix Type A	38,000.00 Ton	127,048.17	1.68	1.66	0.00	0.00	0.00	0.00	0.00	0.00
413(B) 0464	36 Inch RCP Culvert Class III	1,000.00 Linear Feet	66.42	19.60	13.48	0.93	30.82	0.00	0.00	1.59	0.00
	6 36 Inch RCP Culvert Class III	1,000.00 Linear Feet	66,416.79	19.60	13.48	0.93	30.82	0.00	0.00	1.59	0.00
	6.1 Furnish RCP Materials	1,000.00 Linear Feet	32,361.33	0.00	0.00	0.00	30.82	0.00	0.00	1.54	0.00
	6.2 Excavate RCP Trench	1,615.00 Cubic Yard	8,163.20	4.85	3.34	0.00	0.00	0.00	0.00	0.00	0.00
	6.3 Install RCP Pipe	1,000.00 Linear Feet	11,735.94	6.45	5.29	0.00	0.00	0.00	0.00	0.00	0.00
	6.4 Backfill RCP Pipe	1,550.00 Cubic Yard	14,136.32	8.31	4.86	0.93	0.00	0.00	0.00	0.05	0.00
	SUBTOTAL: SITEWORK & ROADWAY		1,685,847.14	137,694.00	257,768.56	926.90	1,227,620.31	0.00	0.00	61,437.36	0.00
800 0220	10 Inch PVC Force Main (SDR21)	12,000.00 Linear Feet	22.51	4.56	4.72	0.00	12.60	0.00	0.00	0.63	0.00
	7 10 Inch PVC Force Main (SDR21)	12,000.00 Linear Feet	270,163.37	4.56	4.72	0.00	12.60	0.00	0.00	0.63	0.00
	7.1 Furnish 10 Inch PVC Materials	12,000.00 Linear Feet	158,760.00	0.00	0.00	0.00	12.60	0.00	0.00	0.63	0.00
	7.2 Excavate-Install-Backfill 10 Inch PVC	12,000.00 Linear Feet	111,403.37	4.56	4.72	0.00	0.00	0.00	0.00	0.00	0.00
	Extended Totals By Category		1,956,010.51	192,599.77	314,486.16	926.90	1,379,020.31	0.00	0.00	68,997.36	0.00

Congratulations, you have completed this exercise!

2.2 REGISTER REPORTS

At any time, you can print a report of the data in the currently displayed register using the Print or Preview option available from the Actions tab for the register you are in.



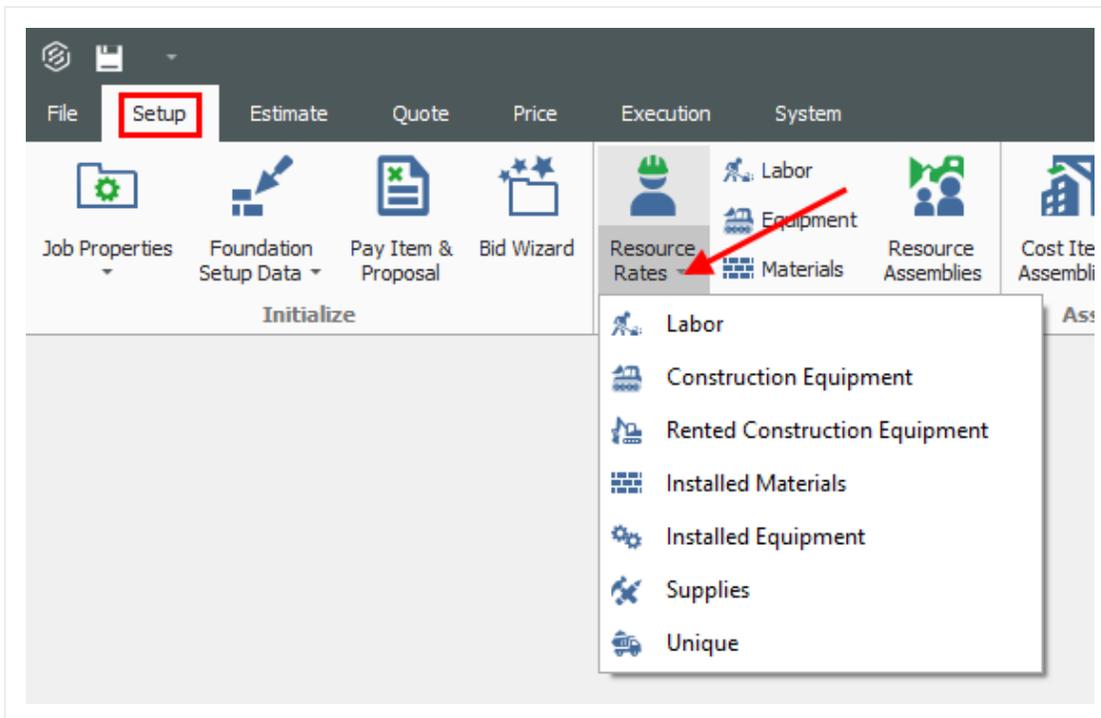
The data that prints is the data currently displayed on the register form. The report will print whatever columns are displayed on the register; if you have customized the display in the register, the report prints that data. In other words, register reports are entirely customizable.

By creating Saved Views, you can report the data on a register form in several different variations.

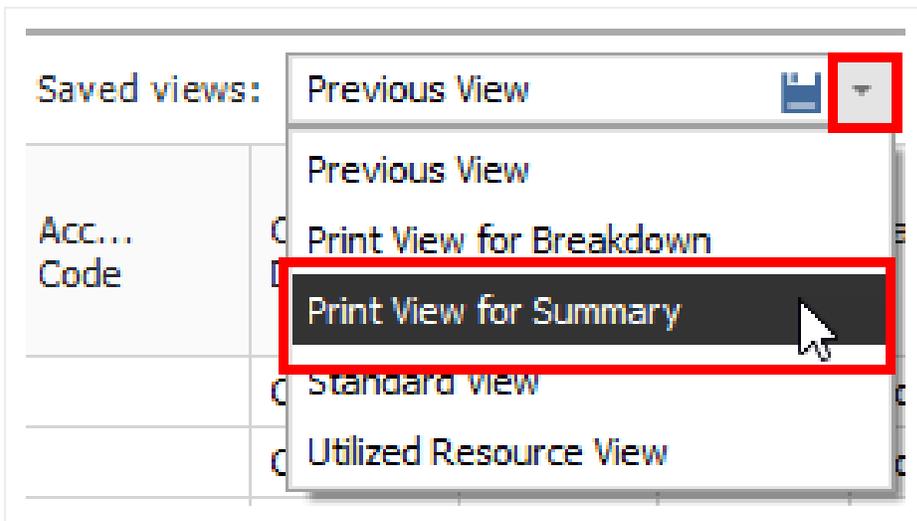
The following step by step example will walk you through creating a custom register report on resource utilization and saving it as a Saved View.

Step by Step — Create a Register Report

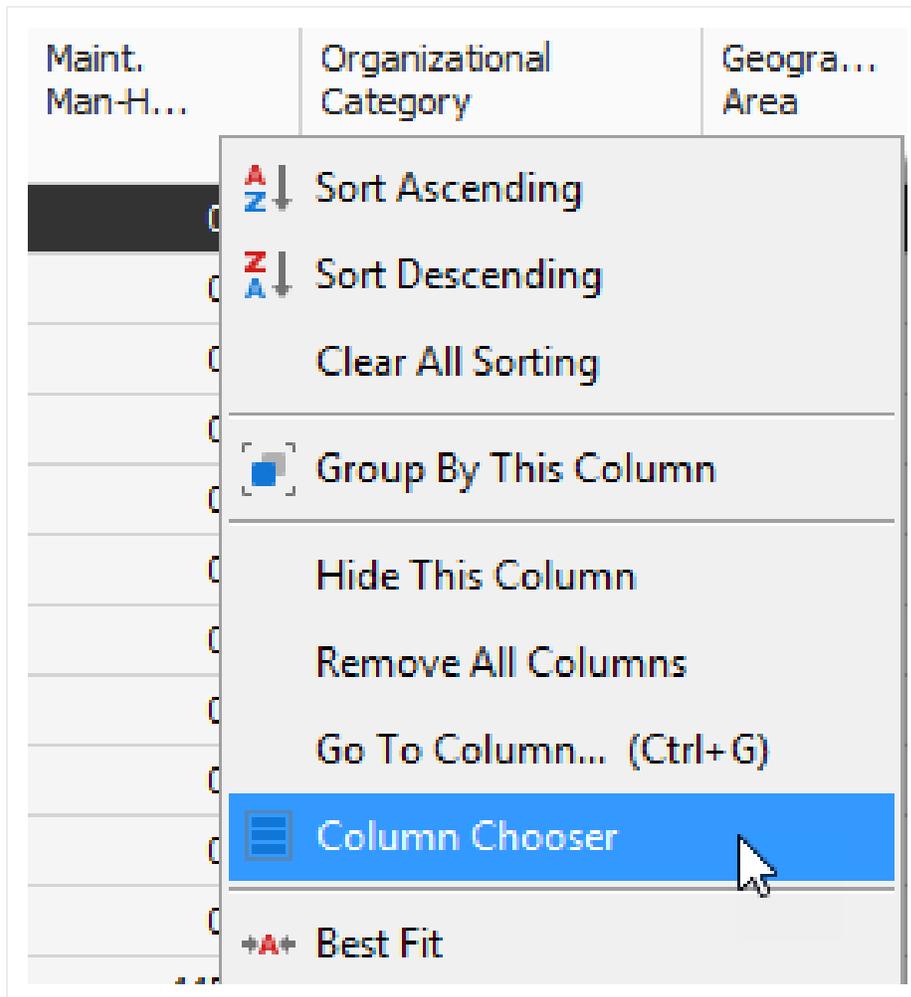
1. Open the **Training Job** and select **Setup** tab, then select the **Resource Rates** drop-down list.



2. From the drop-down list, select **Labor**.
3. From your Saved Views drop down menu on the Resource Rate Register, select the **Print View for Summary** view.



- 4. Notice this view includes utilization hours
- 5. Right-click on a column header and select **Column Chooser**.



6. From the Customization window, drag-and-drop the **Minority Percent, Unique Sales Tax, (Scale 2)**, and **Maint. Man-Hour Factor** columns into the register.
7. Close the Customize window.
8. Sort the **Utilization Count** column by clicking on the column header twice so that you see the bars descending.

- This sorts your items so the most utilized resources are at the top

Resource Code	Utilization Count	Maint. Man-H...	Organizational Category
+ LL2	8,946.59	0.00	Laborer
+ LO2	4,734.02	0.00	Operator
+ LT1	3,611.05	0.00	Truck Driver - Team...
+ LO1	1,640.00	0.00	Operator
+ LO4	1,484.63	0.00	Operator
+ LC2	1,188.73	0.00	Carpenter
+ LO3	889.33	0.00	Operator
+ LSSUPT	800.00	0.00	Supervision
+ LSSEC	800.00	0.00	Supervision
+ LSPE	800.00	0.00	Supervision
+ LL3	721.33	0.00	Laborer
+ LIW1	594.37	0.00	Iron Worker

9. Click on the **Saved Views** drop-down menu and select the **Save disc**  icon to save the view.
10. Name the view **Labor Utilization View**, and then click **OK** to save the customized view.
11. From the **Actions** menu, select **Preview** to review the report before printing.

Labor Register						
INEIGHT - PAUL TRIPPI						
E101 - Training Job KL--Sample Training Job						
Resource Code	Description	Utilization Count	Unit of Measure	Unique Sales Tax	Minority Percent	Maint. Man-Hour Factor
LO1	Operator Class 1	680.00	Hour	0.00	0.00	0.00
LL2	Laborer	590.00	Hour	0.00	0.00	0.00
LSSUPT	Project Superintendent	560.00	Hour	0.00	0.00	0.00
LSSEC	Secretary	560.00	Hour	0.00	0.00	0.00
LO3	Operator Class 3	220.00	Hour	0.00	0.00	0.00
LL3	Labor Foreman	200.00	Hour	0.00	0.00	0.00
LO4	Operator Foreman	110.00	Hour	0.00	0.00	0.00
LT1	Teamster	100.00	Hour	0.00	0.00	0.00

2.2.1 Register Report Output Settings

Within the Preview for a register report, there are several options to choose from to configure the output of your report.

2.2.1.1 Page Setup

While in the Preview mode, selecting **File > Page Setup** provides setup options for the page format:

- Page Size (legal, letter, etc.)
- Paper Width & Height
- Orientation (portrait or landscape)
- Page Margins (left, right, top, bottom)

2.2.1.2 Exporting to Document

Using the Export function allows you to identify a Print range, Image quality, Password Security, and more. Selecting **File > Export Document** prints an Adobe Acrobat (*.pdf) report.

Exercise 2.2 – Create a Custom Register Report

You can configure the columns in your registers for reporting and run your own custom reports. Complete the following steps to configure and run a report from the CBS Register, using the Training Job:

1. Select **Estimate>Cost Breakdown Structure (CBS)**.

2. Under Saved Views, Select **CBS Simple View**.

3. Hide the **Optional Code** column.

4. Add back in the **Man-Hours (Total)** and **Man-Hours / UM** columns.

5. Now add back in the **Labor Total Cost, Owned Equipment Total Cost, and Materials Total Cost** categories for reviewing the estimate.

6. Save the View (create your own name for the view).

7. Select **Preview** to view the report.

You should end up with the following results

Cost Breakdown Structure (CBS) Register

ABC Contracting Inc
Training Job--Training Job - Maricopa County No. TM2924

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Man-Hours (Total)	Unit Cost	Labor Total Cost	Total Cost (Forecast)	Man-Hours total incl. Maintenance	Owned Equipment Total	Man-Hours/UM	Materials Total Cost	Currency
	JOB	20.00	Mile	27,993.15	\$306,883.14	\$907,442.76	\$6,137,662.81	28,438.44	\$1,062,750.40		\$3,393,700.70	U.S. Dollar
	Prime Bond	1.00	Lump Sum		\$48,686.14	\$0.00	\$48,686.14		\$0.00		\$0.00	U.S. Dollar
	Price % Add-On	1.00	Lump Sum		\$309,475.27	\$0.00	\$309,475.27		\$0.00		\$0.00	U.S. Dollar
	Job Financing	1.00	Lump Sum		\$0.00	\$0.00	\$0.00		\$0.00		\$0.00	U.S. Dollar
	Indirect Cost Escalation	1.00	Lump Sum		\$0.00	\$0.00	\$0.00		\$0.00		\$0.00	U.S. Dollar
	Direct Cost Escalation	1.00	Lump Sum		\$11,026.79	\$12,026.79	\$11,026.79		\$0.00		(\$1,000.00)	U.S. Dollar
	Indirect Cost Add-On	1.00	Lump Sum		\$0.00	\$0.00	\$0.00		\$0.00		\$0.00	U.S. Dollar
	Job Management & Equipment	1.00	Lump Sum	2,400.00	\$157,096.28	\$91,176.28	\$157,096.28	2,400.00	\$65,920.00	2,400.00	\$0.00	U.S. Dollar
	General Expense	1.00	Lump Sum	0.00	\$4,200.00	\$0.00	\$4,200.00	0.00	\$0.00	0.00	\$0.00	U.S. Dollar
	Direct Cost Add-On	1.00	Lump Sum		\$109,544.08	\$15,676.56	\$109,544.08		\$19,450.89		\$66,546.70	U.S. Dollar
1	Mobilization	1.00	Lump Sum	0.00	\$75,000.00	\$50,000.00	\$75,000.00	0.00	\$0.00	0.00	\$25,000.00	U.S. Dollar
2	Clearing & Grubbing	10.00	Acre	0.00	\$0.00	\$0.00	\$0.00	0.00	\$0.00	0.00	\$0.00	U.S. Dollar
3	Unclassified Excavation	50,000.00	Cubic Yard	3,964.29	\$9.95	\$110,467.00	\$497,466.56	4,115.48	\$302,999.56	0.08	\$0.00	U.S. Dollar
3.1	Excavation, scrapers	50,000.00	Cubic Yard	1,250.00	\$3.00	\$33,170.48	\$149,922.88	1,325.00	\$116,752.40	0.03	\$0.00	U.S. Dollar

Congratulations, you have completed this exercise!

Lesson 2 Review

1. The _____ Report gives a good overview of how your price breakdowns by cost category.
 - a. Estimate Summary
 - b. PBS Summary
 - c. Audit

2. The _____ Report is a very important report to run during bid review to make sure you didn't leave anything out of the estimate.
 - a. CBS Details
 - b. Audit
 - c. Pay Item Summary

3. A best practice is to always set your Print output setting to **Preview** so you can review before printing.
 - a. True
 - b. False

Lesson 2 Summary

As a result of this lesson, you can:

- Run reports from the Report menu
- Create and run reports from register forms

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LESSON 3 – DATA REPRODUCTION

Lesson Duration: 20 Minutes

Lesson Objectives

After completing this lesson, you will be able to:

- Create a job from an existing job or template
- Create a template
- Reproduce estimate data using the Bid Wizard
- Reproduce estimate data using copy/paste
- Add cost items to a job using the CBS Bid Wizard
- Utilize the Snapshot function

Lesson Topics

3.1 COPY AN EXISTING JOB

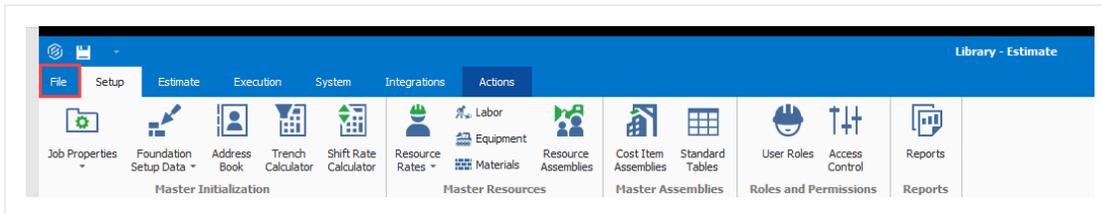
As you build an estimate, you may want to reuse pay items, cost items, or resources from a previous estimate. When you plan to reuse the majority of content within a job, you can simply make a copy of the existing job.

Using the **Create a new Job from... Existing Job** option on the Backstage View creates an exact replica of the existing job, including the job's properties, pay items, cost items, and resources.

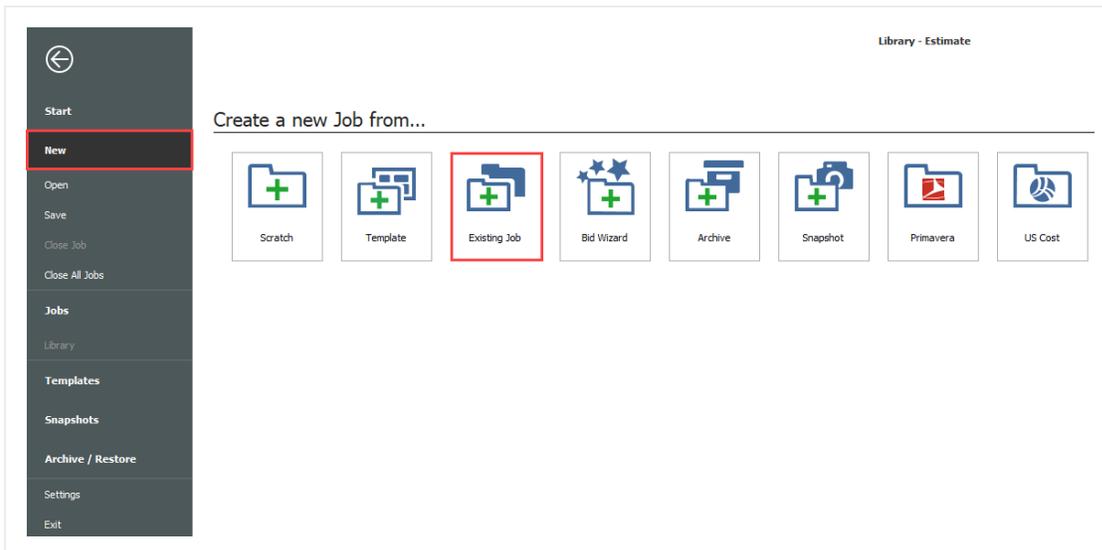
The following Step by Step walks you through how to make a copy of an existing job.

Step by Step — Copy an Existing Job

1. Click the **File** tab on the **Estimate** landing page.

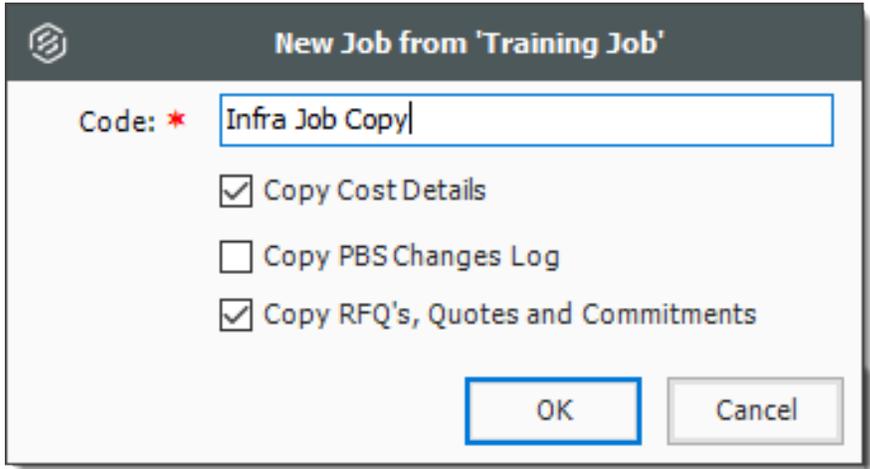


2. From the left side panel, select **New**, then select **Existing Job**.



3. The Job Register displays a list of your existing projects; select the Training Job and click **OK**.

4. On the New Job dialog, in the Code field, type **Infra Job Copy** with your initials.
5. To copy the cost details from the existing job to the new job, verify that the **Copy Cost Details** checkbox is selected
 - If you wanted to copy just the cost item structure without cost details, you would uncheck the box.
6. Uncheck the check for copying the PBS Changes Log.
7. Click **OK** to create the new job.



The screenshot shows a dialog box titled "New Job from 'Training Job'". It has a dark header with a logo on the left. Below the header, there is a "Code: *" field with a red asterisk and a blue border, containing the text "Infra Job Copy". Below the code field are three checkboxes: "Copy Cost Details" (checked), "Copy PBS Changes Log" (unchecked), and "Copy RFQ's, Quotes and Commitments" (checked). At the bottom right, there are two buttons: "OK" and "Cancel".

The new job opens with the Job Properties form active, so you can begin to modify the new job as needed. If you look through the tabs on the Job Properties form, you will find that it looks exactly like the job from which it was copied. Other forms, such as the Pay Item & Proposal Register and the CBS Register, also look the same in both jobs until you make modifications in one job or the other.

This is a very easy method for creating a new job, and it is a good choice if you want to copy an entire job. However, if you want to pick and choose which parts of a job to duplicate, the Bid Wizard is a better choice.

3.2 TEMPLATES

Job Templates provide you the ability to maintain a list of template jobs that can be used to create new jobs. As your company grows and increases the number of projects, the need to standardize the

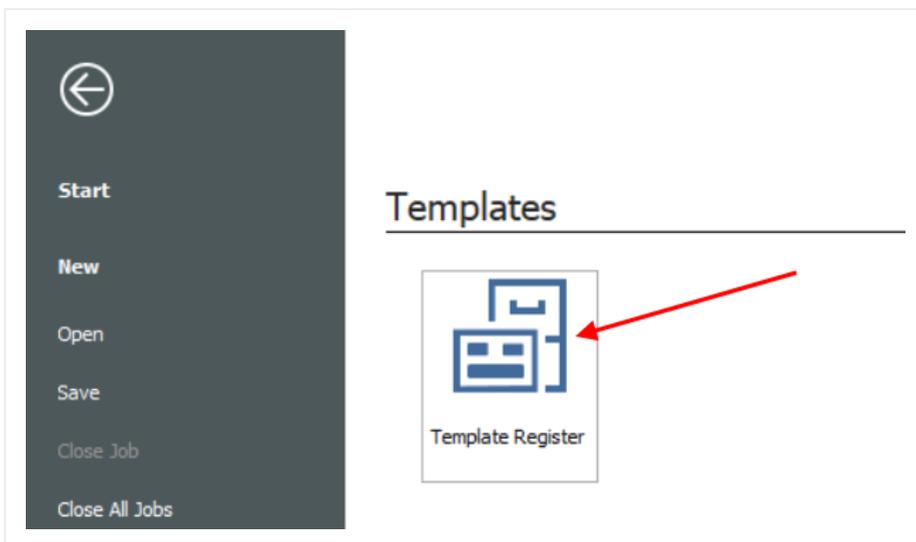
estimating process increases to ensure consistency and reduce the chance of information being overlooked.

In InEight Estimate you can create job folders and store them in a separate register as templates. This allows you to store cost items in master templates separate from the jobs in your Job Register.

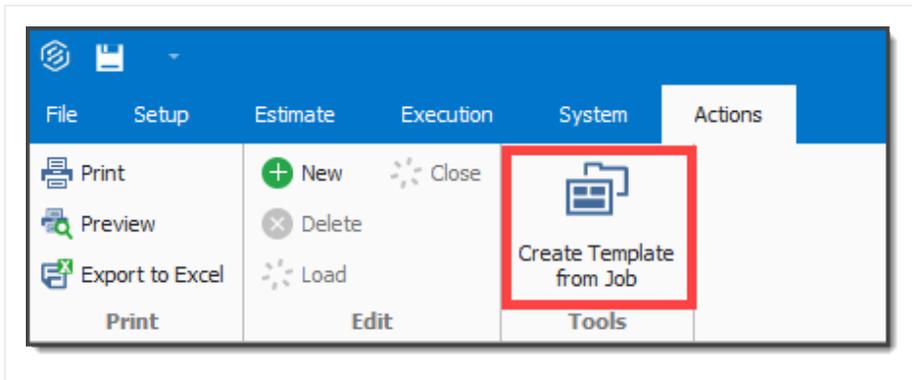
You can create templates from scratch or from existing job folders. The following steps walk you through how to create a new template from an existing job folder.

Step by Step — Create a Template

1. Click the **File** tab on the Estimate landing page.
2. From the left side panel, select **Templates**.
3. Under Templates, select the **Template Register**.

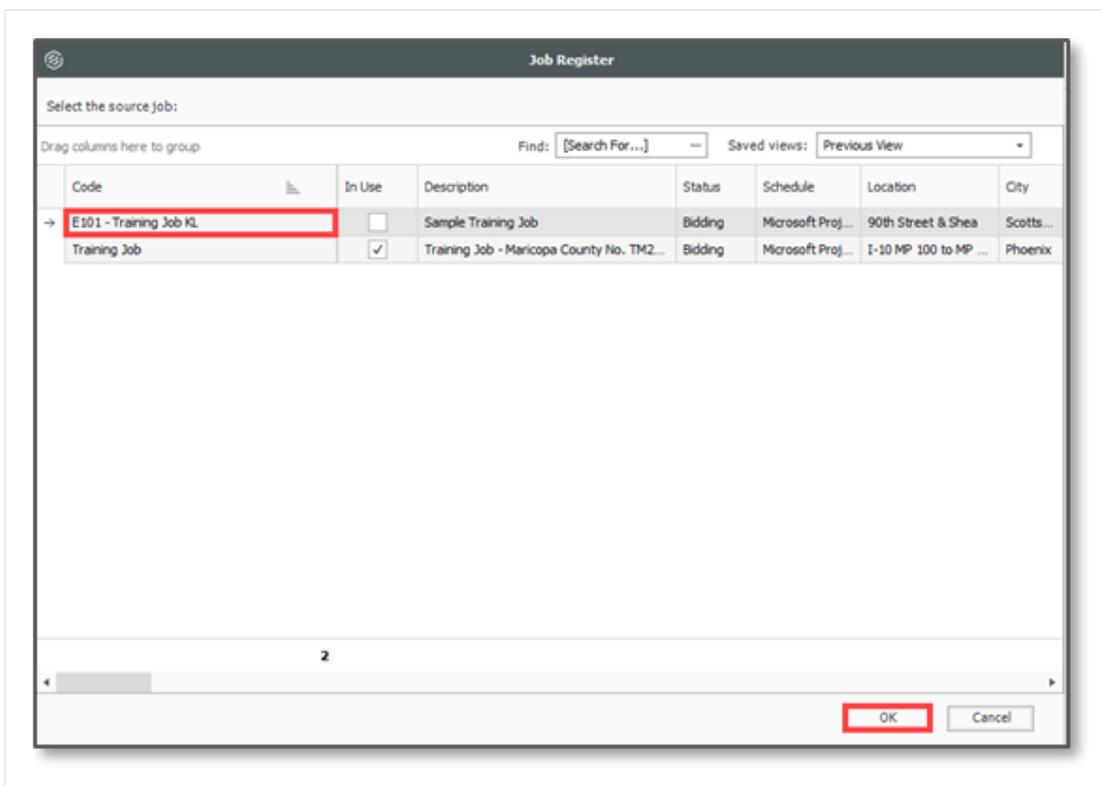


4. From the Actions tab, select **Create Template from Job**.



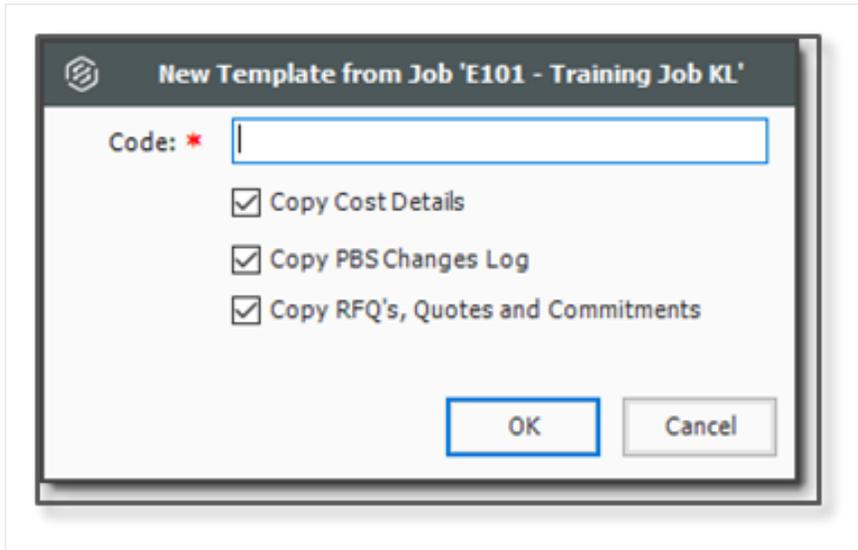
- The Job Register opens for you to select the source job for the template
- Assume that you want to make a template from your E101 Training Job

5. Select the **E101 Training Job with your initials**, then click **OK**.



NOTE You cannot create templates from jobs that are published to Job Tracking.

- A prompt appears to give your new template a Job Code



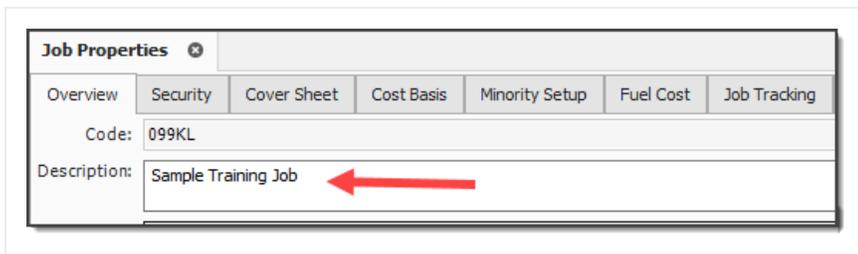
The screenshot shows a dialog box titled "New Template from Job 'E101 - Training Job KL'". It features a "Code:" field with a red asterisk and a blue border. Below the field are three checked checkboxes: "Copy Cost Details", "Copy PBS Changes Log", and "Copy RFQ's, Quotes and Commitments". At the bottom right are "OK" and "Cancel" buttons.

6. In the Code field, type **Small Project Template[your initials]**.

- Leave Copy Cost Details and Copy PBS Changes Log checked

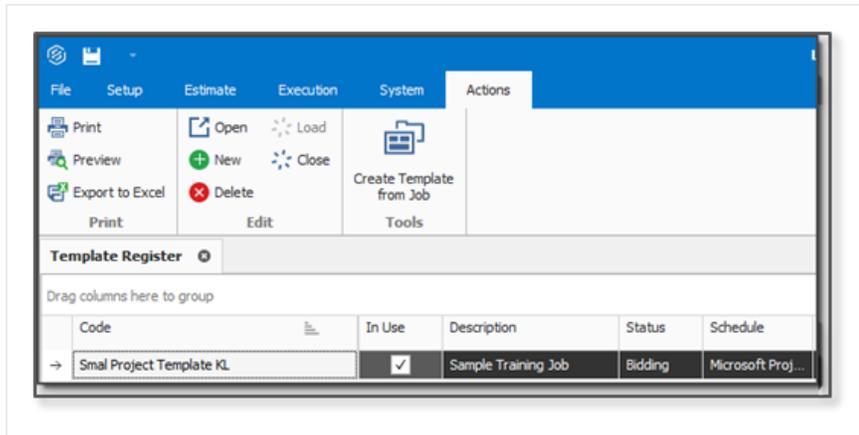
7. Click **OK**.

- The new template is created and opens to the Job Properties form
- You can add the description in addition to the code for any new job you are creating from a template. This description is later added to the Overview tab of the new job on the Job Properties form



The screenshot shows the "Job Properties" form with tabs for Overview, Security, Cover Sheet, Cost Basis, Minority Setup, Fuel Cost, and Job Tracking. The "Code:" field contains "099KL" and the "Description:" field contains "Sample Training Job", with a red arrow pointing to the description text.

- Back in the Templates Register, you can see the new template created



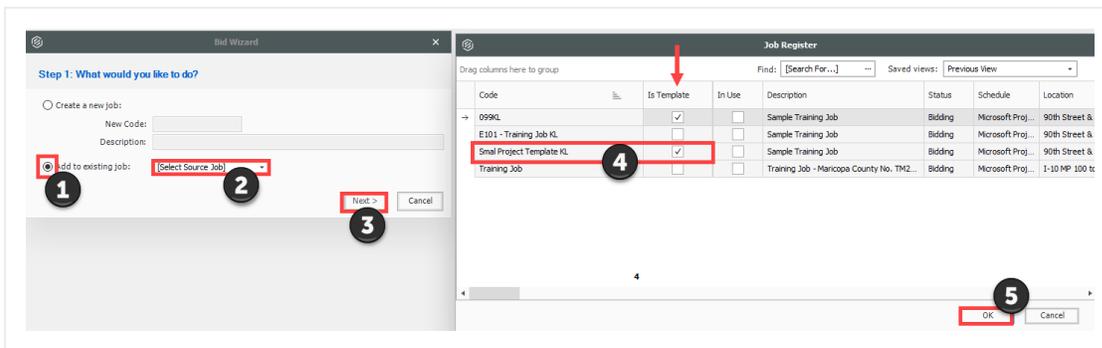
- Similar to copying an existing job, you can create a new job from a template from the New menu in the Backstage View.



- You can also create a new job from a template from the New menu in the Bid Wizard.



8. Select **Add to existing job**
9. From Select Source Job, click the **dropdown** arrow
10. Click **Next**
11. Select a job that is shown as having a Template
12. Click **OK**



3.2.1 Archive and Restore Templates

The templates feature gives you the ability to archive and restore templates, enabling templates to become portable. You can move templates between different environments. You can also backup the templates similarly to the Jobs Archive and Restore function.

Step by Step — Archive and Restore a Template

1. Click **File** to open the Backstage View.
2. Select **Archive / Restore**.
 - Several options appear for archiving and restoring your jobs, templates, and library
3. Select **Archive Template**.
 - The Template Register appears
4. Select the **Small Project Template [your initials]** template you previously made, then click **OK**.
5. When prompted to include attachments, click **Yes**.
 - The Save As window appears
6. Browse to where you want to save the job, then click **Save**.
7. Select **Restore Template** from the Archive / Restore page of the Backstage View to begin restoring the template.
8. Browse to the archived template and select it.
9. Click **Open**.

- If the template already exists, a prompt will appear asking if you want to overwrite it
 - To overwrite it, select **Yes**
 - If you select **No**, you will be prompted to save it under a new Template Code

3.3 BID WIZARD

InEight Estimate's Bid Wizard is a powerful tool that can help automate the process of setting up estimates by copying information that already exists in other InEight Estimate job folders. The Bid Wizard can be used to create new projects, create a new job from an existing template, or to add to projects that are already underway.

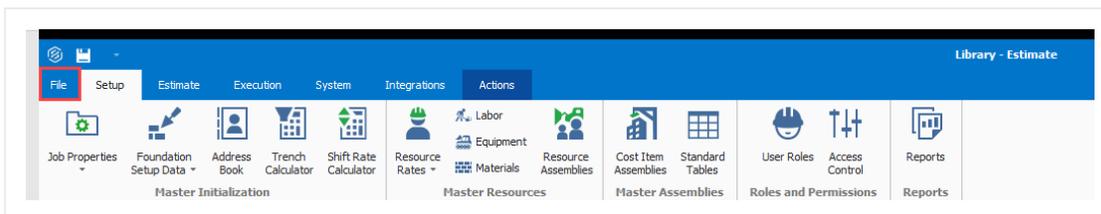
Rather than copying every part of an existing job, the Bid Wizard gives you more flexibility and control over which parts of a job you want to duplicate, e.g., pay items or cost items or both.

In most cases you will be copying cost items, but if you have a project with pay items that are commonly used, you can copy them into a new project. If you select pay items, you will be able to select cost items as well.

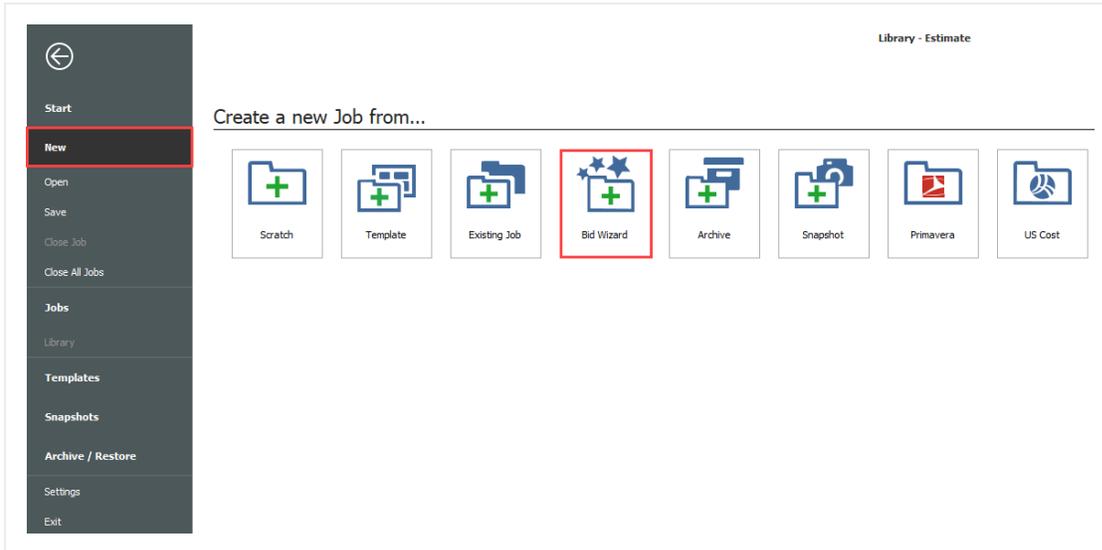
The following Step by Step walks you through how you can use the Bid Wizard to create a new job by importing pay items and their associated costs from an existing job.

Step by Step — Use the Bid Wizard

1. To open the Bid Wizard, click the **File** tab on the Estimate landing page.



2. From the left side panel, select **New**, then select **Bid Wizard**.



- The Bid Wizard – Step 1 dialog displays

The screenshot shows the 'Bid Wizard' dialog box. The title bar says 'Bid Wizard'. The main content area is titled 'Step 1: What would you like to do?'. There are two radio button options: 'Create a new job:' and 'Add to existing job:'. Under 'Create a new job:', there are two text input fields: 'New Code:' and 'Description:'. Under 'Add to existing job:', there is a dropdown menu with the text '[Select Source Job]'. At the bottom right, there are two buttons: 'Next >' and 'Cancel'.

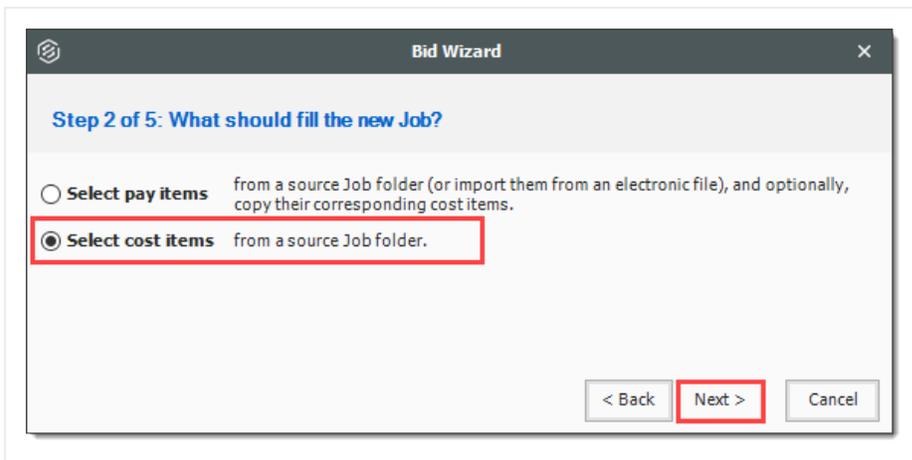
TIP

Notice that you can either create a new project or add to an existing project.

3. Type **E101 Bid Wizard** (with your initials) in the New Code field.
4. Type **Bid Wizard Example** in the Description field.
5. Click the **Next** button.

- The Bid Wizard – Step 2 dialog displays

6. Choose **Select cost items** and click **Next**.



- The Bid Wizard – Step 3 of 4 dialog displays
 - You use this step to indicate which source you want to pull your setup data from (the library or your source job)
7. For all selections, select **Copy from source job**.
 8. Check the **Also copy all non-utilized resources** checkbox.
 9. Select **Copy from source job** under Unassigned Cost Items and Markup, and the **Copy Markup** box is automatically selected.

The screenshot shows the 'Bid Wizard' dialog box at 'Step 3 of 4: What would you like to do?'. The dialog is divided into five sections, each with radio button options and a checkbox. Red boxes highlight the selected options: 'Copy from source job' for Job Properties, Foundation Setup Data, and Workbook; 'Also copy all non-utilized resources' for Resources and Resource Assemblies; and 'Copy Markup' for Unassigned Cost Items and Markup. The 'Next >' button is highlighted with a blue border.

Step 3 of 4: What would you like to do?

Job Properties

Copy from Master Job Properties

Copy from source job

Job Properties contains the Overview, Security, Cover Sheet, Cost Basis, Minority Setup and Fuel Cost for the job.

Foundation Setup Data

Copy from Master Foundation Setup Data

Copy from source job

Foundation Setup Data contains the Account Codes, Tags, Quote Group Tags, Units of Measure, Currencies, Resource / Assembly Files, Geographic Areas, Wage Zones, Organization Categories and Weather Tags.

Resources and Resource Assemblies

Copy utilized Resources and Resource Assemblies from source job

Also copy all non-utilized resources

Resources and Resource Assemblies that are utilized by Cost Items in the source job(s) are copied by default. Optionally, all Resources and Resource Assemblies can be copied from the source job(s) into the new job.

Unassigned Cost Items and Markup

Copy from Master CBS

Copy from source job

Copy Markup

Unassigned Cost Items are those cost items in the CBS that are not assigned to specific pay items, including Prime Bond, Job Financing, General Expense, and others.

Workbook

Copy from Library

Copy from source job

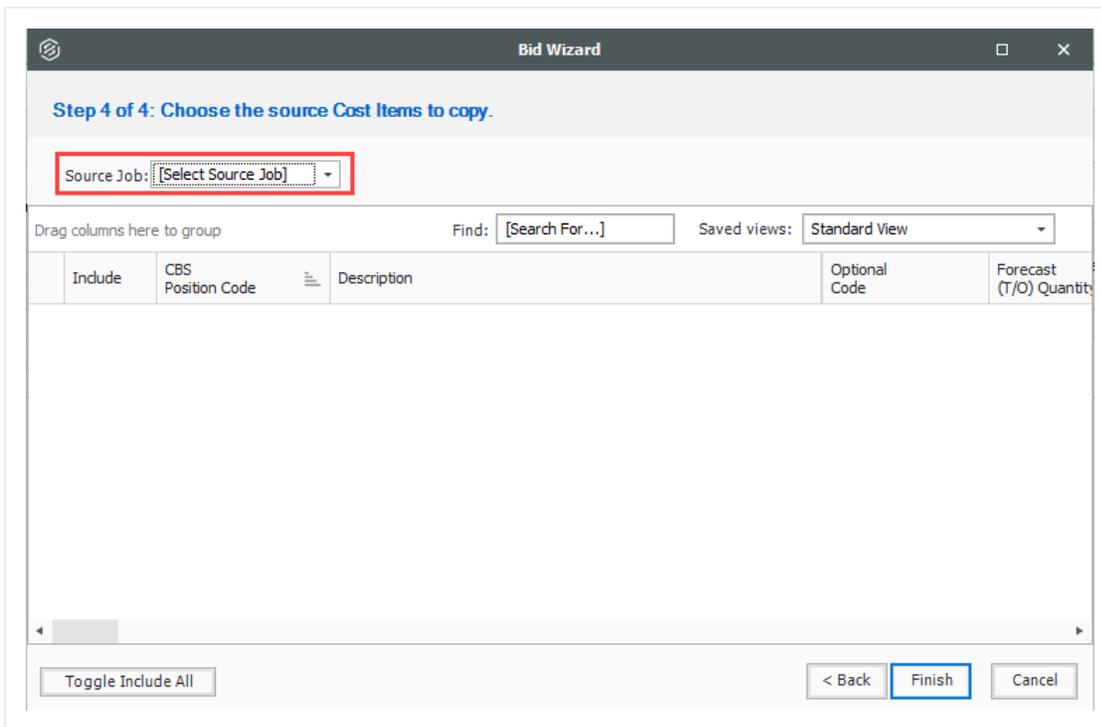
The workbook contains data that is used to link fields in Estimate to cells in Excel. The workbook containing the data that you want to use for linking with Excel can be copied from the Library or the source job.

< Back Next > Cancel

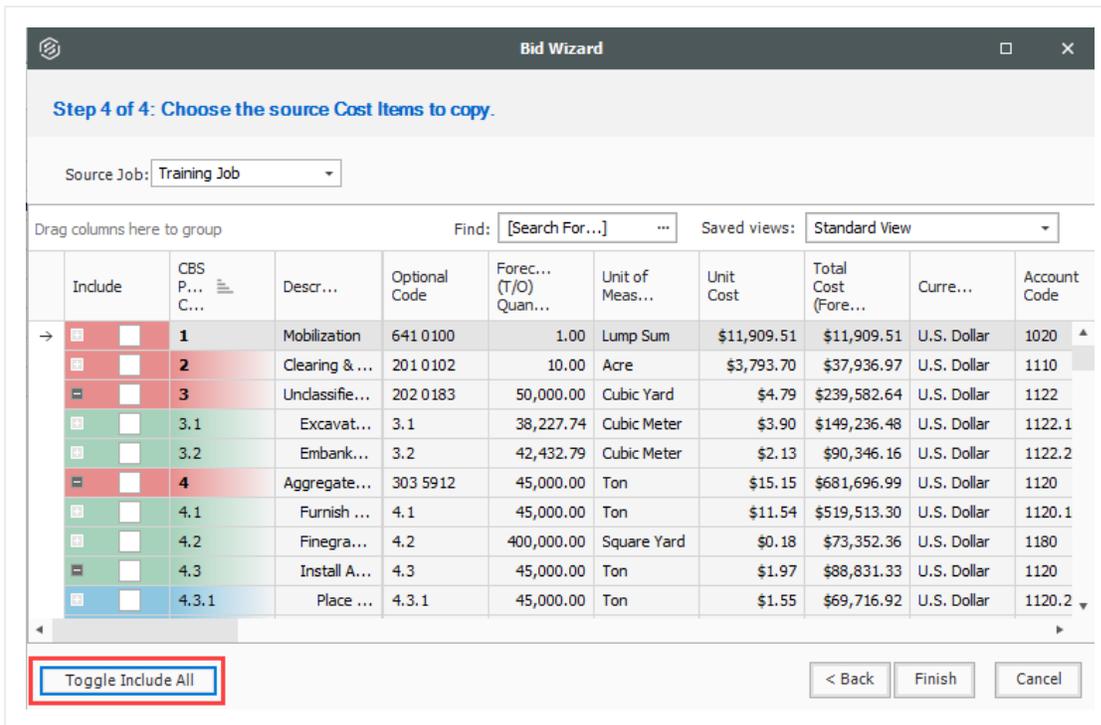
10. Click **Next**.

- The Bid Wizard – Step 4 of 4 dialog displays

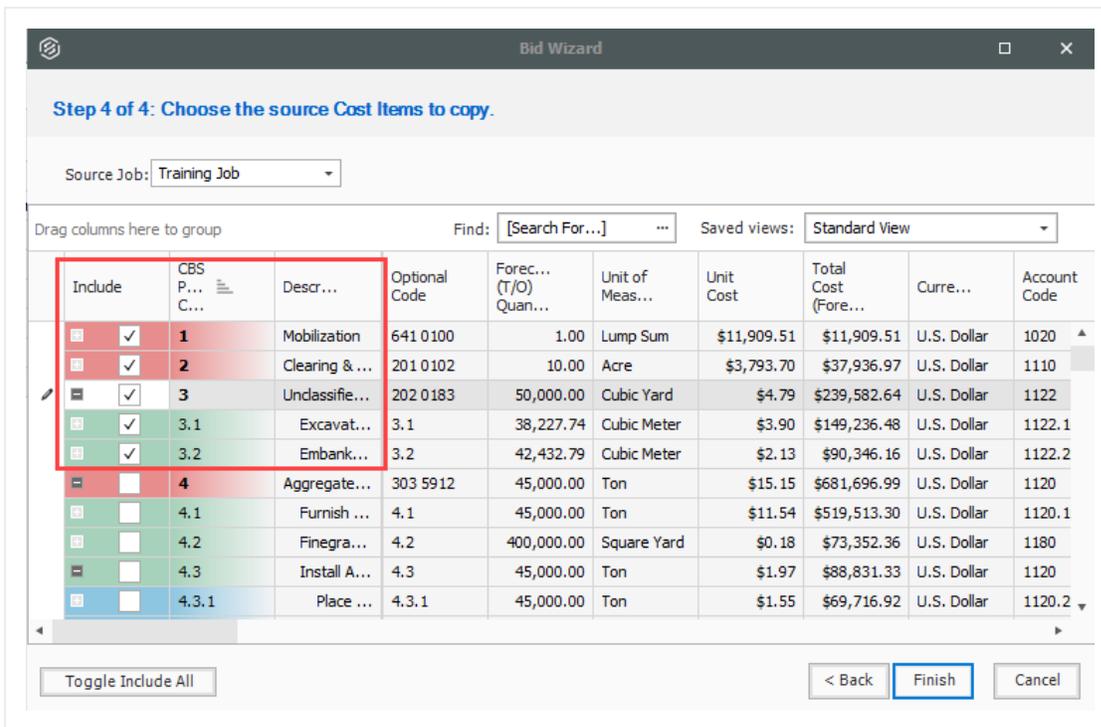
11. Click the **Source Job** drop-down arrow.



- The Job Register opens
12. Find and select **Training Job**.
 13. Click **OK**.
 - This screen displays the cost items of the source job (Training Job). All items are automatically selected
 14. Use the **Toggle Include All** button to exclude all selections.



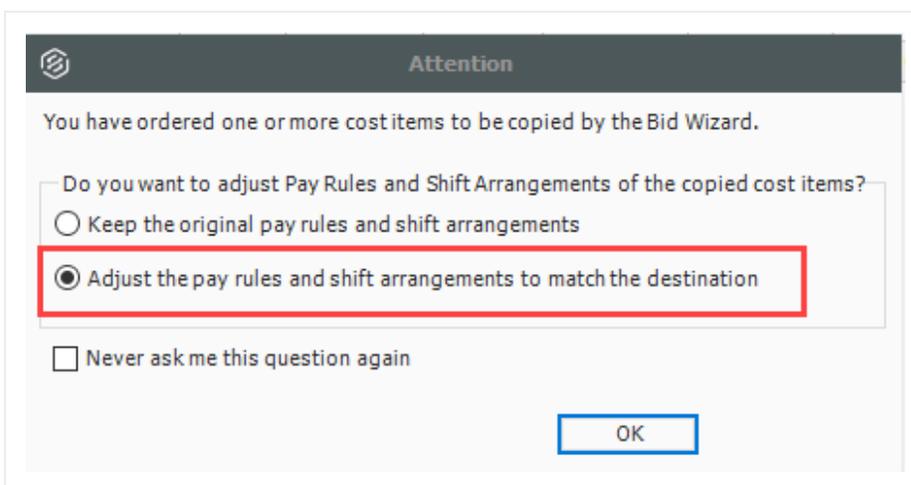
15. Select the checkboxes to include **Mobilization, Clearing & Grubbing, and Unclassified Excavation.**
16. Notice that when selecting Unclassified Excavation, that cost item's subordinates are automatically selected



17. Click **Finish** to add the new job.

- An Attention prompt appears asking, “Do you want to adjust Pay Rules and Shift Arrangements of the copied cost items?”
- Typically, you will want to use the shifts and payment rules of your new destination job.

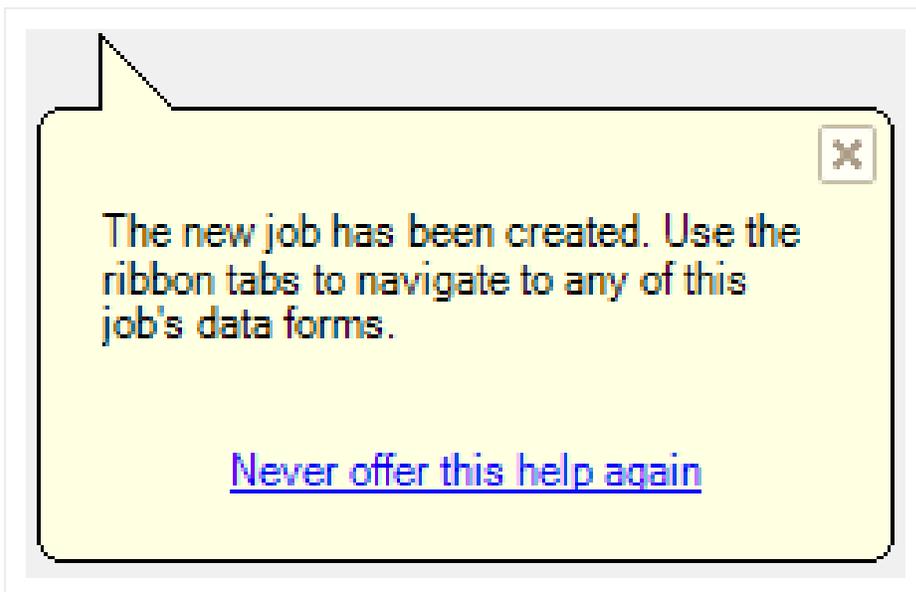
18. Select **Adjust the pay rules and shift arrangements to match the destination.**



19. Click **OK**.

- A help bubble appears letting you know the job has been created, and that you can use the ribbon tabs on the Estimate landing page to open any form

20. Close the help bubble by selecting the **X** in the upper right corner.



21. Open the **Estimate > CBS** to see the three cost items that were brought in.

Cost Breakdown Structure (CBS) Register				
Drag columns here to group				
CBS Position Code	Description	Really Optional Code	Forecast (T/O) Quantity	Unit of Measure
→	JOB		1.00	Lump Sum
+	Prime Bond	PRIME BOND	1.00	Lump Sum
+	Price % Add-On	PRICE % ADD-ON	1.00	Lump Sum
+	Job Financing	FINANCE EXPENSE	1.00	Lump Sum
+	Indirect Cost Escalation	INDIRECT COST ESCAL...	1.00	Lump Sum
+	Direct Cost Escalation	DIRECT COST ESCALAT...	1.00	Lump Sum
+	Indirect Cost Add-On	INDIRECT COST ADD-ON	1.00	Lump Sum
+	Job Management & Equipment	JOB MANAGEMENT & E...	1.00	Lump Sum
+	General Expense	GENERAL EXPENSE	1.00	Lump Sum
+	Direct Cost Add-On	DIRECT COST ADD-ON	1.00	Lump Sum
+ 1	Mobilization	641 0100	1.00	Lump Sum
+ 2	Clearing & Grubbing	201 0102	10.00	Acre
3	Unclassified Excavation	202 0183	50,000.00	Cubic Yard
+ 3.1	Excavation	3.1	38,227.74	Cubic Meter
+ 3.2	Embankment	3.2	42,432.79	Cubic Meter

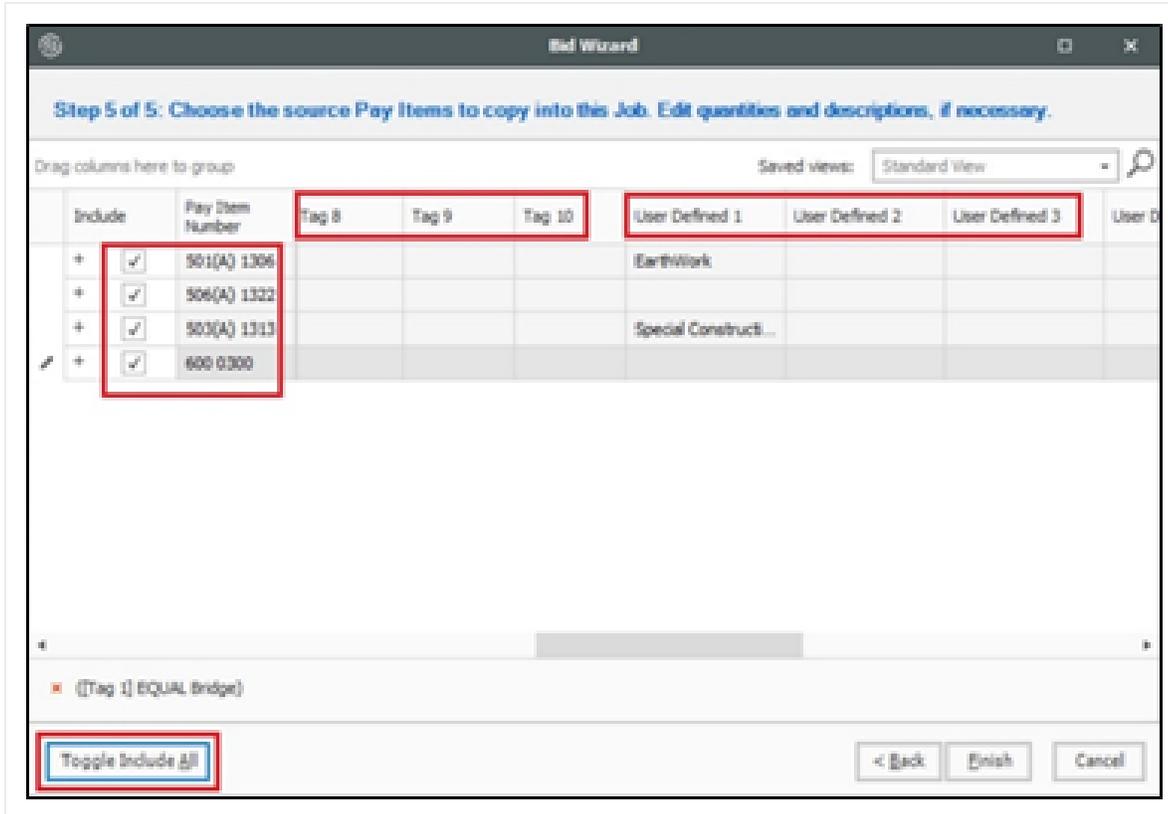
3.3.1 Bid Wizard Updates

While using the Bid Wizard, the Include option is left unchecked by default. A filter is applied to bring in pay items when using the Bid Wizard. The Toggle Include All button only selects the filtered list of items instead of all items.

When the filter criteria is modified, the selected items remain checked even if some of the items might not be visible in the view. When the view is changed, the selected items remain checked.

Tags and UDF fields are included in the **Bid Wizard Selection** register for the cost items and Pay Item & Proposal selection registers. This lets you filter the list of cost items based on a tag or UDF.

When you select the **Toggle Select All** button, only filtered items are included which allow you to include scopes of work relevant to your estimate without having to manually select all items needed.



3.4 COPY ESTIMATE DATA USING EDIT COMMANDS

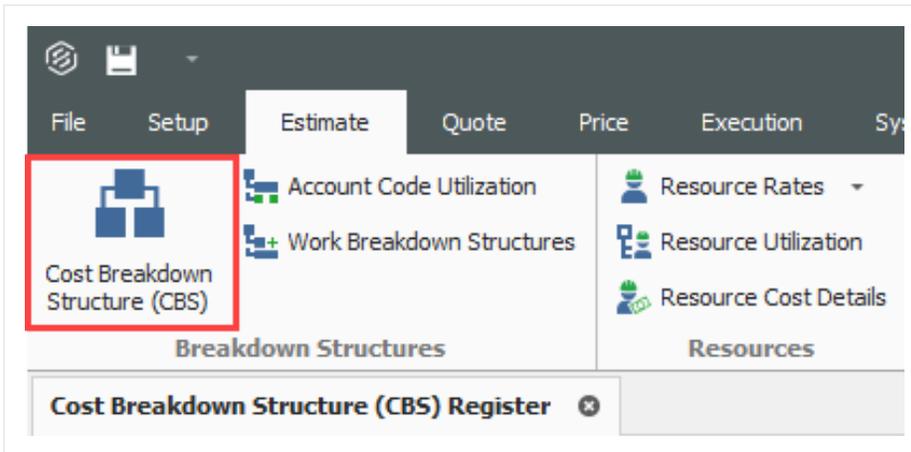
While the Bid Wizard is an efficient way to copy cost history into new projects, you may prefer to use edit commands such as copy and paste to bring cost history into your estimate.

To copy and paste cost history from one job to another, it is beneficial to see the jobs side by side. The following steps walk you through the process.

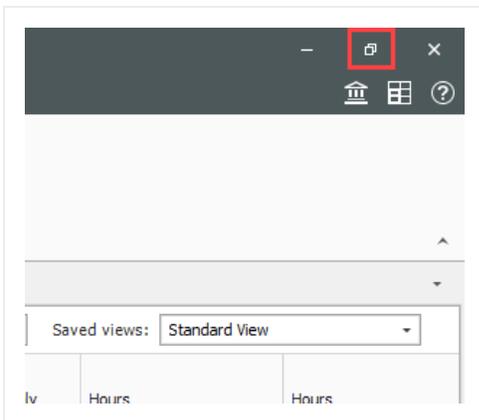
Step by Step — Copy Estimate Data Using Edit Commands

1. Click the **File** tab from the Estimate landing page and open the **E101 Bid Wizard** job you just created.
2. Open the **Training Job** (if you do not still have it open).

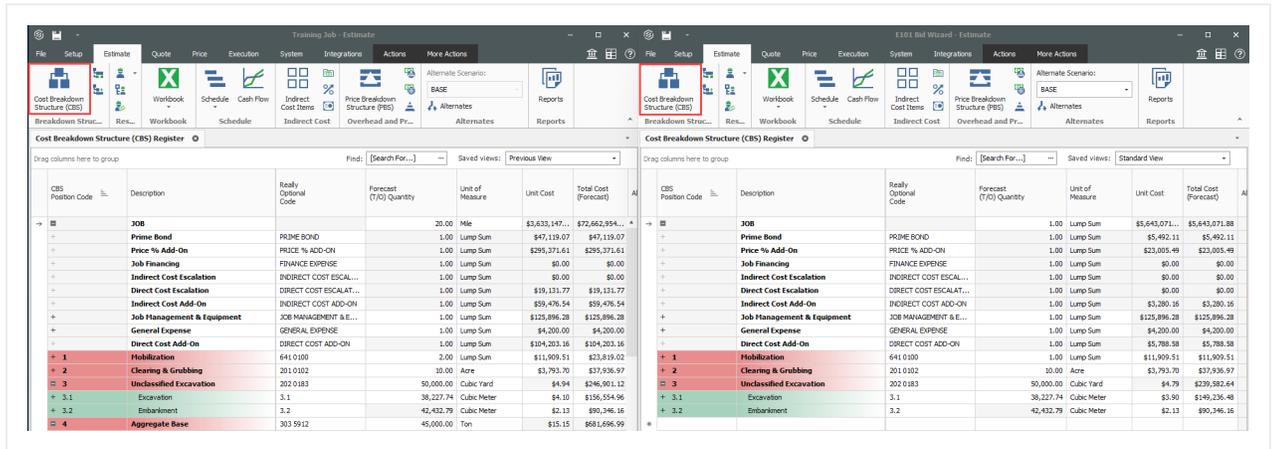
- 3. Make sure the CBS is open for both jobs by going to the Estimate menu and selecting **Cost Breakdown Structure (CBS)**.



- 4. Since you have both jobs open and they are in their own application window, align them to be side by side by using the **minimize icons** of each job or utilizing Windows align functionality.



- Note that the window caption identifies the CBS Register for each job



5. On the CBS of the Training Job, click the row header on cost item **4 – Aggregate Base** and press **Ctrl+C** to copy the cost item.

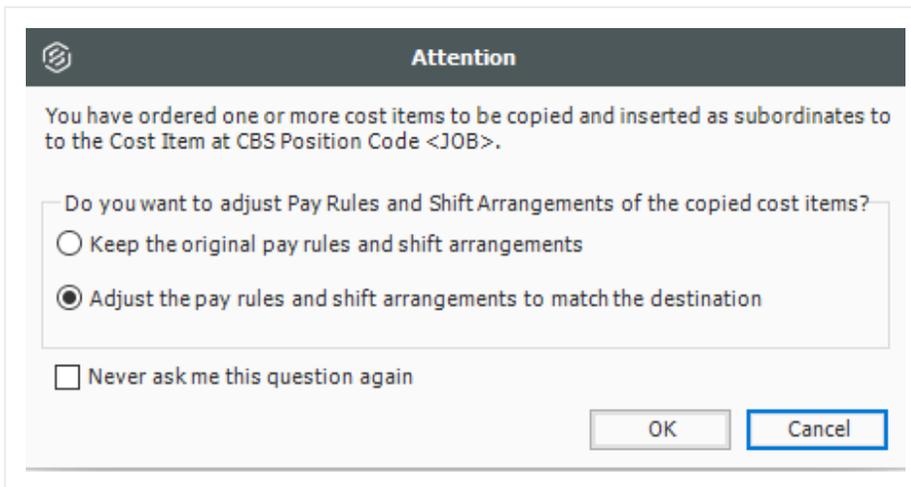
→	4	Aggregate Base	303 5912
+	4.1	Furnish & Haul Base Material	4.1
+	4.2	Finegrade Subgrade	4.2
+	4.3	Install Aggregate Base	4.3
+	4.3.1	Place Aggregate Base	4.3.1
+	4.3.2	Blue Top Aggregate Base	4.3.2

TIP When you copy a superior cost item, all of its subordinates are automatically copied.

6. On the CBS of the E101 Bid Wizard job, click the row header on the first blank register row, and press **Ctrl+V** to paste the cost item.

+	1	Mobilization	641 0100	1.00	Lump Sum
+	2	Clearing & Grubbing	201 0102	10.00	Acre
+	3	Unclassified Excavation	202 0183	50,000.00	Cubic Yard
+	3.1	Excavation	3.1	38,227.74	Cubic Meter
+	3.2	Embankment	3.2	42,432.79	Cubic Meter
→					

- On the Attention dialog, select **Adjust the pay rules and shift arrangements to match the destination** and click **OK**.



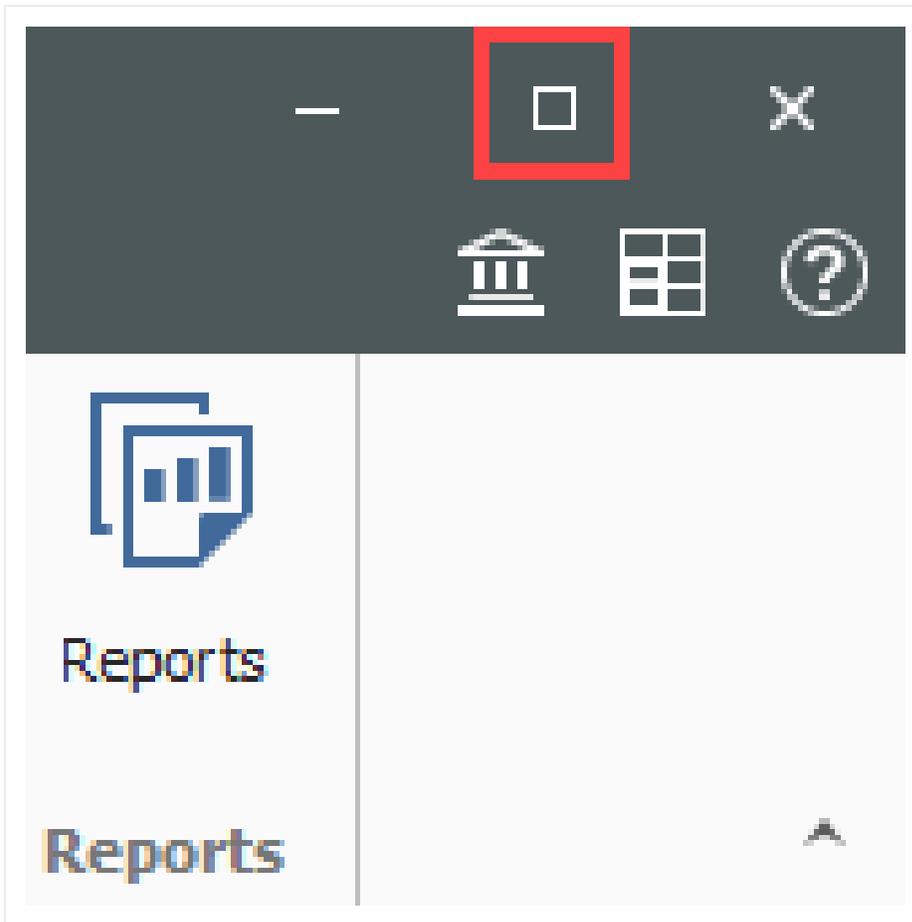
- You can see in the destination job's CBS that you've added the Aggregate Base cost item, along with its subordinate cost items and all cost and productivity detail

The screenshot shows two side-by-side windows of the 'E101 Bid Wizard - Estimate' software. Both windows display a 'CBS Register' table. The left window shows a job with various cost items, including 'Aggregate Base' (CBS 4) and its subordinates. The right window shows the same job after copying, with the 'Aggregate Base' and its subordinates now present in the destination job's CBS list. A red box highlights the 'Aggregate Base' and its subordinates in the right window.

CBS Position Code	Description	Really Optional Code	Forecast (T/Q) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
+	JOB		20.00	Mile	\$13,633,147...	\$272,662,954...
+	Prime Bond	PRIME BOND	1.00	Lump Sum	\$47,119.07	\$47,119.07
+	Price % Add-On	PRICE % ADD-ON	1.00	Lump Sum	\$295,371.61	\$295,371.61
+	Job Financing	FINANCE EXPENSE	1.00	Lump Sum	\$0.00	\$0.00
+	Indirect Cost Escalation	INDIRECT COST ESCAL...	1.00	Lump Sum	\$0.00	\$0.00
+	Direct Cost Escalation	DIRECT COST ESCALAT...	1.00	Lump Sum	\$19,131.77	\$19,131.77
+	Indirect Cost Add-On	INDIRECT COST ADD-ON	1.00	Lump Sum	\$59,476.54	\$59,476.54
+	Job Management & Equipment	JOB MANAGEMENT & E...	1.00	Lump Sum	\$125,896.28	\$125,896.28
+	General Expense	GENERAL EXPENSE	1.00	Lump Sum	\$4,200.00	\$4,200.00
+	Direct Cost Add-On	DIRECT COST ADD-ON	1.00	Lump Sum	\$194,203.16	\$194,203.16
+	1 Mobilization	641 0100	2.00	Lump Sum	\$11,909.51	\$23,819.02
+	2 Clearing & Grubbing	201 0102	10.00	Acre	\$3,793.70	\$37,936.97
+	3 Unclassified Excavation	202 0183	50,000.00	Cubic Yard	\$4.94	\$246,901.12
+	3.1 Excavation	3.1	38,227.74	Cubic Meter	\$4.10	\$156,554.96
+	3.2 Embankment	3.2	42,422.79	Cubic Meter	\$2.13	\$90,346.16
+	4 Aggregate Base	303 5912	45,000.00	Ton	\$15.15	\$681,696.99
+	4.1 Furnish & Haul Base Material	4.1	45,000.00	Ton	\$11.54	\$515,513.30
+	4.2 Finegrade Subgrade	4.2	400,000.00	Square Yard	\$0.18	\$73,352.36
+	4.3 Install Aggregate Base	4.3	45,000.00	Ton	\$1.97	\$88,831.33
+	4.3.1 Place Aggregate Base	4.3.1	45,000.00	Ton	\$1.55	\$69,716.92
+	4.3.2 Blue Top Aggregate Base	4.3.2	400,000.00	Square Yard	\$0.05	\$19,114.42
+	5 Asphalt Concrete Hot Mix Type A	303 4203	35,000.00	Ton	\$42.62	\$1,491,980.59

- TIP** You can also drag and drop cost items from one CBS to another instead of copying and pasting.
- TIP** Copied cost items are considered Job Overhead until they are assigned to a pay item

- To go back to your full screen view of the E101 Bid Wizard job, select the maximize icon.



3.5 CBS BID WIZARD

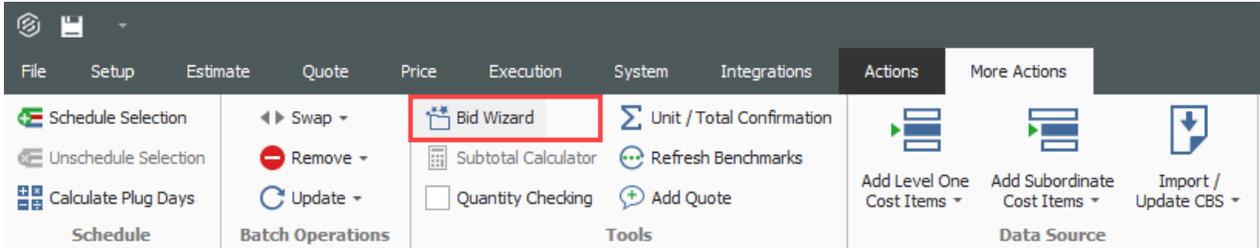
You can also use the Bid Wizard to add cost items while you are in the CBS Register. The following steps walk through using the CBS Bid Wizard.

Step by Step — Use the CBS Bid Wizard

1. Click the **File** tab from the Estimate landing page and open the **E101 Bid Wizard** job you created.
2. From the **Estimate** tab, select **Cost Breakdown Structure (CBS)**.
3. Create a new cost item by typing **New** in the Description column on the bottom row of the CBS
4. Highlight the **New** row.

4	Aggregate Base	303 5912	45,000.00	Ton
+ 4.1	Furnish & Haul Base Material	4.1	45,000.00	Ton
+ 4.2	Freight Subgrade	4.2	400,000.00	Square Yard
4.3	Install Aggregate Base	4.3	45,000.00	Ton
+ 4.3.1	Place Aggregate Base	4.3.1	45,000.00	Ton
+ 4.3.2	Blue Top Aggregate Base	4.3.2	400,000.00	Square Yard
New			1.00	Each

5. To open the CBS Bid Wizard, click the **Bid Wizard** icon on the **More Actions** tab.



- The Bid Wizard window opens

6. Click in the **Source Job** column on the New cost item row.

Place Aggregate Base		45,000.00	Ton	[Select Source Job]
Blue Top Aggregate Base		400,000.00	Square Yard	[Select Source Job]
New		1.00	Each	[Select Source J... ▼]

7. From the Source Job drop-down list, select **Training Job**.

8. Scroll to the right of the Source Job column and click in the **Source CBS Position Code** column on the New Cost item row.

- A source CBS Register window appears

9. Select CBS position code **5 – Asphalt Concrete Hot Mix Type A** from the register.

Drag columns here to group Find: [Search For...] ... Saved views: Previous View

CBS Position Code	Description	Really Optional Code	Unit of Measure	Forecast (T/O) Quantity
4.2	Finegrade Subgrade	4.2	Square Yard	
4.3	Install Aggregate Base	4.3	Ton	
4.3.1	Place Aggregate Base	4.3.1	Ton	
4.3.2	Blue Top Aggregate Base	4.3.2	Square Yard	
→ 5	Asphalt Concrete Hot Mix Type A	303 4263	Ton	
5.1	Furnish & Haul Hot Mix	5.1	Ton	
5.2	Install Hot Mix Type A	5.2	Ton	
6	36 Inch RCP Culvert Class III	413(B) 0464	Linear Feet	
6.1	Furnish RCP Materials	6.1	Linear Feet	
6.2	Excavate RCP Trench	6.2	Cubic Yard	
6.3	Install RCP Pipe	6.3	Linear Feet	
6.4	Backfill RCP Pipe	6.4	Cubic Yard	

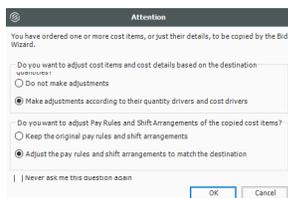
OK Cancel

10. Click **OK**.

11. Click **Finish** on the Bid Wizard.

- An Attention prompt displays, asking if you want to make adjustments
- Keep the default options selected: **Make Adjustments according to their quantity drivers and cost drivers and Adjust the pay rules and shift arrangements to match the destination**

12. Click **OK**.



- You can see that cost item 5 and its subordinates are now imported into your existing job.
- You could choose a new name for the cost item, or name it **Asphalt Concrete Hot Mix Type A** to match the original cost item

4.3	Install Aggregate Base	4.3	45,000.00	Ton
+ 4.3.1	Place Aggregate Base	4.3.1	45,000.00	Ton
+ 4.3.2	Blue Top Aggregate Base	4.3.2	400,000.00	Square Yard
5	Asphalt Concrete Hot Mix Type A		1.00	Each
+ 5.1	Furnish & Haul Hot Mix	5.1	1.00	Ton
+ 5.2	Install Hot Mix Type A	5.2	1.00	Ton

3.6 SNAPSHOTS

A job snapshot is a copy of an estimate that provides read-only access to the job as it existed at a specific point in time. You can now filter the Snapshot register to jobs containing snapshots.

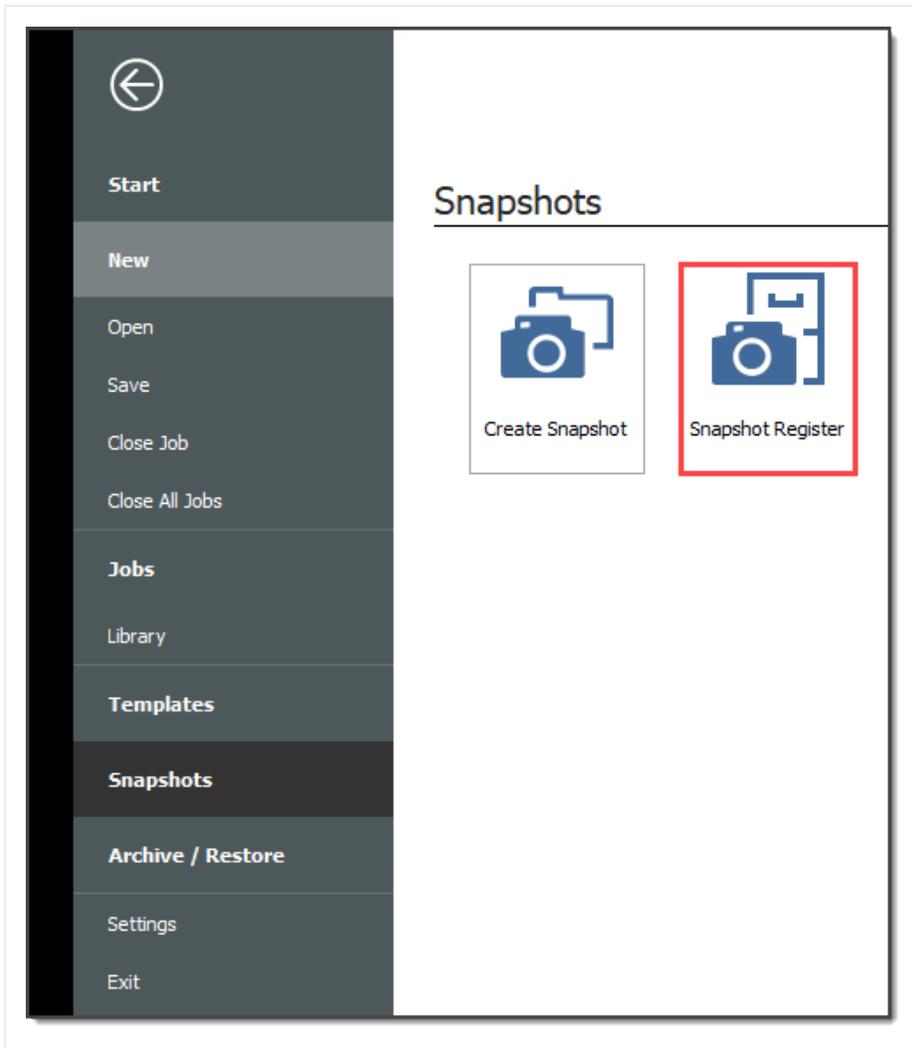
The Snapshot register has some additional columns as well. In addition to the Code, Description, Last Saved, and Version column, the Snapshot register contains all fields that are present on the Jobs register that provides you with an easier way to group, sort, filter, and find the jobs you need.

3.6.1 Snapshot Register

The Snapshot Register is where you will view individual snapshots for specific jobs.

Step by Step — Snapshot Register

1. Click the **File** tab to open the Backstage View. In the panel, select **Snapshots**.
2. From the Snapshots form, select the **Snapshot Register** tab.



3. To view individual snapshots for specific jobs, click the  icon next to the desired job to display the list of snapshots.

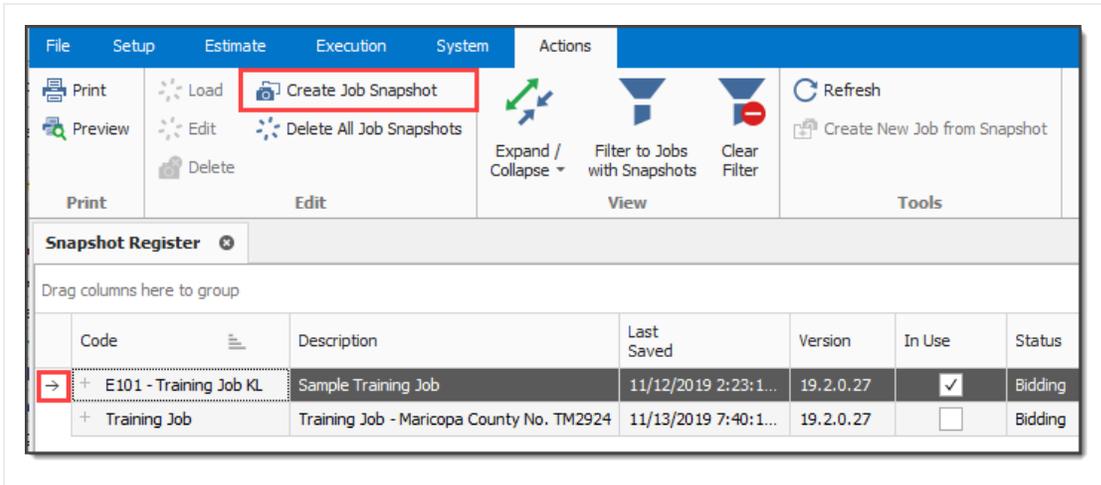
	Code	Description
→ 	E101 - Training Job KL	Sample Training Job
	Training Job	Training Job - Maricopa County No. TM2924

3.6.2 Creating a New Job Snapshot

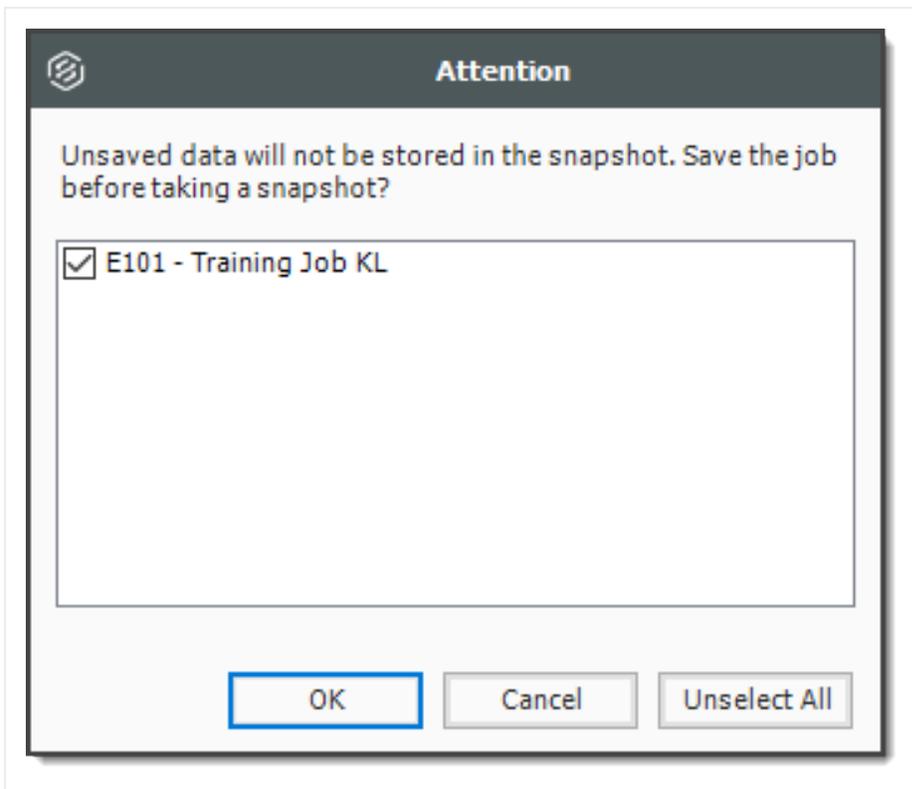
Step by Step — Create a New Job Snapshot

You can create a Job Snapshot from an existing Job.

1. From the Snapshots form, select the **Create Snapshot** tab.

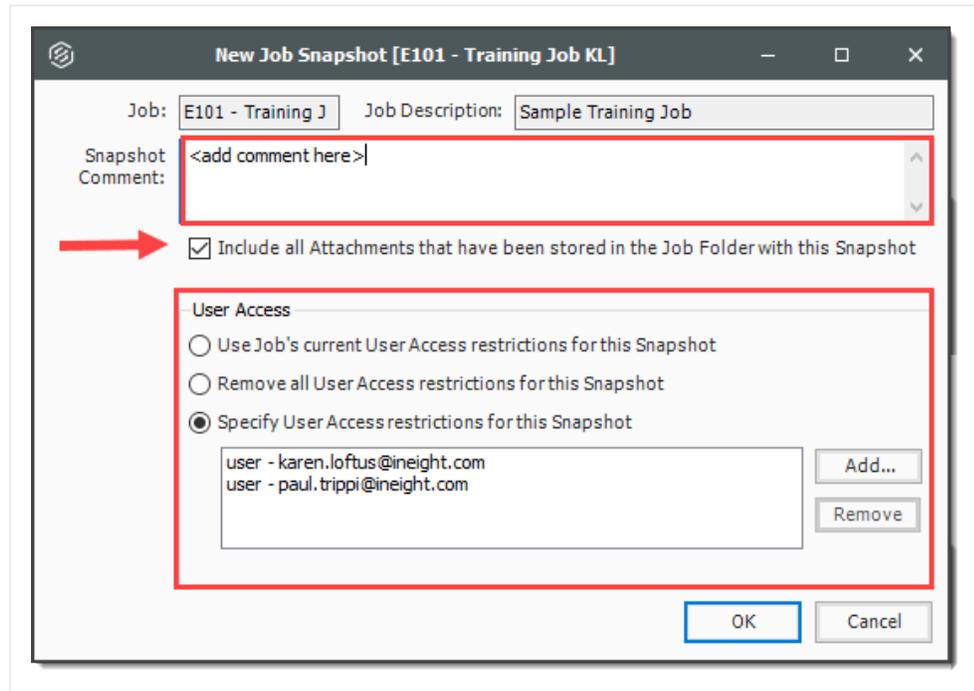


2. If an existing job is open select **Save**, if you haven't already done so.

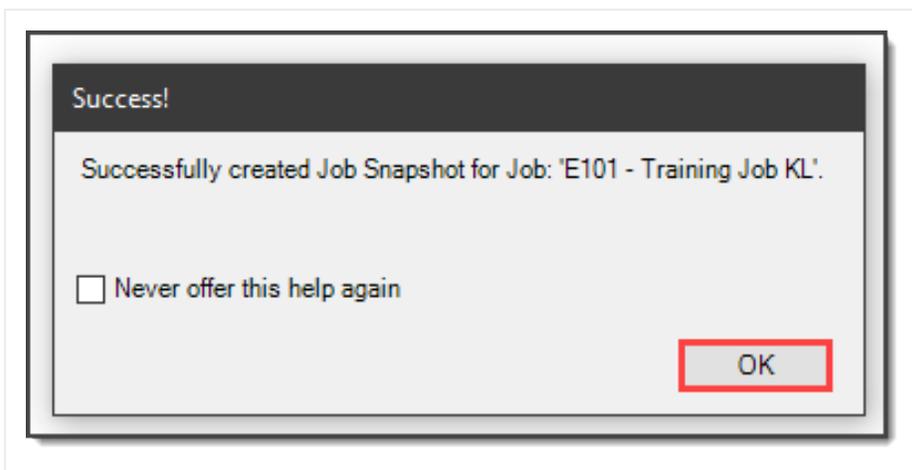


3. A New Job Snapshot [Job Code Here] dialog box appears. From there, you can add a Snapshot comment.
 - If you want to Include all Attachments that have been stored in the Job Folder with this Snapshot, select the check box, otherwise uncheck the box.
 - If you want to Use Job's current User Access restrictions for this Snapshot, select this radio button.
 - If you want to Remove User Access restrictions for this Snapshot and allow read-only access to all users, select this radio button
 - If you want to Specify User Access restrictions for this Snapshot (default selection), select this option
 - Then use the Add and Remove buttons to specify user access using Active Directory.

(Users with current access to the job default onto the list.)



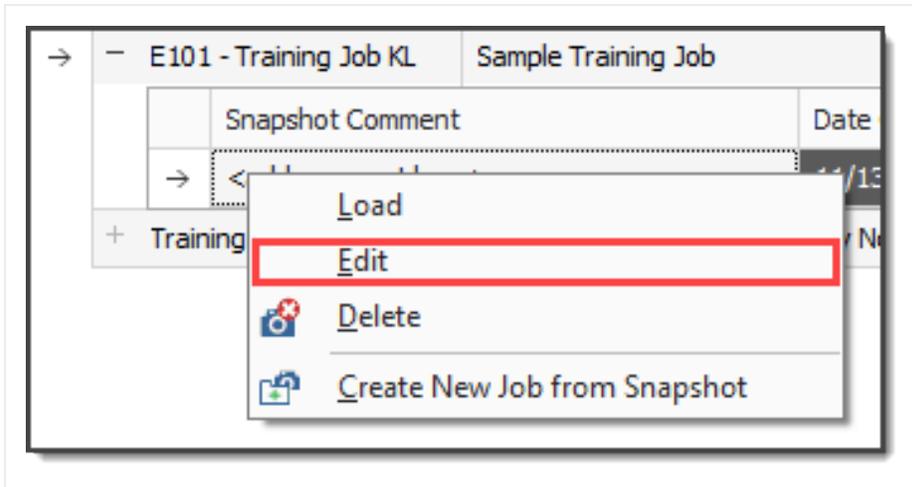
- 4. Click OK to create the snapshot.
- 5. A pop-up indicates when the snapshot has been created.



3.6.3 Editing a Job Snapshot

Step by Step — Edit a Job Snapshot

1. From the Snapshot Register, click the  icon next to the desired job to display snapshots.
2. Right-click on the individual snapshot you want to edit and select **Edit**.

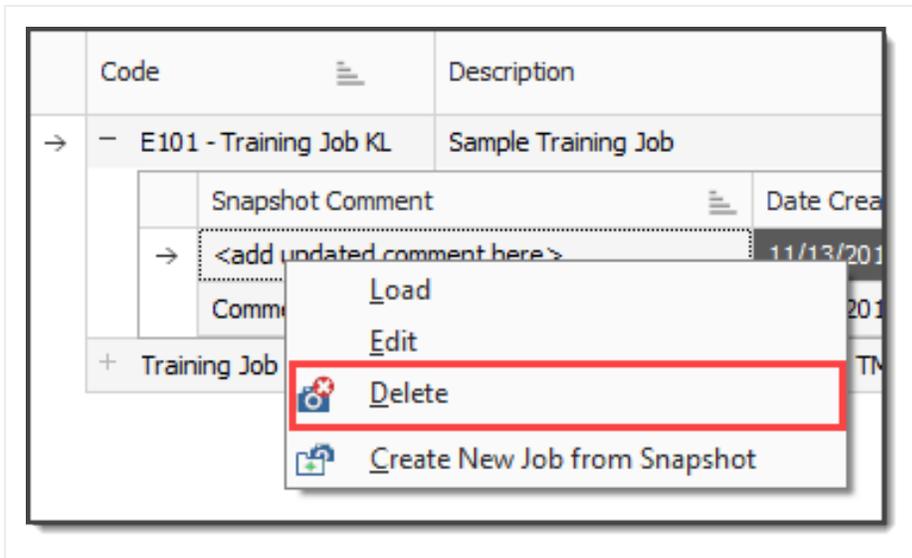


3. The same sort of dialog box opens up as when you created the Snapshot. In this case, from the Edit Job Snapshot [Job Code Here] dialog box, modify the Snapshot Comment and the User Access options as needed.
 - If you want to Include all Attachments that have been stored in the Job Folder with this Snapshot, select the check box. Otherwise, uncheck the box
 - If you want to Use Job's current User Access restrictions for this Snapshot, select this radio button
 - If you want to Remove User Access restrictions for this Snapshot and allow read-only access to all users, select this radio button
 - If you want to Specify User Access restrictions for this Snapshot (default selection), select this option
 - Then use the Add and Remove buttons to specify user access using Active Directory. (Users with current access to the job default onto the list.)
4. Click **OK** to update the snapshot.

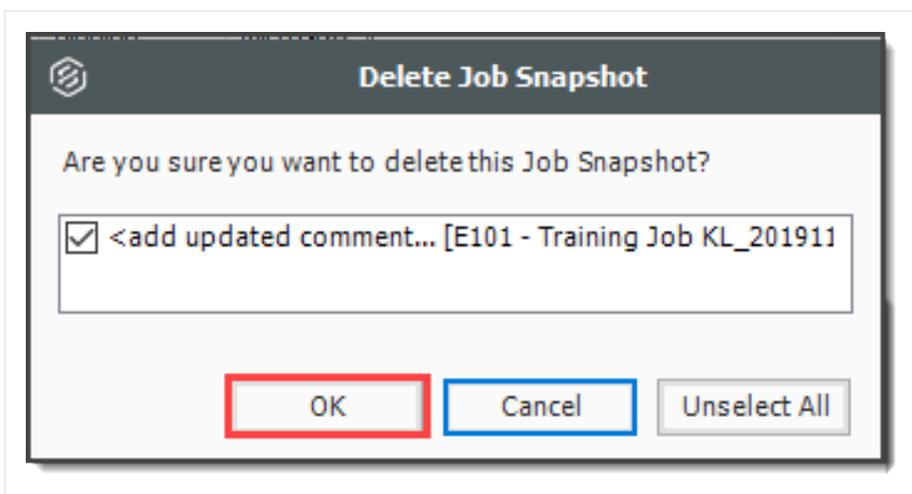
3.6.4 Deleting a Job Snapshot

Step by Step — Delete a Job Snapshot

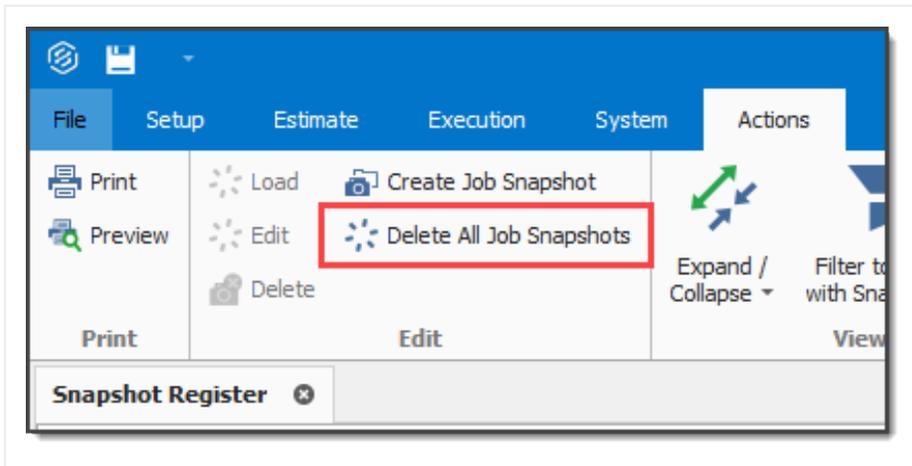
1. From the Snapshot Register, click the  icon next to the desired job to display snapshots.
2. Right-click on the individual snapshot you want to delete snapshots from and select **Delete**.



3. Click **OK**



Alternatively, you can delete all Job Snapshots by clicking **Delete All Job Snapshots** from the Actions tab.

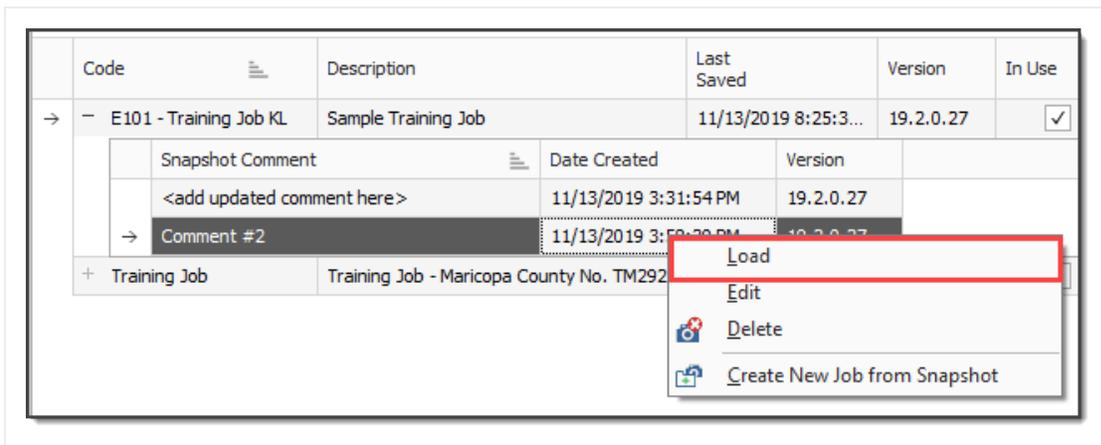


3.6.5 Loading a Job Snapshot

When you load an existing Snapshot, it loads into Estimate as any other job.

Step by Step — Load a Job Snapshot

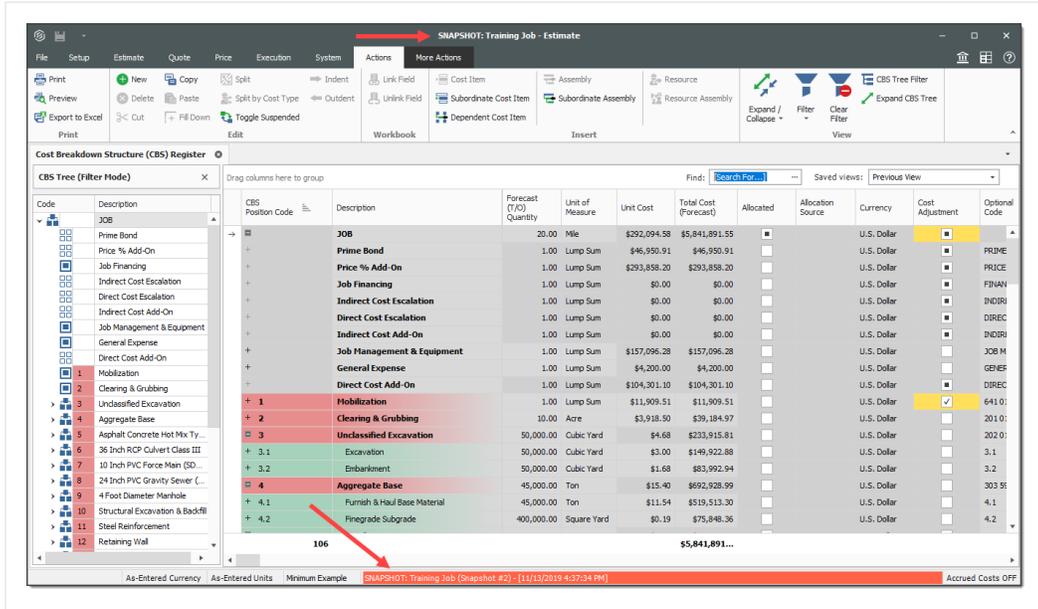
1. Click the File tab to open the Backstage View, then select **Snapshots**.
2. From the Snapshots form, select the **Snapshot Register** tab.
3. On the Snapshot Register, click the icon next to the desired job to display the list of snapshots.
4. Right-click on the individual snapshot you want to load and select **Load**.



To identify a snapshot in Estimate as a read-only snapshot:

- The job name is preceded by the label **SNAPSHOT:** centered on the top of the toolbar
- A red banner shows the specific snapshot information at the bottom of the screen

NOTE A snapshot can be modified, but it cannot be saved as it is read-only.



Exercise 3.1 – Data Reproduction

Now that you have learned how to utilize the Bid Wizard, complete the following steps using the Bid Wizard and Copy & Paste features.

1. Open the Bid Wizard by clicking the **Bid Wizard** icon from the **More Actions** tab.

2. Choose the **Create a new job** radio button.

3. Type **BW Exercise** (with your initials) in the **New Code** field and type **Exercise** in the Description field.

4. Choose **Select cost items**.

5. For all selections, choose **Copy from source job**.

6. Select the **Also copy all non-utilized resources** checkbox.

7. Select **Copy from source job** under Unassigned Cost Items and Markup, and the Copy Markup box is automatically selected.

8. Find and select **Training Job** and click **OK**.

9. Use the **Toggle Include All** button to exclude all selections.

10. Select the checkboxes to include **Cost Items 4-7**.

11. Click **Finish** to add the new job.

12. Select **Adjust the pay rules and shift arrangements to match the destination**.

13. Open the **CBS** to see the cost items that were brought in.

14. Open the **Infra Job Copy** with your initials that you created earlier in this lesson.

15. Copy **Cost items 8 and 9** and paste them into the BW Exercise job.

You should end up with the following results

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure
+	Indirect Cost Escalation	INDIRECT COST ESCAL...	1.00	Lump Sum
+	Direct Cost Escalation	DIRECT COST ESCALAT...	1.00	Lump Sum
+	Indirect Cost Add-On	INDIRECT COST ADD-ON	1.00	Lump Sum
+	Job Management & Equipment	JOB MANAGEMENT & E...	1.00	Lump Sum
+	General Expense	GENERAL EXPENSE	1.00	Lump Sum
+	Direct Cost Add-On	DIRECT COST ADD-ON	1.00	Lump Sum
[-] 1	Aggregate Base	303 5912	45,000.00	Ton
+ 1.1	Furnish & Haul Base Material	4.1	45,000.00	Ton
+ 1.2	Finegrade Subgrade	4.2	400,000.00	Square Yard
[-] 1.3	Install Aggregate Base	4.3	45,000.00	Ton
+ 1.3.1	Place Aggregate Base	4.3.1	45,000.00	Ton
+ 1.3.2	Blue Top Aggregate Base	4.3.2	400,000.00	Square Yard
[-] 2	Asphalt Concrete Hot Mix Type A	303 4263	35,000.00	Ton
+ 2.1	Furnish & Haul Hot Mix	5.1	35,000.00	Ton
+ 2.2	Install Hot Mix Type A	5.2	35,000.00	Ton
[-] 3	36 Inch RCP Culvert Class III	413(B) 0464	<u>1,024.00</u>	Linear Feet
+ 3.1	Furnish RCP Materials	6.1	1,024.00	Linear Feet
+ 3.2	Excavate RCP Trench	6.2	1,858.56	Cubic Yard
+ 3.3	Install RCP Pipe	6.3	1,024.00	Linear Feet
+ 3.4	Backfill RCP Pipe	6.4	1,587.20	Cubic Yard
[-] 4	10 Inch PVC Force Main (SDR21)	800 0220	12,000.00	Linear Feet
+ 4.1	Furnish 10 Inch PVC Materials	7.1	12,000.00	Linear Feet
+ 4.2	Excavate-Install-Backfill 10 Inch PVC	7.2	12,000.00	Linear Feet
[-] 5	24 Inch PVC Gravity Sewer (SDR35)	800 0330	3,000.00	Linear Feet
[-] 5.1	Excavate 24 Inch PVC	8.1	3,000.00	Linear Feet
+ 5.1.1	Excavate 24 Inch PVC 0-6 ft Depth	8.1.1	1,390.00	Cubic Yard
+ 5.1.2	Excavate 24 Inch PVC 6-10 ft Depth	8.1.2	3,610.00	Cubic Yard
+ 5.2	Furnish & Install 24 Inch PVC	8.2	3,000.00	Linear Feet
+ 5.3	Backfill 24 Inch PVC	8.3	4,520.00	Cubic Yard
[-] 6	4 Foot Diameter Manhole	800 0400	16.00	Each
+ 6.1	Furnish 4 ft Manhole Materials	9.1	16.00	Each
+ 6.2	Excavate-Install-Backfill Manhole	9.2	16.00	Each

Congratulations, you have completed this exercise!

Lesson 3 Review

1. From the New option on the Backstage View, which of the following options are available for creating a new job? (Select all that apply)
 - a. Scratch
 - b. Template
 - c. Import
 - d. Existing Job
 - e. Historic
 - f. Bid Wizard

2. Which of the following job reproduction options lets you pick and choose which cost items you want to import into your new job?
 - a. Template
 - b. Bid Wizard
 - c. Existing Job
 - d. Archive

3. Which of the following options allows you to add cost items from another project when working in the CBS Register?
 - a. Bid Wizard
 - b. CBS Bid Wizard
 - c. Template
 - d. Existing Job

Lesson 3 Summary

As a result of this lesson, you can:

- Create a job from an existing job or template
- Create a template

- Reproduce estimate data using the Bid Wizard
- Reproduce estimate data using copy/paste
- Add cost items to a job using the CBS Bid Wizard
- Utilize the Snapshot function

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LESSON 4 – EXCEL INTEGRATION

Lesson Duration: 20 Minutes

Lesson Objectives

After completing this lesson, you will be able to:

- Export data from InEight Estimate to Excel
- Link a field in InEight Estimate to Excel
- Update a linked InEight Estimate field with Excel data

Lesson Topics

4.1 EXPORT TO EXCEL

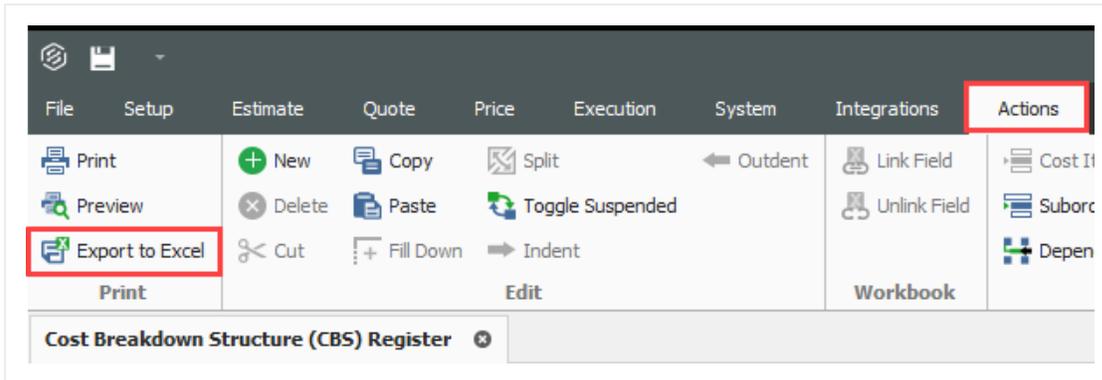
InEight Estimate's integration with Microsoft Excel includes a two-way integration that allows you to update register fields in InEight Estimate with data contained in an Excel workbook, and update Excel cells with data contained in a register column in InEight Estimate.

InEight Estimate includes a worksheet export that makes it easy to transfer data out of InEight Estimate register forms to Microsoft Excel spreadsheets. This feature makes it faster and easier to send data from an InEight Estimate register to a spreadsheet, analyze it, modify it, and customize it for any other uses.

The Export to Excel feature is available on all register forms in the system and allows you to export the data currently displayed on a register form to an Excel worksheet.

Step by Step — Export Data to an Excel Workbook

1. Open the **Training** Job and from the Estimate tab, open the **CBS Register**.
2. From the Actions tab, select **Export to Excel**.



3. On the Export spreadsheet to... dialog, browse to the location (folder) in your system where you want to save the workbook, enter **CBS Export** in the File name field, and click **Save**.
 - The workbook is saved to that location with the specified file name, and Excel automatically launches and displays the workbook

- Notice that the columns are formatted, with column headers and filtering turned on

CBS Position Code	Description	Forecast (T/O)	Unit of Measure	Unit Cost	Total Cost (Forecast)	Currency
	JOB	20.00	Mile	\$292,316.18	\$5,846,323.66	U.S. Dollar
	Prime Bond	1.00	Lump Sum	\$46,974.12	\$46,974.12	U.S. Dollar
	Price % Add-On	1.00	Lump Sum	\$294,067.09	\$294,067.09	U.S. Dollar
	Job Financing	1.00	Lump Sum	\$0.00	\$0.00	U.S. Dollar
	Indirect Cost Escalation	1.00	Lump Sum	\$0.00	\$0.00	U.S. Dollar
	Direct Cost Escalation	1.00	Lump Sum	\$0.00	\$0.00	U.S. Dollar
	Indirect Cost Add-On	1.00	Lump Sum	\$0.00	\$0.00	U.S. Dollar
	Job Management & Equipment	1.00	Lump Sum	\$157,096.28	\$157,096.28	U.S. Dollar
	General Expense	1.00	Lump Sum	\$4,200.00	\$4,200.00	U.S. Dollar
	Direct Cost Add-On	1.00	Lump Sum	\$104,301.10	\$104,301.10	U.S. Dollar
	Mobilization	1.00	Lump Sum	\$11,909.51	\$11,909.51	U.S. Dollar
	Clearing & Grubbing	10.00	Acre	\$3,918.50	\$39,184.97	U.S. Dollar
	Unclassified Excavation	50,000.00	Cubic Yard	\$4.68	\$233,915.81	U.S. Dollar
	Aggregate Base	45,000.00	Ton	\$15.40	\$692,928.99	U.S. Dollar
	Asphalt Concrete Hot Mix Type A	35,000.00	Ton	\$42.62	\$1,491,580.59	U.S. Dollar
5.1	Furnish & Haul Hot Mix	35,000.00	Ton	\$39.27	\$1,374,562.54	U.S. Dollar
5.2	Install Hot Mix Type A	35,000.00	Ton	\$3.34	\$117,018.05	U.S. Dollar
6	36 inch RCP Culvert Class III	1,024.00	Linear Feet	\$67.54	\$69,159.49	U.S. Dollar
6.1	Furnish RCP Materials	1,024.00	Linear Feet	\$33.48	\$34,286.70	U.S. Dollar
6.2	Excavate RCP Trench	1,858.56	Cubic Yard	\$4.51	\$8,379.59	U.S. Dollar
6.3	Install RCP Pipe	1,024.00	Linear Feet	\$11.74	\$12,017.60	U.S. Dollar

4.1.1 Cell Select

To copy and paste data in InEight Estimate or to Excel, you can use a feature called Cell Select. Walk through the following steps to learn how to copy specific fields in InEight Estimate to an Excel Spreadsheet.

Step by Step — Cell Select

1. Open the **Training** Job and from the Setup tab, open the **Resource Rate Register**.
2. Select the **Labor** tab.
3. Select **Print View for Summary** from your Saved Views drop-down menu.
4. From the top-right corner, select the **Cell Select**  icon, (next to the Help icon).

- This puts you in “cell-select” mode, so you can select cells to copy in the same way you would in Excel.
5. With the Cell Select icon active, highlight all information in the **Description, Utilization Count** and **Unit of Measure** columns for all Labor resources.

Resource Rate Register

All Labor Construction Equipment Rented Construction Equipment Installed Material Installed Equipment Supplies Unique

Drag columns here to group

Resource Code	Description	Utilization Count	Unit of Measure
+ LC1	Carpenter Apprentice	594.37	Hour
+ LC2	Carpenter Journeyman	1,188.73	Hour
+ LC3	Carpenter Foreman	594.37	Hour
+ LF1	Finisher Apprentice	0.00	Hour
+ LF2	Finisher	594.37	Hour
+ LF3	Finisher Foreman	0.00	Hour
+ LIW1	Iron Worker	594.37	Hour
+ LIW2	Iron Worker Foreman	0.00	Hour
+ LL1	Labor Apprentice	0.00	Hour
+ LL2	Laborer	8,963.73	Hour
+ LL3	Labor Foreman	721.33	Hour
+ LMECH	Mechanic	418.44	Hour
+ LO1	Operator Class 1	1,800.00	Hour
+ LO2	Operator Class 2	4,019.73	Hour
+ LO3	Operator Class 3	889.33	Hour
+ LO4	Operator Foreman	1,421.77	Hour
+ LREM 01	Principal Eng/Scientist	0.00	Hour
+ LREM 05	Field Technician	0.00	Hour
+ LSPE	Project Engineer	800.00	Hour
+ LSSEC	Secretary	800.00	Hour
+ LSSUPT	Project Superintendent	800.00	Hour
+ LT1	Teamster	3,056.77	Hour
+ LT2	Teamster Foreman	0.00	Hour
+ LWD	Welder	0.00	Hour
→ LWDA	Welder Apprentice	0.00	Hour
*			

6. Right click on the selection and select **Copy**.
7. Open an Excel spreadsheet, right click in the **A1** field and select **Paste Special**, choosing **CSV** as the Source.

8. Click **OK**.

- The fields you copied from InEight Estimate paste into the spreadsheet

	A	B	C
1	Carpenter Apprentice	594.3650794	Hour
2	Carpenter Journeyman	1188.730159	Hour
3	Carpenter Foreman	594.3650794	Hour
4	Finisher Apprentice	0	Hour
5	Finisher	594.3650794	Hour
6	Finisher Foreman	0	Hour
7	Iron Worker	594.3650794	Hour
8	Iron Worker Foreman	0	Hour
9	Labor Apprentice	0	Hour
10	Laborer	8963.733879	Hour
11	Labor Foreman	721.3333333	Hour
12	Mechanic	418.4398946	Hour
13	Operator Class 1	1800	Hour
14	Operator Class 2	4019.732279	Hour
15	Operator Class 3	889.3333333	Hour
16	Operator Foreman	1421.768	Hour
17	Principal Eng/Scientist	0	Hour
18	Field Technician	0	Hour
19	Project Engineer	800	Hour
20	Secretary	800	Hour
21	Project Superintendent	800	Hour
22	Teamster	3056.768	Hour
23	Teamster Foreman	0	Hour
24	Welder	0	Hour
25	Welder Apprentice	0	Hour
26			

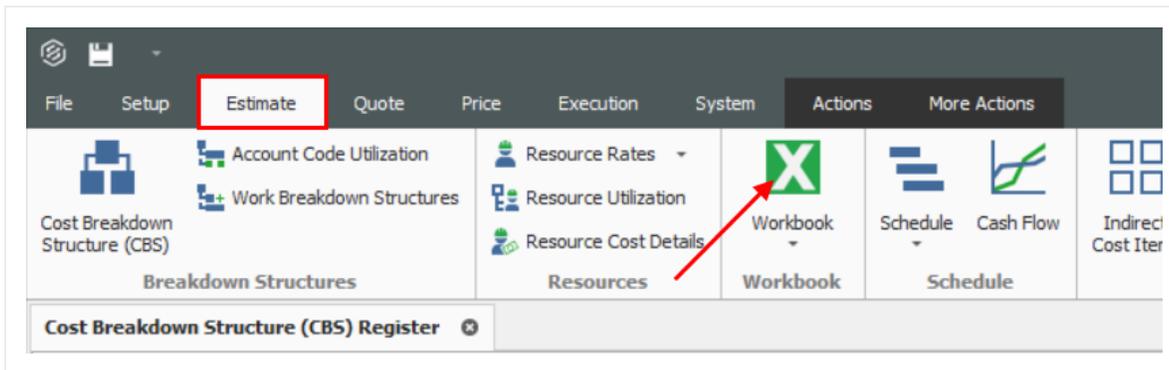
- To turn off the Cell Select, simply click the Cell Select Icon again and it deselected

4.2 LINKING TO EXCEL

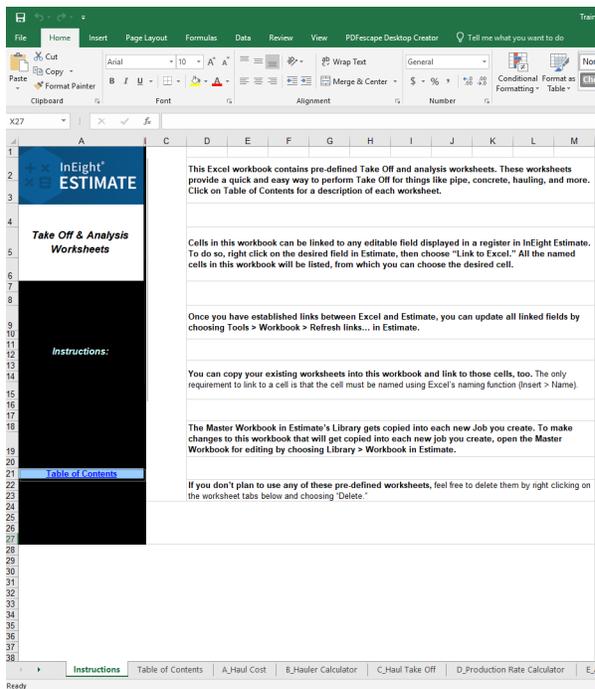
4.2.1 InEight Estimate Workbook

Every job has its own Excel workbook embedded within it for doing side calculations and take-offs. You can link your calculations to fields in InEight Estimate to automatically update them into your estimate. When you create a new job from scratch, the Library Master Workbook is copied to create a new embedded Excel workbook for the job.

The workbook comes with some pre-defined take-off and analysis worksheets, or you can create your own. Simply open the appropriate worksheet, plug in your values, and Excel will calculate your results. To open your job’s workbook, select the Estimate tab, then click on the Workbook icon under the Workbook section.



- The embedded Excel workbook for the job opens.



4.2.2 Linking to and from Excel

InEight Estimate's linking capabilities with Excel can be done in one of two ways. A field in InEight Estimate can be populated with a value from Excel, or a cell in Excel can be populated with the data from an InEight Estimate field. This two-way linking functionality allows you to make quick work of complex chores to perform spreadsheet-based take-off or formula-driven analysis.

6	36 Inch RCP Culvert Class III	413(B) 0464	1,024.00	Linear Feet
+ 6.1	Furnish RCP Materials	6.1	1,024.00	Linear Feet
+ 6.2	Excavate RCP Trench	6.2	1,858.56	Cubic Yard

The following example walks through how to link a simple take-off calculation into InEight Estimate from Excel. It is a take-off to determine the size of a concrete foundation.

Step by Step — Link Estimate to Excel

1. Open the **Training** Job and from the Estimate tab, open the **CBS Register**.
2. For this example, create a new cost item in the blank row at the bottom of the CBS register and name it **Concrete Foundation**.

Concrete Foundation			1.00	CY
----------------------------	--	--	------	----

3. Open the job’s Excel workbook from the Estimate tab, by selecting the Workbook icon.
4. In the workbook, create a new worksheet named **Concrete Take-off** and enter the following fields:

	A	B	C	D	E	F	G
1	Concrete Take-off						
2							
3	Length	10	yards				
4	Width	10	yards				
5	Height	0.5	yards				
6							
7							
8							
9							
10							
11							
12							

Instructions | Table of Contents | **Concrete Take-Off**

5. Create a new row to calculate the total cubic yards by factoring the length, width, and height quantities.

	A	B	C
1	Concrete Take-off		
2			
3	Length	10 yards	
4	Width	10 yards	
5	Height	0.5 yards	
6	Volume	=sum(B3*B4*B5)	
7			

- Your Volume Total should be 50 cubic yards

	A	B	C
1	Concrete Take-off		
2			
3	Length	10 yards	
4	Width	10 yards	
5	Height	0.5 yards	
6	Volume	50 CY	
7			

- InEight Estimate will only link to named fields in Excel. Click in the field you want to name (B6), then click in the Field Name window and type **Volume**.

	A	B	C
1	Concrete Take-off		
2			
3	Length	10 yards	
4	Width	10 yards	
5	Height	0.5 yards	
6	Volume	50 CY	
7			

- Go back to the CBS Register and right click on the Concrete Foundation cost item **Forecast (T/O) Quantity** field.
- From the resulting right click menu, select **Link this field to Excel**.
 - You can also link the field by selecting the field and then selecting Link Field from the Actions tab

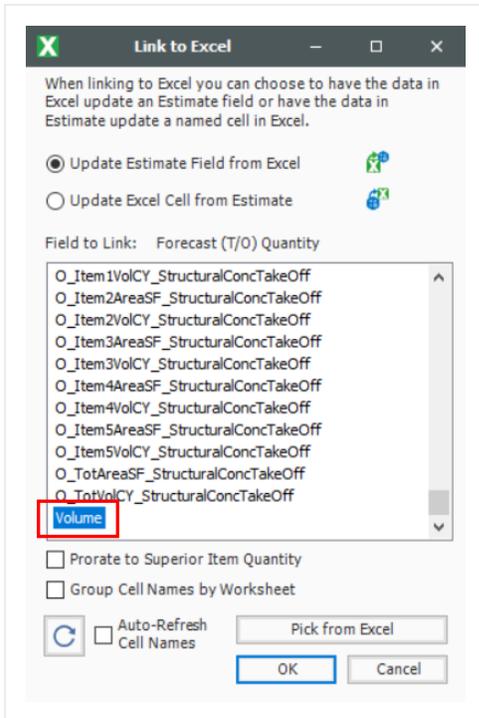
Training Job - Estimate

Execution	System	Integrations	Actions	More Actions
in	→ Indent	Link Field	Cost Item	Assembly
	← Outdent	Unlink Field	Subordinate Cost Item	Subordinate Assembly
Suspended			Dependent Cost Item	Resource
		Workbook		Insert

Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
06420	1.00	Lump Sum	\$2,100.00	\$2,100.00
08210	1.00	Lump Sum	\$1,000.00	\$1,000.00
09640	1.00	Lump Sum	\$1,800.00	\$1,800.00
12510	1.00			
15300	1.00			
16510	1.00			
1500 0100	1,000.00			
1500 0200	200.00			
1600 0230	1,000.00			
CO1	1.00			
UNASSIGNED DIRECT C...	1.00			
UNASSIGNED	1.00			
the Water	1.00			
	1.00			
	1.00			
	1.00			
	1.00			

- Open
- New
- Delete
- Cut
- Copy
- Paste
- Fill Down
- Link this field to Excel**
- UnLink from Excel
- Indent
- Outdent
- Insert
- Insert Subordinate
- Insert Dependent Cost Item
- Insert Cost Item Assembly
- Insert Cost Item Assembly as Subordinate
- Split

9. On the Link to Excel dialog, select the **Update InEight Estimate field from Excel** radio button.
10. In the Field to link window, select **Volume** (you may need to click the Refresh  button for the field name to display).



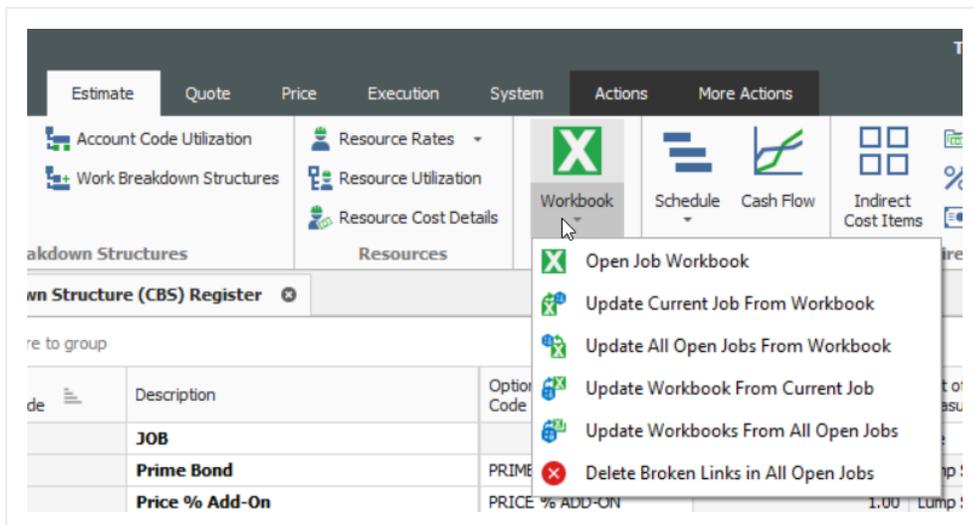
11. Click **OK**.

- The Forecast Quantity field for Concrete now is linked to the Volume field in Excel and populates with the take-off quantity (50)

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
+ 26	Concrete Foundation	50.00	CY

4.2.3 Update Links

When data in InEight Estimate or Excel changes, you can quickly update all links, in just the currently active job or in all open jobs. Simply select one of the following options from the Workbook dropdown list on the Estimate tab.



Lesson 4 Review

1. The Export to Excel feature is available on all register forms in the system and allows you to export the data currently displayed on a register form to an Excel worksheet.
 - a. True
 - b. False

2. In order to link an Excel field to InEight Estimate, the Excel field must be:
 - a. Named
 - b. Highlighted
 - c. Tagged
 - d. Selected

Lesson 4 Summary

As a result of this lesson, you can:

- Export data from InEight Estimate to Excel
- Link a field in InEight Estimate to Excel
- Update a linked InEight Estimate field with Excel data

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LESSON 5 – SCHEDULE INTEGRATION

Lesson Duration: 45 minutes

Lesson Objectives

After completing this lesson, you will be able to:

- Set up scheduling options
- Update schedule from InEight Estimate
- Update InEight Estimate from schedule
- Manage changes between estimate and schedule

Lesson Topics

5.1 PRIMAVERA

5.1.1 Scheduling Options

Prior to sending information from InEight Estimate to Primavera, you need to make sure the proper settings are in place.

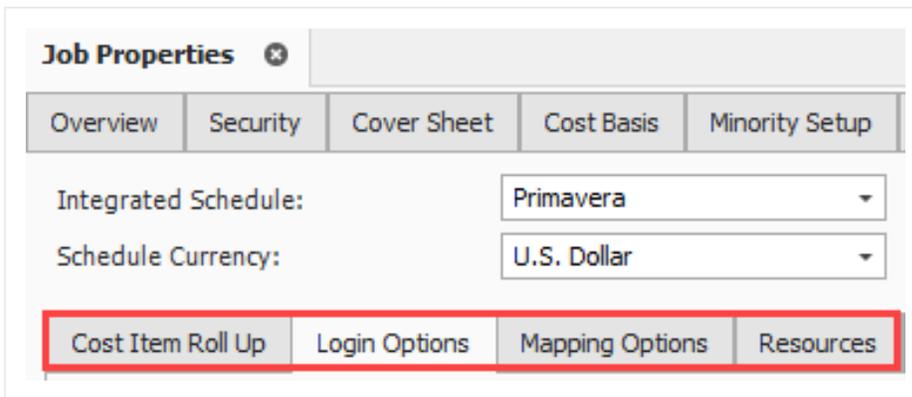
5.1.1.1 Job Properties Schedule Tab

Primavera scheduling options are configured on the **Setup > Job Properties > Schedule** tab.

The screenshot shows the 'Job Properties' window with the 'Schedule' tab selected. The 'Integrated Schedule' dropdown menu is set to 'Primavera'. Below it, the 'Schedule Currency' is set to 'U.S. Dollar'. A checkbox labeled 'Always use Plug Days when updating Estimate from the schedule' is currently unchecked. Below these settings are sub-tabs for 'Cost Item Roll Up', 'Login Options', 'Mapping Options', 'Resources', 'Expense Costs', 'Actuals', 'Tags', and 'Activity Calendars'. Under 'Cost Item Roll Up', there are two radio button options: 'Longest scheduled days among all rolled up cost items' (selected) and 'Total scheduled days for all rolled up cost items'. A note explains that Plug Days will be recalculated when a change is made to the scheduled days of a subordinate. A 'Recalculate Plug Days' button is located at the bottom of this section.

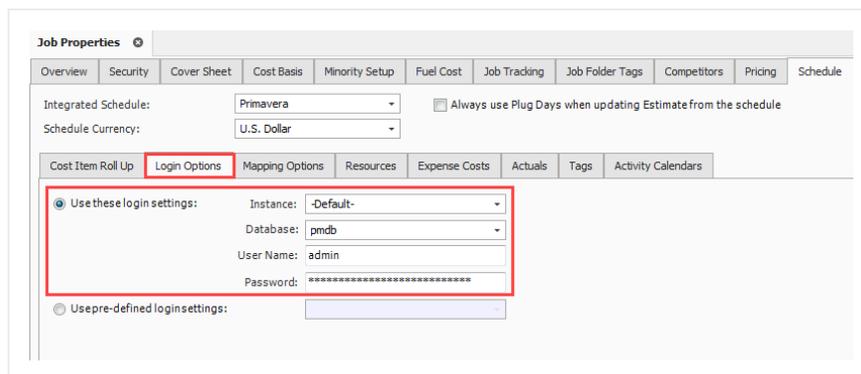
- At the top of the Schedule tab, the Integrated Schedule must be set to **Primavera**
- As a default, the **Always use Plug Days when updating InEight Estimate from the schedule** checkbox is not selected (on a job by job basis, this box can be checked later for jobs in which an estimator does not want updates from Primavera to change the duration and therefore the cost of your cost items in InEight Estimate)
- On the Schedule tab, there are several sub-tabs that need to be set up correctly to produce

correct data behavior and ensure the correct passing of data to Primavera



Step by Step — Login Options Tab

1. On the Schedule > Login Options tab of Job Properties, select the **Use these login settings** radio button.
 - If pre-defined login settings were required, the Use pre-defined login settings radio button would be selected instead
 - The Instance will remain set to **-Default-**
 - Database selection will be **pmdb** during training.
2. Type your user name in the User Name field.
3. Type your password into the Password field.
 - You will have your own login settings specific to your company



5.1.1.2 Mapping Options Tab

The Mapping Options tab contains options critical to downstream applications. It will have the following settings selected by default:

1. The **CBS Position Code** is selected as the field to populate the Primavera WBS Code and Activity ID fields.
2. The **Manage the Primavera WBS structure in InEight Estimate...** radio button is selected for the initial push from InEight Estimate to P6.
 - This means the WBS structure in Primavera will be controlled by the structure of superior and terminal cost items in InEight Estimate.
 - Selecting the other option would cause the WBS structure to be controlled in Primavera. Only terminal cost items would be sent from InEight Estimate to Primavera and all hierarchal structure (WBS Elements) would be created in Primavera manually
 - This option can be changed later, on a job-by-job basis.
3. The **Update the Project's Planned Start Date in Primavera from the Forecast Start Date** option is checked.
 - This will automatically pull the Forecast Start Date from the Job Properties > Cover Sheet tab to become the Planned Start Date in Primavera.

NOTE

You should double-check to make sure the right Start Date is defined on the Job Properties > Cover Sheet tab.

Cost Item Roll Up | Login Options | **Mapping Options** | Resources | Expense Costs | Actuals | Tags | Activity Calendars

Use the following Estimate field to populate the Primavera WBS Code and Activity ID fields:

CBS Position Code

Schedule ID

Updating the Primavera WBS Structure from Estimate:

Manage the Primavera WBS structure in Estimate. Update Primavera WBS elements and activities with superior and terminal cost items.

Manage the Primavera WBS structure in Primavera. Update Primavera activities with terminal cost items.

Synchronize Schedule Relationships:

From Estimate to P6

From P6 to Estimate

Update the Schedule ID field from Primavera WBS Codes / Activity IDs

Update the Project's Planned Start Date in Primavera from the Forecast Start Date on the Cover Sheet.

Keep suspended cost items in the Primavera schedule (with zero values)

Create Cost Items from Primavera WBS Elements/Activities

5.1.1.3 Resources Tab

The Resources tab dictates how resources are mapped between InEight Estimate and P6.

Section		Name
1	Update Primavera Resources from Estimate	<p>Provides options for sending InEight Estimate resources to Primavera.</p> <ul style="list-style-type: none"> • Typically, you would select the Update scheduled resources only option to send only resources that are employed on cost items • The Update all of this job's resources option updates Primavera with all of the resources in your project's Resource Rate Register
2	Map Resource Types to Primavera	Specify whether your resources will import into Primavera as Resources or Roles.
3	Update Primavera Budgeted Units when using Plug Days	Allows you to specify how to handle Budgeted Units for items that use Plug Days.
4	Update Primavera Cost Accounts from Estimate Account Codes	Checking this box causes assigned account codes to import into Primavera as Cost Accounts.
5	Update Price/Unit on Primavera Resource Assignments	Checking the boxes in this section will cause the Charge Rate costs of your resources to import into Primavera along with your resources.

5.1.1.4 Overview – Resources Tab

The screenshot shows the 'Resources' tab in a software interface. The tab is highlighted with a red border. Below the tab are several sections:

- Update Primavera Resources from Estimate:**
 - Option 1: Update all of this job's resources
 - Option 2: Update scheduled resources only
 - Option 3: Do not update Primavera resources
- Update Primavera Budgeted Units when using Plug Days:**
 - Option 4: Adjust Budgeted Units to match Plug Duration
 - Option 5: Maintain Budgeted Units to match (non-plug) Work Hours
- Update Primavera Cost Accounts from Estimate Account Codes:**
 - Option 6: Update Primavera Cost Accounts on Resource Assignments
- Map Resource Types to Primavera:**
 - Labor: Resource
 - Construction Equipment: Resource
 - Rented Construction Equipment: Resource
 - Installed Material: Resource
 - Installed Equipment: Resource
 - Supplies: Resource
 - Unique: Resource
- Update Price / Unit on Primavera Resource Assignments:**
 - Labor
 - Construction Equipment
 - Rented Construction Equipment
 - Installed Material
 - Installed Equipment
 - Supplies
 - Unique

5.1.1.5 Expense Costs Tab

The Expense Costs tab is useful for bringing costs in from InEight Estimate that are not connected to resources, for example, your plugged and/or quoted cost items. This tab is optional, and it is not required to make selections here.

Overview Security Cover Sheet Cost Basis Minority Setup Fuel Cost Job Tracking Job Folder Tags Competitors Pricing Schedule Cash Flow

Integrated Schedule: Primavera Always use Plug Days when updating Estimate from the schedule
 Schedule Currency: U.S. Dollar

Cost Item Roll Up Login Options Mapping Options Resources **Expense Costs** Actuals Tags Activity Calendars

Update Primavera Expense Costs from Estimate

Cost Category	Primavera Expense Category
Labor:	HD01 Labor
Owned Equipment:	HD02 Owned Equipment
Rented Equipment:	HD03 Rented Equipment
Supplies:	HD04 Supplies
Materials:	HD05 Materials
Subcontract:	HD06 Subcontract
Fees:	HD07 Fees
Allowance:	HD08 Allowance
Custom Category 1:	HD09 Custom Category1
Undefined:	HD10 Undefined

5.1.2 Schedule Cost Items

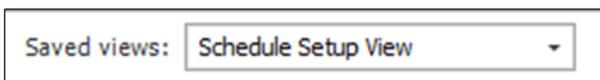
Before you can integrate with Primavera, your cost items need to be marked as Scheduled in InEight Estimate. This is done on the Cost Breakdown Structure (CBS) Register. From your Saved Views drop-down list in the CBS, the Schedule Setup View displays all of your schedule-related columns. There are a couple to keep in mind when you schedule your items:

- **Scheduled:** This column tells you which of your items are selected to be included in your Primavera schedule
- **Roll Up Schedule:** This column lets you check a box to roll up your estimate to the selected level when it imports into Primavera

The following steps walk you through scheduling your cost items.

Step by Step — Schedule a Cost Item in InEight Estimate

1. In the **Training Job**, from the Estimate tab, select **Cost Breakdown Structure**.
2. In the Saved Views drop-down list, select **Schedule Setup View**.



- In the Scheduled column, you can select the checkbox for each cost item that you want to schedule
 - If a cost item has subordinate cost items below it, you will only be able to check the superior cost item, which will automatically schedule the subordinate cost items along with it
3. Select the **Mobilization, Clearing & Grubbing, and Unclassified Excavation** cost items, then press **Tab**.

CBS Position Code	Description	Scheduled	Roll Up Schedule
[-]	JOB	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+	Prime Bond	<input type="checkbox"/>	<input type="checkbox"/>
+	Price % Add-On	<input type="checkbox"/>	<input type="checkbox"/>
+	Job Financing	<input type="checkbox"/>	<input type="checkbox"/>
+	Indirect Cost Escalation	<input type="checkbox"/>	<input type="checkbox"/>
+	Direct Cost Escalation	<input type="checkbox"/>	<input type="checkbox"/>
+	Indirect Cost Add-On	<input type="checkbox"/>	<input type="checkbox"/>
+	Job Management & Equipment	<input type="checkbox"/>	<input type="checkbox"/>
+	General Expense	<input type="checkbox"/>	<input type="checkbox"/>
+	Direct Cost Add-On	<input type="checkbox"/>	<input type="checkbox"/>
+ 1	Mobilization	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 2	Clearing & Grubbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
[-] 3	Unclassified Excavation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3.1	Excavation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3.2	Embankment	<input checked="" type="checkbox"/>	<input type="checkbox"/>
[-] 4	Aggregate Base	<input type="checkbox"/>	<input type="checkbox"/>
+ 4.1	Furnish & Haul Base Material	<input type="checkbox"/>	<input type="checkbox"/>
+ 4.2	Finegrade Subgrade	<input type="checkbox"/>	<input type="checkbox"/>

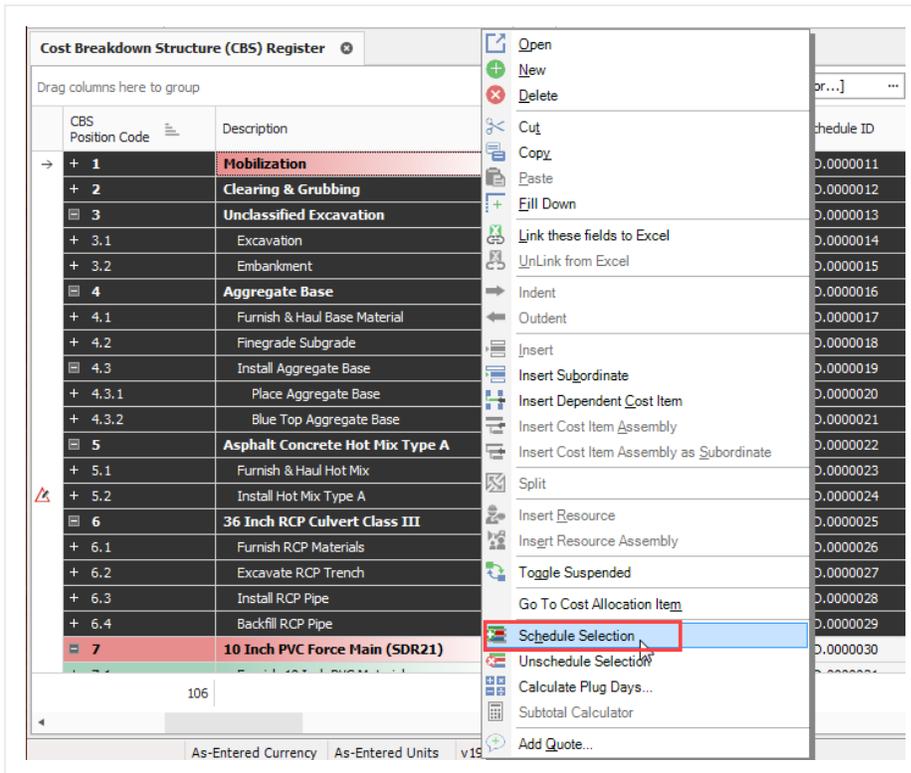
Step by Step — Schedule a Group of Cost Items in InEight Estimate

1. In the **Training Job**, from the Estimate tab, select **Cost Breakdown Structure**.
2. From the Saved Views drop-down list, select **Schedule Setup View**.
 - To schedule multiple cost items, you can highlight the row for each cost item that you want to schedule, using the Shift and Ctrl keys to select multiple rows.

3. Select additional cost items **4-Aggregate base**, **5- Asphalt Concrete Hot Mix**, and **6- 36-inch RCP Culvert Class**.

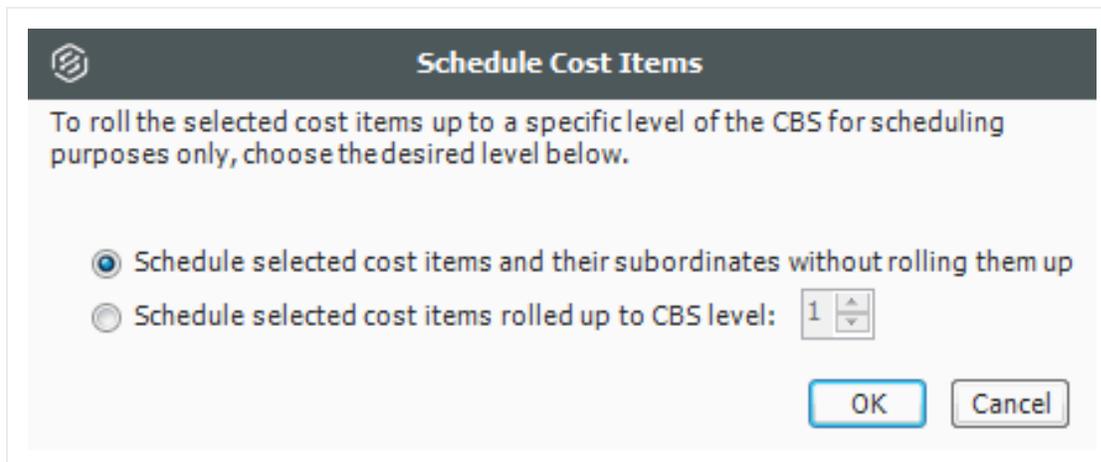
TIP To schedule all cost items, highlight the **JOB** row.

4. Right click on the selected rows and select **Schedule Selection**.



- On the Schedule Cost Items dialog, you can select whether or not you want to roll up the selected cost items to a specific level of the CBS for scheduling purposes

5. Select **Schedule selected cost items and their subordinates without rolling them up**, then click **OK**.



- Your scheduled cost items will import into Primavera the next time you update Primavera from InEight Estimate.

5.1.2.6 Roll Up Schedule

For cost item 3 – Unclassified Excavation, your scheduler does not need all of your estimate details and wants to roll up your cost items to a higher level when they import into the Primavera schedule.

Follow the steps below to learn how to roll up your cost items for the schedule.

Step by Step — Roll Up Schedule

1. In the **Training Job**, from the Estimate tab select **Cost Breakdown Structure**.
2. From the Saved Views drop-down list, select **Schedule Setup View**.
 - Review your cost items to decide which cost items need to be rolled up
3. Select the **Roll Up Schedule** checkbox on the Unclassified Excavation cost item.

CBS Position Code	Description	Scheduled	Roll Up Schedule
+ 1	Mobilization	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 2	Clearing & Grubbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
▣ 3	Unclassified Excavation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
+ 3.1	Excavation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3.2	Embankment	<input checked="" type="checkbox"/>	<input type="checkbox"/>
▣ 4	Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.1	Furnish & Haul Base Material	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.2	Finegrade Subgrade	<input checked="" type="checkbox"/>	<input type="checkbox"/>
▣ 4.3	Install Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.3.1	Place Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.3.2	Blue Top Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>

5.1.3 Update Primavera from InEight Estimate

Now that you have set up your Primavera options in Job Properties and scheduled your cost items in the CBS, you are ready to send your project information to Primavera.

When you first update Primavera from InEight Estimate, Primavera will create a new project automatically and load it with the following information from InEight Estimate:

Data Sent from InEight Estimate to Primavera		
Data Type	InEight Estimate	Primavera
Project Data	Job Code	Project ID
	Job Description	Project Name
Activity Data	CBS Position Code//Schedule ID	WBS Code / Activity ID
	Description	WBS Element / Activity Name
	Hours	Planned Duration (Hours)
	Shift and Rate Rules	Activity Calendar
	Cost Item Tags and UDFs	Activity Codes or UDFs
	Cost Category Total Cost	Cost Category (custom text columns)

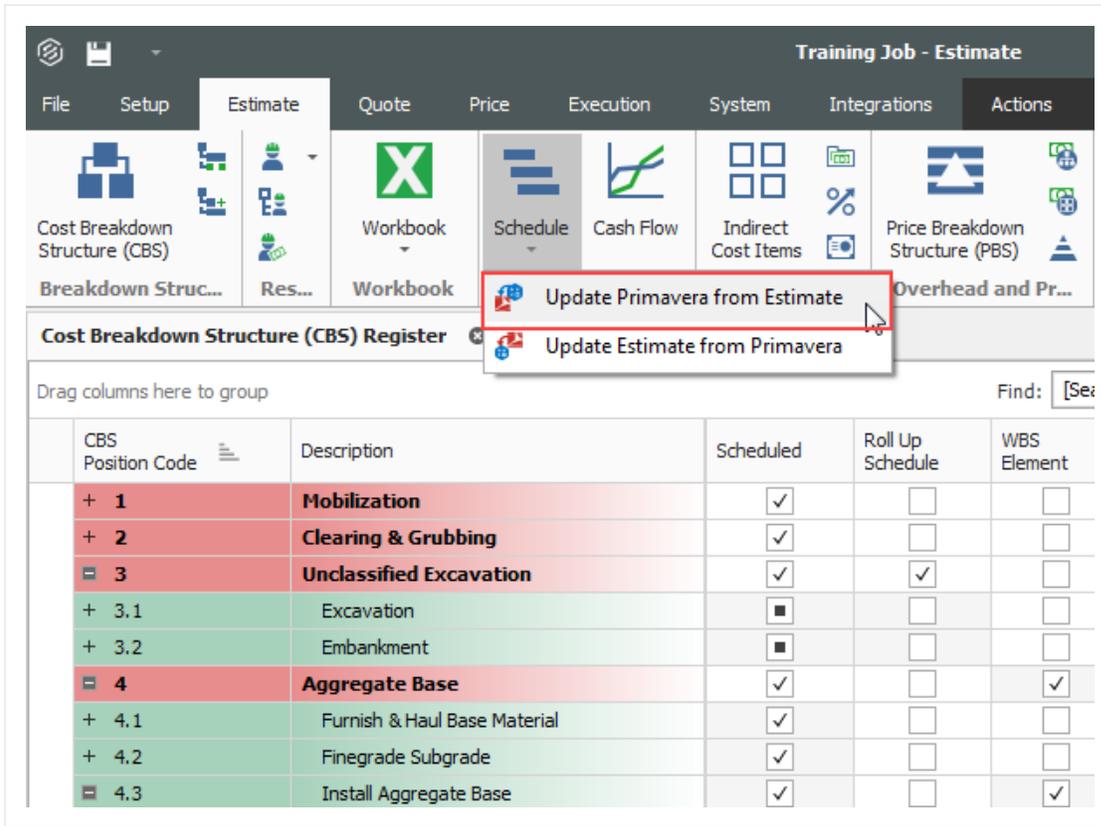
Data Sent from InEight Estimate to Primavera		
Resource Data	Resource Code	Resource ID
	Resource Description	Resource Name
Cost Data	Resource Cost / Unit	Resource Price / Unit
	Cost Category Total Cost	Expense Category Budgeted Cost

NOTE Tags, resource data, and cost data only update in Primavera if selected in the Job Properties > Schedule settings.

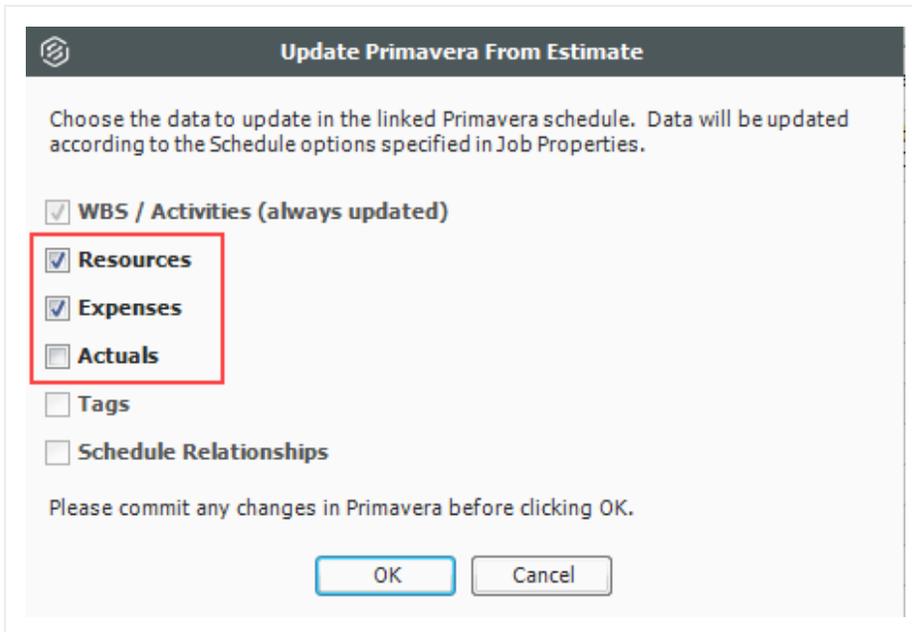
The following steps walk you through updating Primavera from InEight Estimate to create a new schedule.

Step by Step — Update Primavera from InEight Estimate

- From the Estimate tab, select **Schedule>Update Primavera from InEight Estimate**.

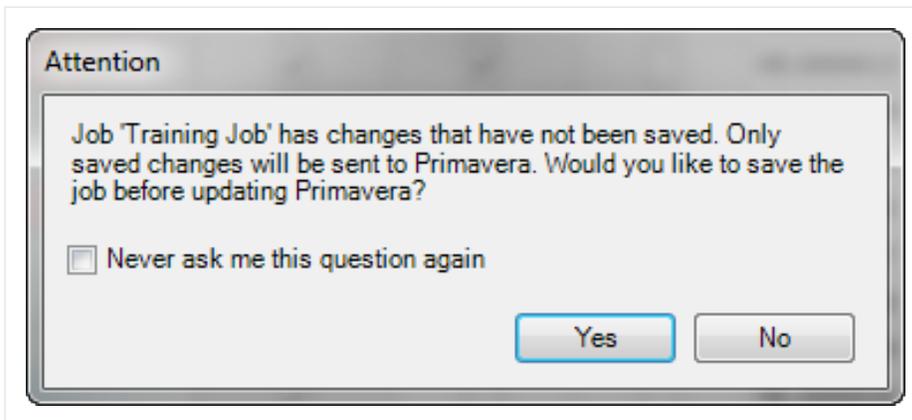


- The Update Primavera From Estimate dialog prompts you to indicate what data to update to Primavera
- Make sure **Resources** and **Expenses** are checked. Deselect **Actuals** (For Job Tracking purposes) if auto selected, then click **OK**.

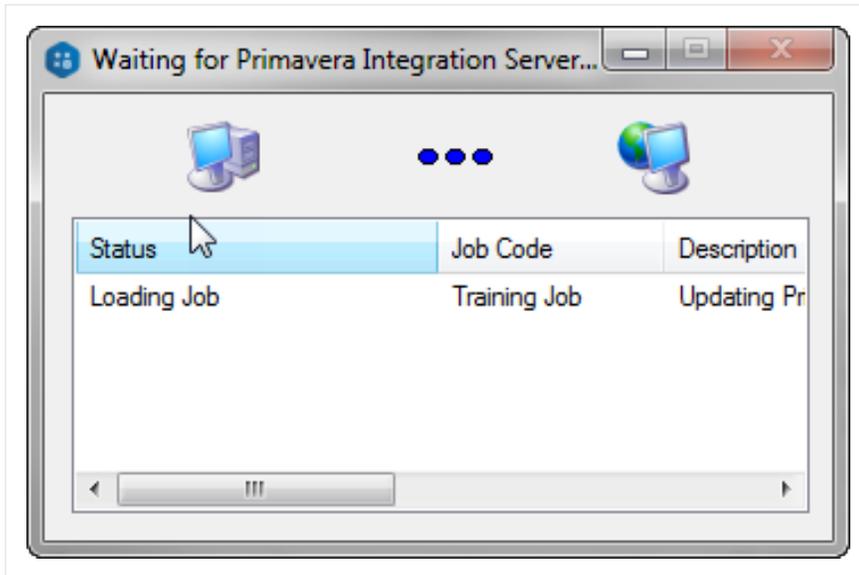


- An Attention prompt appears, letting you know that the job has not been saved.

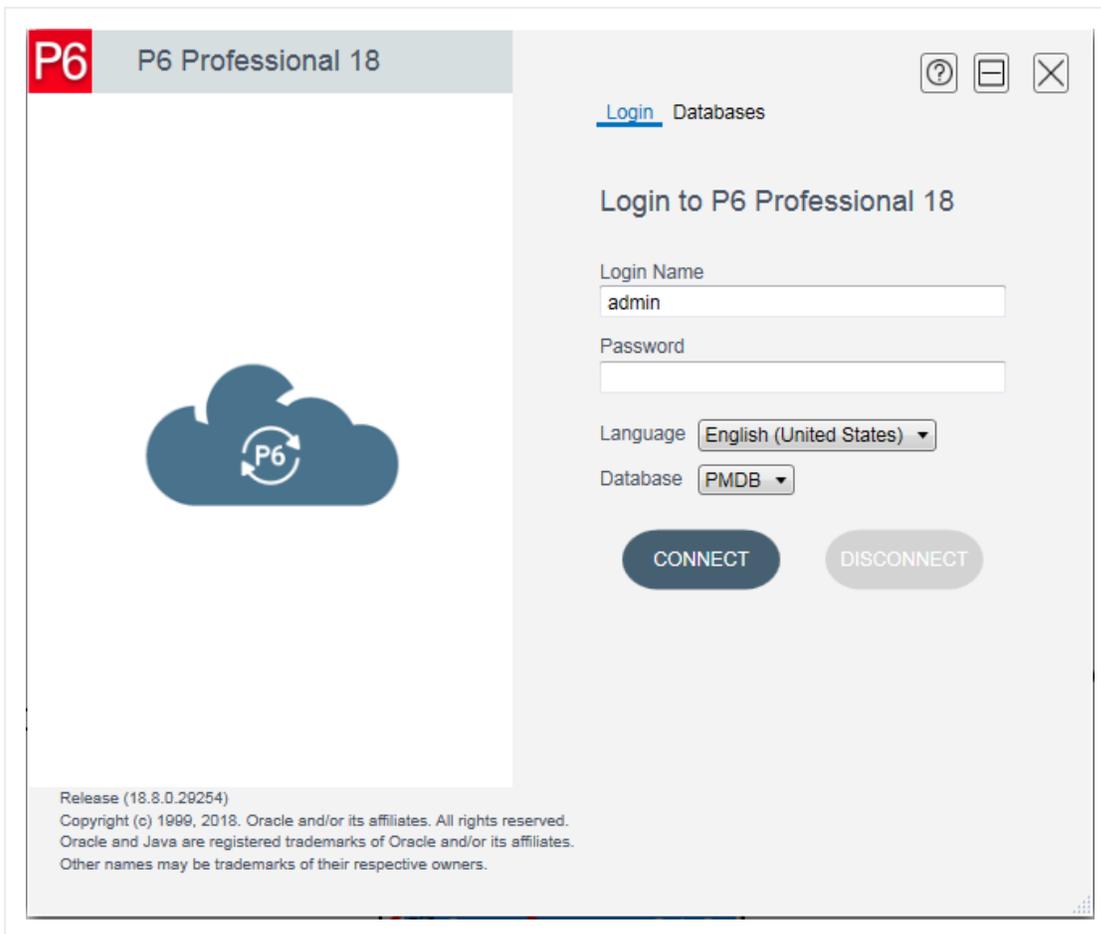
3. Click **Yes** to save the job before updating Primavera.



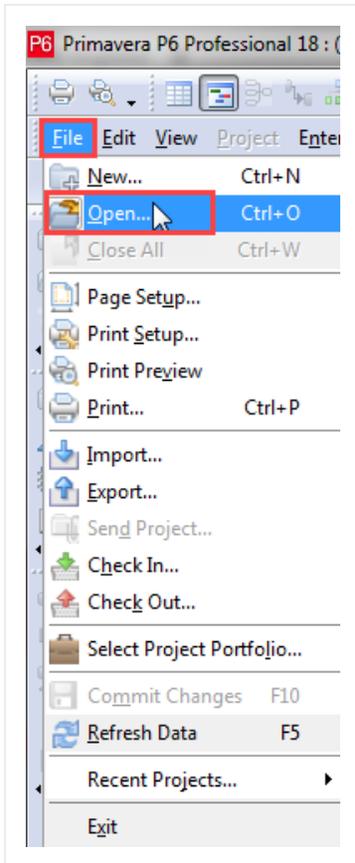
- A window appears that shows the progress of the data sync between InEight Estimate and Primavera. Depending on the size of the job, this can take several minutes



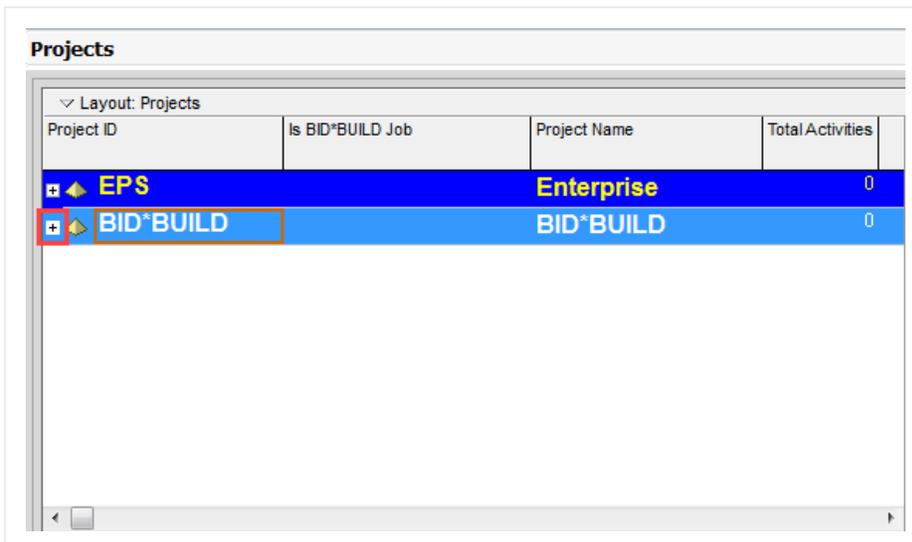
- When the window disappears, the update is complete
4. Open Primavera P6 (Project Management) client.
 5. Log in to Primavera, using the same Username and Password that was entered on the Schedule > Login Options tab in InEight Estimate Job Properties.



6. In Primavera, open the project.



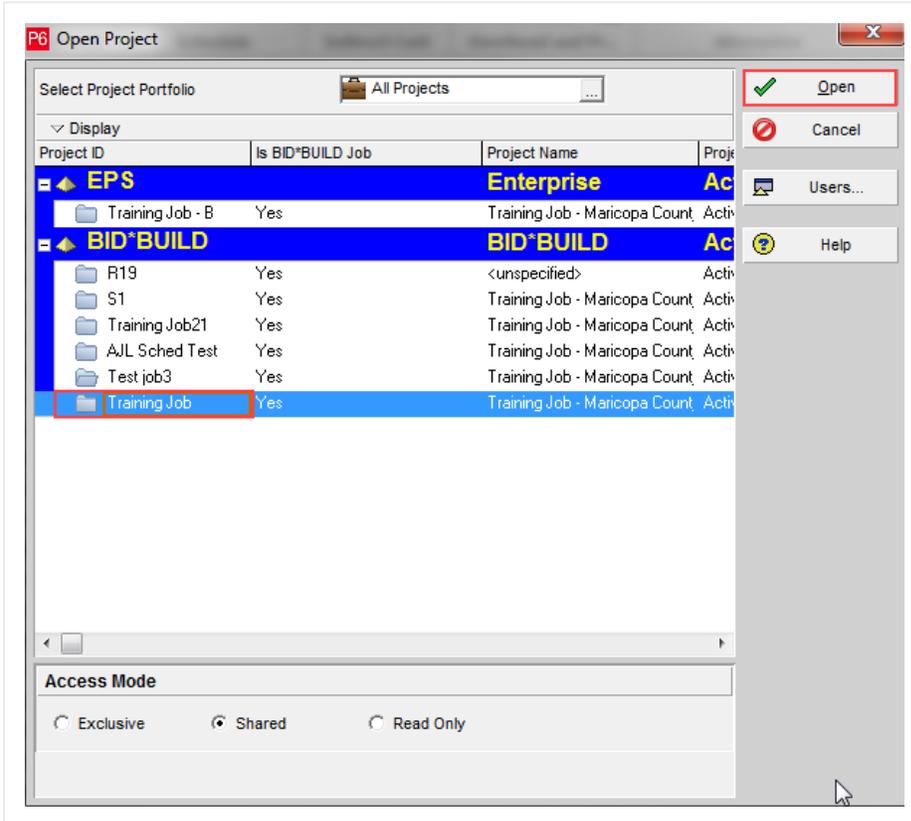
7. In the Open Project dialog, expand the **BID*BUILD** folder.



NOTE All projects created from InEight Estimate are created in the BID*BUILD folder by default.

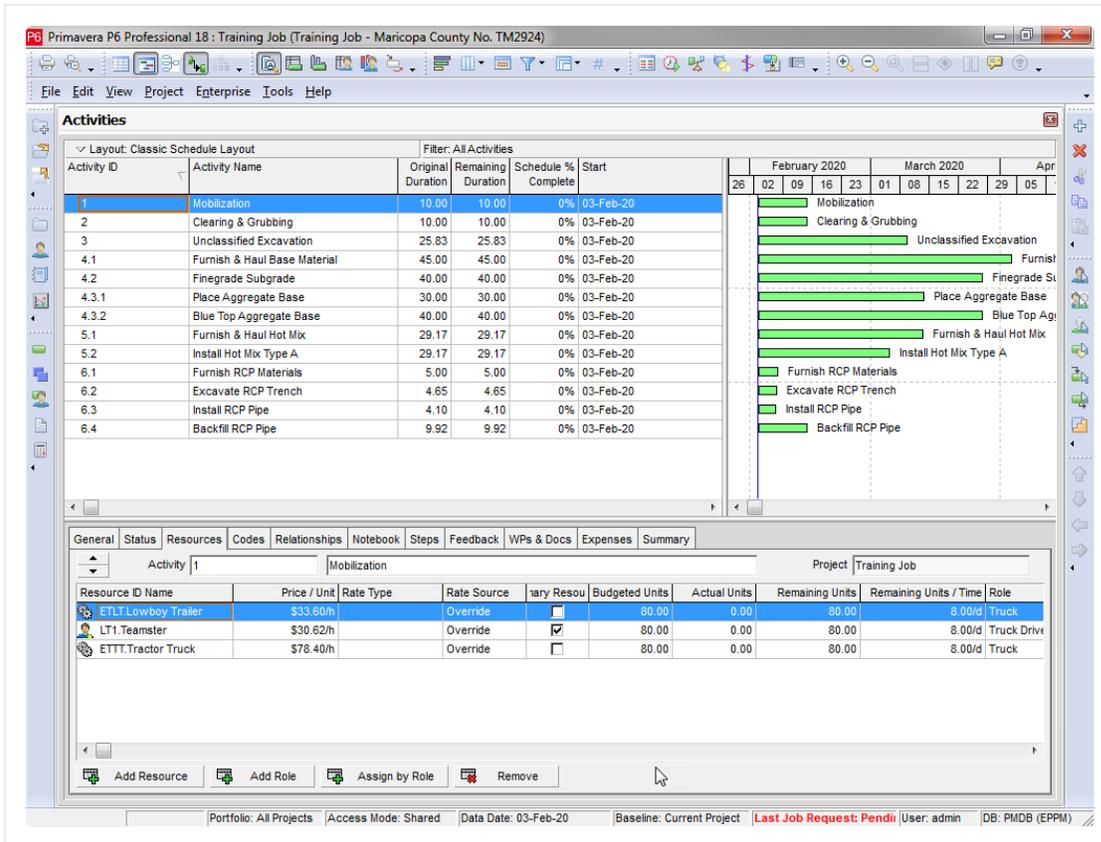
- Your available projects are sorted by their job names.

8. Select the **Training Job** (with your initials) so that it is highlighted, and then select **Open**.



- The WBS Layout displays for the project. You can see the breakdown structure imported from InEight Estimate with durations, rolled up as specified by the Roll Up Schedule option in InEight Estimate
- Initially, the start date for your activities is the start date defined on the Job Properties > Cover Sheet tab (these will change as activity relationships are defined)

9. Select the **Resources** tab to see the resources that imported for each activity, with their associated costs.



5.1.4 Update InEight Estimate from Primavera

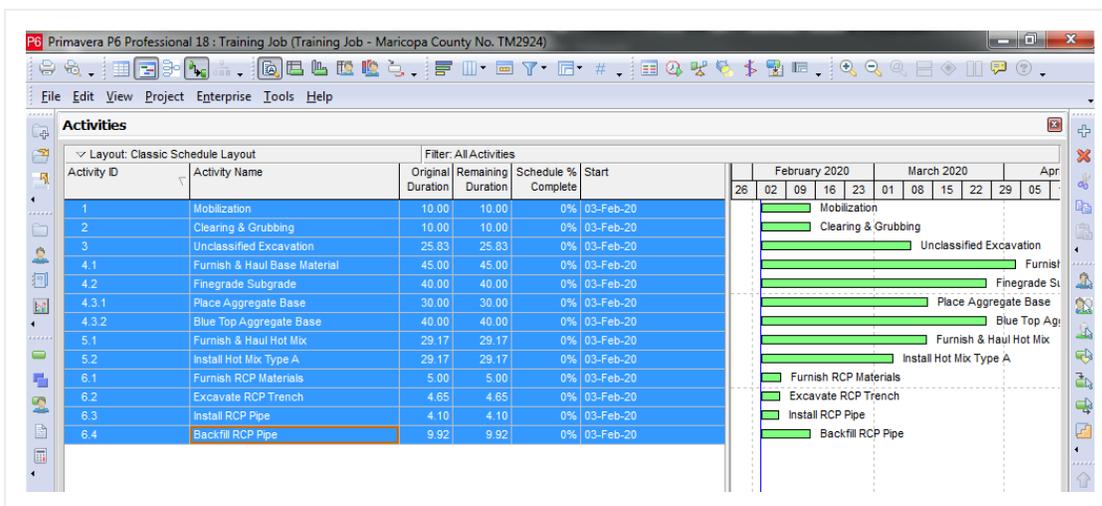
You can also bring information back from Primavera into InEight Estimate. When you update InEight Estimate from Primavera, the following information updates:

Update InEight Estimate from Primavera		
Data Type	Primavera	InEight Estimate
Activity Data	Start Dates	Start Dates
	Finish Dates	Finish Dates
	Relationships	Schedule Relationships
Hours		Plugged Days

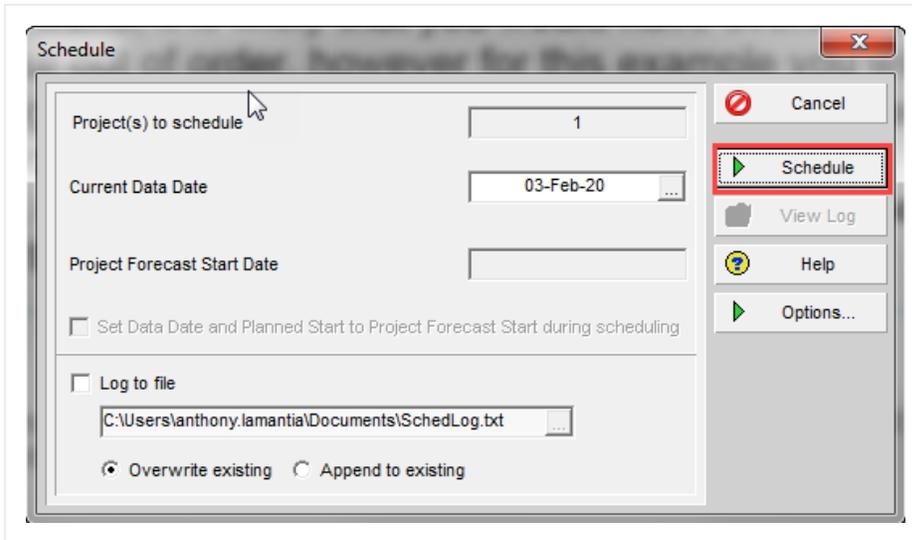
Complete the following steps to practice updating InEight Estimate from Primavera. You will create a scheduling relationship in Primavera, and then import the updated dates and relationships into InEight Estimate.

Step by Step — Update InEight Estimate from Primavera

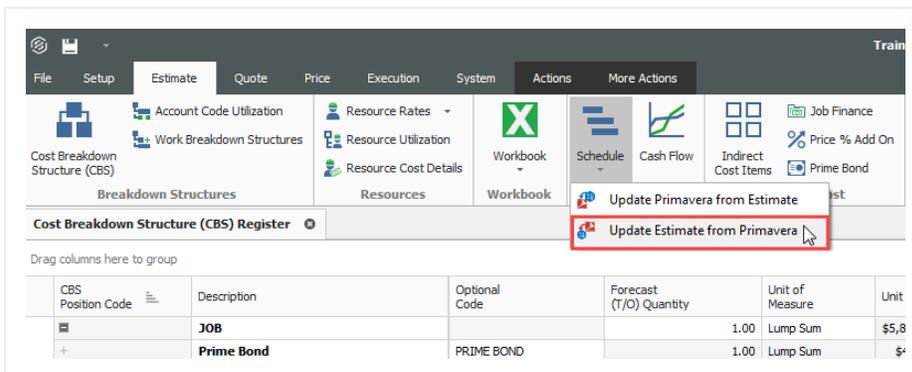
- Open your version of the **Training Job** project in Primavera.
 - In the real world, it is likely that you would have overlapping activities, or your activities would occur out of order, however for this example you will link all activities from finish to start
- Highlight all of your activities from **1-Mobilization** through **6.4-Backfill RCP Pipe**.



- Right click on one of the selected rows and select **Link Selected Activities** to create the Finish to Start relationship.
 - You may have to select the Relationship Lines button to show the linked activities in the graph on the right side of the screen.
- To schedule this new relationship, select the **Schedule** button (or press the **F9** key).
- On the Schedule Project window, keep the default settings and select the **Schedule** button.



6. To update InEight Estimate with this change, go back to InEight Estimate and select **Estimate** tab.
7. Select **Schedule>Update Estimate from Primavera**.



8. On the Update InEight Estimate from Primavera prompt, keep the default **Update the estimate to stay in synch with the schedule** selected, then click **OK**.

Update Estimate from Primavera

This will update the cost items in this job with schedule dates, durations and descriptions from Primavera. This may change the duration of these cost items, which could affect their cost. Changes made to Resource or Cost data in Primavera will NOT affect Estimate. How do you wish to proceed?

Update the estimate to stay in synch with the schedule.
Change the estimated work hours for all hourly resources employed on these cost items to reflect the new durations (this will change the cost item's cost).

Do NOT update the estimate.
Instead, schedule these cost items using Plug Days. (Note: you can toggle the schedule between Plug Days and Estimated Days for each cost item directly in the Job's CBS.)

Never ask me this question again

9. On the Schedule Setup View, you can see the Start and Finish dates updated from Primavera.

CBS Position Code	Description	Start	Finish	Early Start	Early Finish	Late Start	Late Finish
	JOB	2/3/2020	2/23/2021	2/3/2020	2/23/2021	2/3/2020	2/23/2021
+	Prime Bond						
+	Price % Add-On						
+	Job Financing						
+	Indirect Cost Escalation						
+	Direct Cost Escalation						
+	Indirect Cost Add-On						
+	Job Management & Equipment						
+	General Expense						
+	Direct Cost Add-On						
+ 1	Mobilization	2/3/2020	2/14/2020	2/3/2020	2/14/2020	2/3/2020	2/14/2020
+ 2	Clearing & Grubbing	2/17/2020	2/28/2020	2/17/2020	2/28/2020	2/17/2020	2/28/2020
▣ 3	Unclassified Excavation	3/2/2020	4/6/2020	3/2/2020	4/6/2020	3/2/2020	4/6/2020
+ 3.1	Excavation	3/2/2020	4/6/2020	3/2/2020	4/6/2020	3/2/2020	4/6/2020
+ 3.2	Embankment	3/2/2020	4/6/2020	3/2/2020	4/6/2020	3/2/2020	4/6/2020
▣ 4	Aggregate Base	4/6/2020	11/9/2020	4/6/2020	11/9/2020	4/6/2020	11/9/2020
+ 4.1	Furnish & Haul Base Material	4/6/2020	6/8/2020	4/6/2020	6/8/2020	4/6/2020	6/8/2020
+ 4.2	Finegrade Subgrade	6/8/2020	8/3/2020	6/8/2020	8/3/2020	6/8/2020	8/3/2020
▣ 4.3	Install Aggregate Base	8/3/2020	11/9/2020	8/3/2020	11/9/2020	8/3/2020	11/9/2020
+ 4.3.1	Place Aggregate Base	8/3/2020	9/14/2020	8/3/2020	9/14/2020	8/3/2020	9/14/2020

5.1.5 Manage Changes Between Estimate and Schedule

As changes to scope, resources, and costs come up in your estimate, and changes to relationships and dates occur in the schedule, you can continue updating your estimate and schedule as needed.

5.1.5.7 Plug Days

The Schedule Plug Days option allows you to define the duration in the schedule separate from the duration defined for your cost items on the Production tab.

For example, your 10” PVC Pipe activity may have extra days in the schedule due to the delivery date of the pipe material, but you don’t want those extra days to drive the costs in your estimate, since your crews won’t be working on the activity on those extra days.

NOTE All superior cost items are hard-coded to use Schedule Plug Days.

Step by Step — Schedule Plug Days

1. Look at the Days (Duration driven) column in the CBS where it shows 4.65 days for Excavate-Install-Backfill Pipe.
2. Make sure the **Schedule Plug Days** checkbox is selected on the **Excavate-Install-Backfill Pipe** cost item, then enter a Plug Days duration for the number of days the item will be scheduled in Primavera (**7** days).

CBS Position Code	Description	Days (Duration driven)	Schedule Plug Days	Plug Days
6	36 Inch RCP Culvert Class III	18.66	<input checked="" type="checkbox"/>	26.01
+ 6.1	Furnish RCP Materials	0.00	<input checked="" type="checkbox"/>	5.00
+ 6.2	Excavate RCP Trench	4.65	<input checked="" type="checkbox"/>	7.00
+ 6.3	Install RCP Pipe	4.10	<input type="checkbox"/>	4.10
+ 6.4	Backfill RCP Pipe	9.92	<input type="checkbox"/>	9.92

- This allows you to maintain your duration of 4.65 days in the estimate and 7 days in the schedule.

5.1.5.8 Update Primavera with InEight Estimate Changes

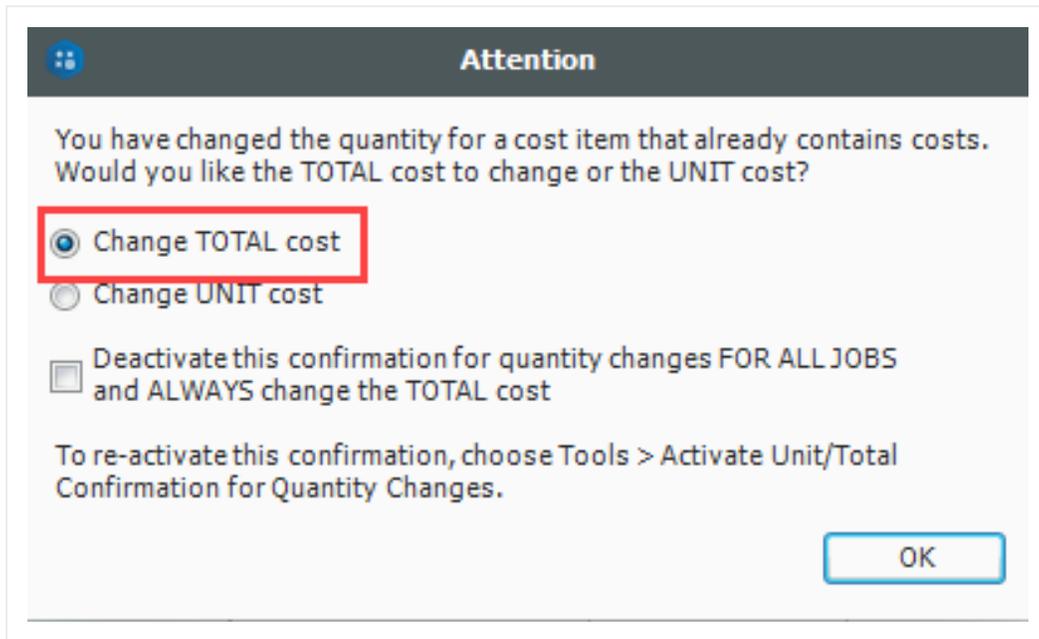
The following steps will walk you through updating the schedule with a scope change in your estimate.

Step by Step — Update Primavera with InEight Estimate Changes

1. In the **Training Job** from the Estimate tab, select **Cost Breakdown Structure**.
 - In this scenario, there is a scope change for your Excavation requiring you to change all of your quantities
2. Change the quantity in the Forecast (T/O) Quantity field in the CBS as specified below:

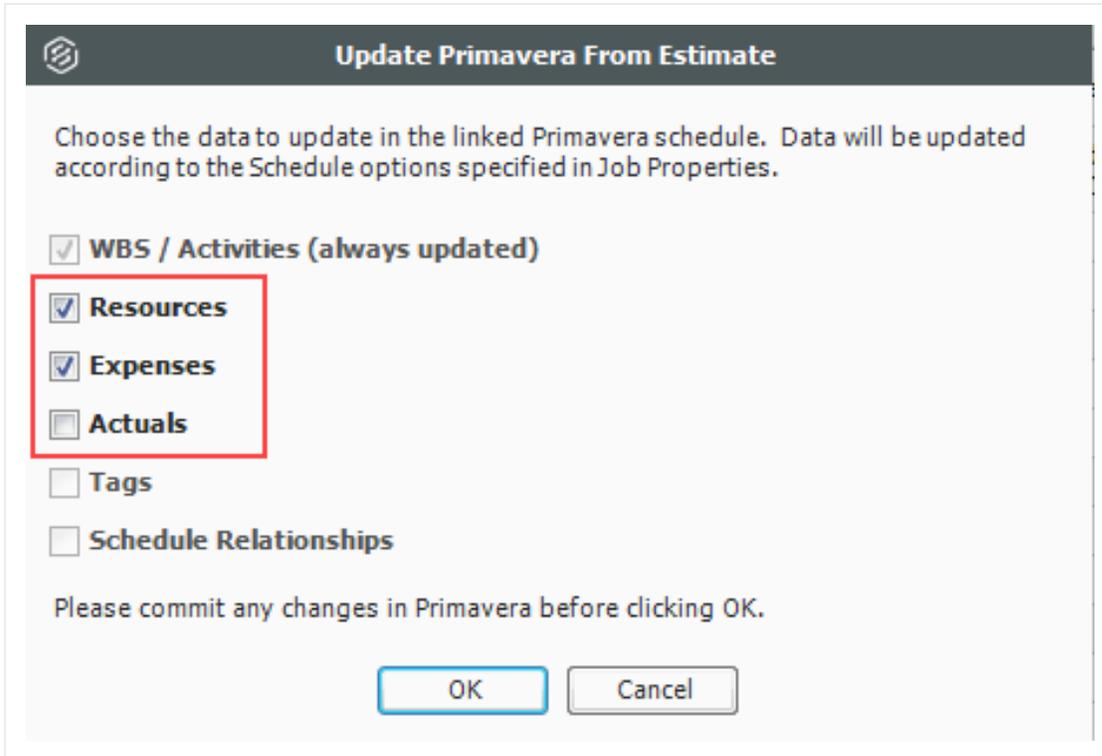
Quantity Change for Cost Item			
CBS Code	Description	Old Quantity	New Quantity
5	Asphalt Concrete Hot Mix Type A	35,000	25,000

- As you make your changes, take note of how your duration changes in the Days (Duration driven) column for these items
- If prompted about changing Total or Unit Cost, select **Change TOTAL cost**, so that your unit costs stay intact, then click **OK**.

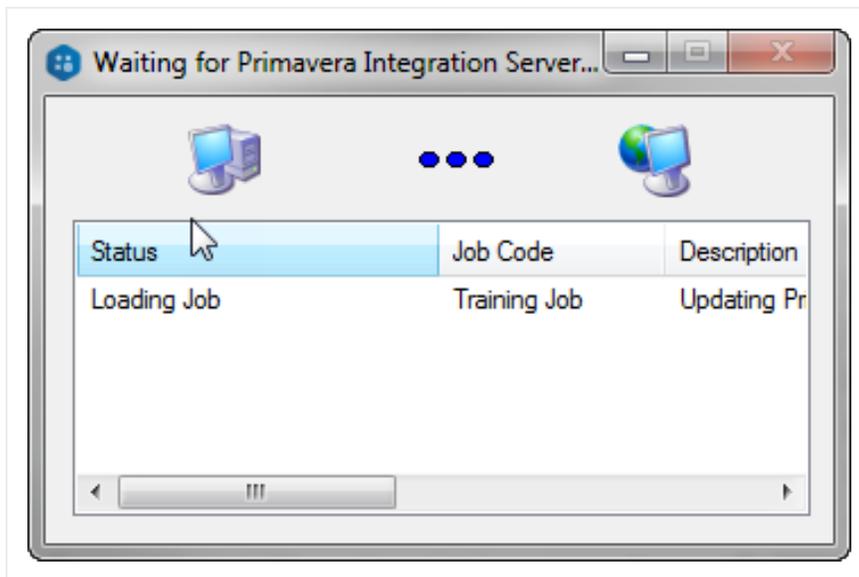


3. From the Estimate tab, select **Schedule>Update Primavera from InEight Estimate** to send the changed hours to Primavera.

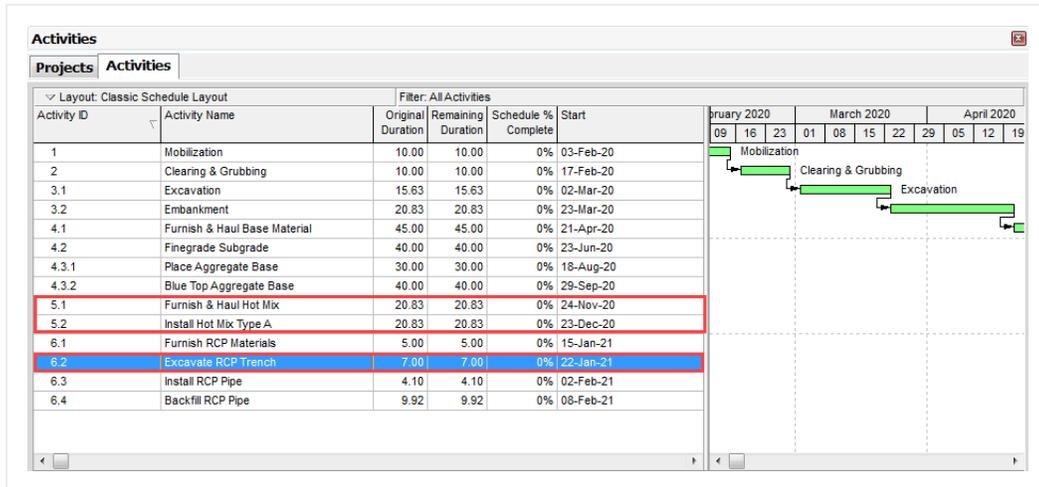
- The Update Primavera From InEight Estimate dialog prompts you to indicate what data to update to Primavera
4. Make sure Resources and Expenses are checked, then select **OK**.



- A window appears that shows the progress of the data sync between InEight Estimate and Primavera. Depending on the size of the job, this can take a few minutes



- When the window disappears, the update is complete
5. Open Primavera (P6 Web Client).
 6. Open the **Training Job** project.
 7. On the Activities screen, compare the Planned Duration to the Days (Duration driven) in InEight Estimate for Excavate-Install-Backfill Pipe.
 - The Primavera scheduled duration should have changed from 4.65 days to 7 days to match the updated duration in InEight Estimate for Excavate-Install-Backfill Pipe
 - You will also notice a change in days for Excavation after changing the T/O Quantity in InEight Estimate



- To schedule this change in Primavera, select the **Schedule** button (or press the **F9** key) and select the **Schedule** button on the Schedule Project window.
- Your start and finish dates are different now. In InEight Estimate, from the Estimate tab, select **Schedule>Update InEight Estimate from Primavera** to update InEight Estimate with the new dates.

CBS Position Code	Description	Start	Finish	Early Start	Early Finish	Late Start	Late Finish
+ 1	Mobilization	2/3/2020	2/14/2020	2/3/2020	2/14/2020	2/3/2020	2/17/2020
+ 2	Clearing & Grubbing	2/17/2020	2/28/2020	2/17/2020	2/28/2020	2/17/2020	3/2/2020
3	Unclassified Excavation	3/2/2020	4/21/2020	3/2/2020	4/21/2020	3/2/2020	4/21/2020
+ 3.1	Excavation	3/2/2020	3/23/2020	3/2/2020	3/23/2020	3/2/2020	3/23/2020
+ 3.2	Embankment	3/23/2020	4/21/2020	3/23/2020	4/21/2020	3/23/2020	4/21/2020
4	Aggregate Base	4/21/2020	11/24/2020	4/21/2020	11/24/2020	4/21/2020	11/24/2020
+ 4.1	Furnish & Haul Base Material	4/21/2020	6/23/2020	4/21/2020	6/23/2020	4/21/2020	6/23/2020
+ 4.2	Finegrade Subgrade	6/23/2020	8/18/2020	6/23/2020	8/18/2020	6/23/2020	8/18/2020
4.3	Install Aggregate Base	8/18/2020	11/24/2020	8/18/2020	11/24/2020	8/18/2020	11/24/2020
+ 4.3.1	Place Aggregate Base	8/18/2020	9/29/2020	8/18/2020	9/29/2020	8/18/2020	9/29/2020
+ 4.3.2	Blue Top Aggregate Base	9/29/2020	11/24/2020	9/29/2020	11/24/2020	9/29/2020	11/24/2020
5	Asphalt Concrete Hot Mix Type A	11/24/2020	1/14/2021	11/24/2020	1/14/2021	11/24/2020	1/15/2021
+ 5.1	Furnish & Haul Hot Mix	11/24/2020	12/23/2020	11/24/2020	12/23/2020	11/24/2020	12/23/2020
+ 5.2	Install Hot Mix Type A	12/23/2020	1/14/2021	12/23/2020	1/14/2021	12/23/2020	1/15/2021
6	36 Inch RCP Culvert Class III	1/15/2021	2/22/2021	1/15/2021	2/22/2021	1/15/2021	2/22/2021
+ 6.1	Furnish RCP Materials	1/15/2021	1/21/2021	1/15/2021	1/21/2021	1/15/2021	1/21/2021
+ 6.2	Excavate RCP Trench	1/22/2021	2/1/2021	1/22/2021	2/1/2021	1/22/2021	2/1/2021
+ 6.3	Install RCP Pipe	2/2/2021	2/8/2021	2/2/2021	2/8/2021	2/2/2021	2/8/2021
+ 6.4	Backfill RCP Pipe	2/8/2021	2/22/2021	2/8/2021	2/22/2021	2/8/2021	2/22/2021

Exercise 5.1 – Manage Changes Between Estimate and Primavera

As changes occur during the estimating process, you can keep the estimate and schedule in sync through schedule integration. In this exercise, you will practice making changes between the estimate and schedule. Complete the following steps:

1. Open the **Training Job** and open the **CBS Register**.

2. Check the box in the Schedule Plug Days column for the Install RCP Pipe.

3. Change the Plug Days for Install RCP Pipe to **8 days**.

4. Update Primavera from InEight Estimate.

5. Open the Training Job project in Primavera and confirm the Planned Duration (you may need to change your view to see this column) changed to 8 days.

6. In Primavera, change the Planned Duration for Backfill RCP Pipe to **12 days**.

7. Schedule the changes in Primavera (Schedule button or F9).

8. Update InEight Estimate from Primavera.

You should end up with the following results

Cost item 6.3 Install RCP Pipe is now showing 8 Plug days in Primavera.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish
1	Mobilization	10.00	10.00	0%	03-Feb-20	14-Feb-20
2	Clearing & Grubbing	10.00	10.00	0%	17-Feb-20	28-Feb-20
3.1	Excavation	15.63	15.63	0%	02-Mar-20	23-Mar-20
3.2	Embankment	20.83	20.83	0%	23-Mar-20	21-Apr-20
4.1	Furnish & Haul Base Material	45.00	45.00	0%	21-Apr-20	23-Jun-20
4.2	Finegrade Subgrade	40.00	40.00	0%	23-Jun-20	18-Aug-20
4.3.1	Place Aggregate Base	30.00	30.00	0%	18-Aug-20	29-Sep-20
4.3.2	Blue Top Aggregate Base	40.00	40.00	0%	29-Sep-20	24-Nov-20
5.1	Furnish & Haul Hot Mix	20.83	20.83	0%	24-Nov-20	23-Dec-20
5.2	Install Hot Mix Type A	20.83	20.83	0%	23-Dec-20	14-Jan-21
6.1	Furnish RCP Materials	5.00	5.00	0%	15-Jan-21	21-Jan-21
6.2	Excavate RCP Trench	7.00	7.00	0%	22-Jan-21	01-Feb-21
6.3	Install RCP Pipe	8.00	8.00	0%	02-Feb-21	11-Feb-21
6.4	Backfill RCP Pipe	9.92	9.92	0%	08-Feb-21	22-Feb-21

Cost item 6.4 Backfill RCP Pipe should have 12 plug days in InEight Estimate.

CBS Position Code	Description	Days (Duration driven)	Schedule Plug Days	Plug Days	Start	Finish
6	36 Inch RCP Culvert Class III	18.66	<input checked="" type="checkbox"/>	46.00	1/15/2021	3/1/2021
+ 6.1	Furnish RCP Materials	0.00	<input checked="" type="checkbox"/>	5.00	1/15/2021	1/21/2021
+ 6.2	Excavate RCP Trench	4.65	<input checked="" type="checkbox"/>	7.00	1/22/2021	2/1/2021
+ 6.3	Install RCP Pipe	4.10	<input checked="" type="checkbox"/>	8.00	2/2/2021	2/11/2021
+ 6.4	Backfill RCP Pipe	9.92	<input checked="" type="checkbox"/>	12.00	2/12/2021	3/1/2021

Congratulations, you have completed this exercise!

5.2 MICROSOFT PROJECT

5.2.1 Set Up Scheduling Options

Prior to sending information from InEight Estimate to Microsoft Project, you need to make sure the proper settings are in place.

5.2.1.1 Job Properties Schedule Tab

Microsoft Project scheduling options are configured on the Schedule tab of the Job Properties form.

- At the top of the Schedule tab, the Integrated Schedule must be set to **Microsoft Project**
- As a default, the **Always use Plug Days when updating InEight Estimate from the schedule** checkbox is not selected (on a job by job basis, this box can be checked later for jobs in which an estimator does not want updates from Microsoft Project to change the duration and therefore the cost of your cost items in InEight Estimate)

The screenshot shows the 'Job Properties' form with the 'Schedule' tab active. The 'Integrated Schedule' dropdown is set to 'Microsoft Project'. The checkbox 'Always use Plug Days when updating Estimate from the schedule' is unchecked. The 'Schedule Currency' is 'U.S. Dollar'. Under the 'Cost Item Roll Up' section, the checkbox 'Automatically calculate Plug Days when rolling up cost items for scheduling purposes' is checked. Two radio buttons are present: 'Longest scheduled days among all rolled up cost items' (selected) and 'Total scheduled days for all rolled up cost items'. A note below explains that Plug Days of the superior cost item will be recalculated when a change is made to the scheduled days of a subordinate. At the bottom, there is a 'Recalculate Plug Days' button.

5.2.2 Schedule Cost Items

Before you can integrate with Microsoft Project, your cost items need to be marked as Scheduled in InEight Estimate. This is done on the Cost Breakdown Structure (CBS) Register. From your Saved Views drop-down list in the CBS, the Schedule Setup View displays all of your schedule-related columns. There are a couple to keep in mind when you schedule your items:

- **Scheduled:** This column tells you which of your items are selected to be included in your Primavera schedule
- **Roll Up Schedule:** This column lets you check a box to roll up your estimate to the selected level when it imports into Primavera

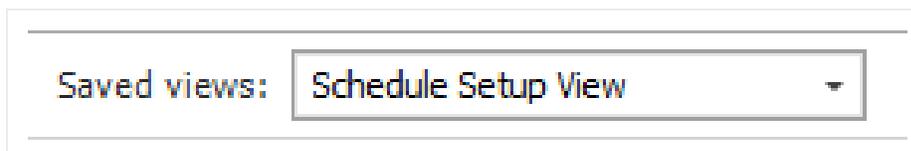
In the below example, notice that all of the cost items are scheduled, but the subordinates for Unclassified Excavation will be rolled up to the superior level.

CBS Position Code	Description	Scheduled	Roll Up Schedule
+ 1	Mobilization	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 2	Clearing & Grubbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
▣ 3	Unclassified Excavation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
+ 3.1	Excavation	<input type="checkbox"/>	<input type="checkbox"/>
+ 3.2	Embankment	<input type="checkbox"/>	<input type="checkbox"/>
▣ 4	Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.1	Furnish & Haul Base Material	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.2	Finegrade Subgrade	<input checked="" type="checkbox"/>	<input type="checkbox"/>
▣ 4.3	Install Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The following steps walk you through scheduling your cost items.

Step by Step — Schedule a Cost Item in InEight Estimate

1. In the **Training Job**, from the Estimate tab, select **Cost Breakdown Structure**.
2. In the Saved Views drop-down list, select **Schedule Setup View**.



- In the Scheduled column, you can select the checkbox for each cost item that you want to schedule
- If a cost item has subordinate cost items below it, you will only be able to check the superior cost item, which will automatically schedule the subordinate cost items along with it

3. Select the **Mobilization, Clearing & Grubbing, and Unclassified Excavation** cost items, then press **Tab**.

CBS Position Code	Description	Scheduled	Roll Up Schedule
[-]	JOB	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+	Prime Bond	<input type="checkbox"/>	<input type="checkbox"/>
+	Price % Add-On	<input type="checkbox"/>	<input type="checkbox"/>
+	Job Financing	<input type="checkbox"/>	<input type="checkbox"/>
+	Indirect Cost Escalation	<input type="checkbox"/>	<input type="checkbox"/>
+	Direct Cost Escalation	<input type="checkbox"/>	<input type="checkbox"/>
+	Indirect Cost Add-On	<input type="checkbox"/>	<input type="checkbox"/>
+	Job Management & Equipment	<input type="checkbox"/>	<input type="checkbox"/>
+	General Expense	<input type="checkbox"/>	<input type="checkbox"/>
+	Direct Cost Add-On	<input type="checkbox"/>	<input type="checkbox"/>
+ 1	Mobilization	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 2	Clearing & Grubbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
[-] 3	Unclassified Excavation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3.1	Excavation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3.2	Embankment	<input checked="" type="checkbox"/>	<input type="checkbox"/>
[-] 4	Aggregate Base	<input type="checkbox"/>	<input type="checkbox"/>
+ 4.1	Furnish & Haul Base Material	<input type="checkbox"/>	<input type="checkbox"/>
+ 4.2	Finegrade Subgrade	<input type="checkbox"/>	<input type="checkbox"/>

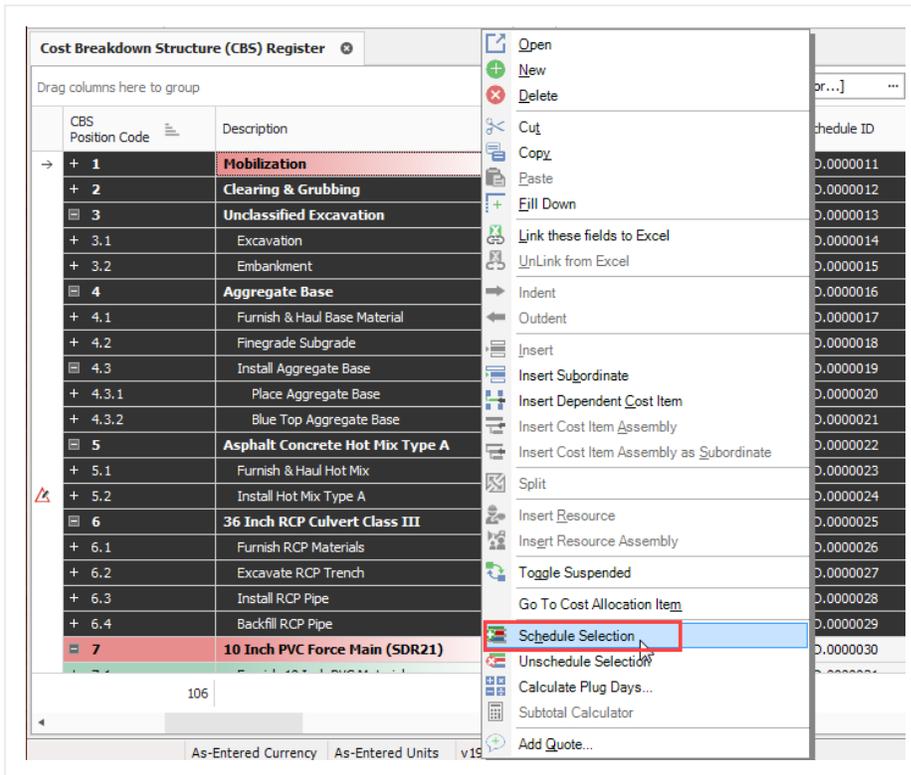
Step by Step — Schedule a Group of Cost Items in InEight Estimate

1. In the **Training Job**, from the Estimate tab, select **Cost Breakdown Structure**.
2. From the Saved Views drop-down list, select **Schedule Setup View**.
 - To schedule multiple cost items, you can highlight the row for each cost item that you want to schedule, using the Shift and Ctrl keys to select multiple rows.
3. Select additional cost items **4-Aggregate base, 5- Asphalt Concrete Hot Mix, and 6- 36-inch RCP Culvert Class**.

TIP

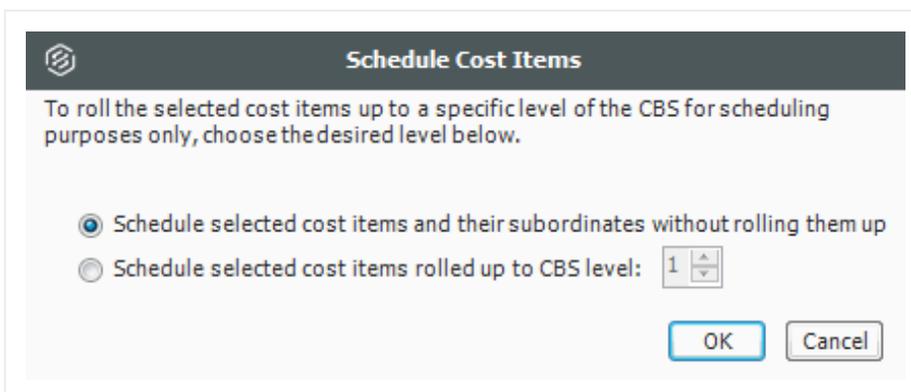
To schedule all cost items, highlight the JOB row

4. Right click on the selected rows and select **Schedule Selection**.



- On the Schedule Cost Items dialog, you can select whether or not you want to roll up the selected cost items to a specific level of the CBS for scheduling purposes

5. Select **Schedule selected cost items and their subordinates without rolling them up**, then click **OK**.



- Your scheduled cost items will import into Primavera the next time you update Primavera from InEight Estimate.

5.2.2.2 Roll Up Schedule

For cost item 3 – Unclassified Excavation, your scheduler does not need all of your estimate details and wants to roll up your cost items to a higher level when they import into the Primavera schedule.

Follow the steps below to learn how to roll up your cost items for the schedule.

Step by Step — Roll Up Schedule

1. In the **Training Job**, from the Estimate tab select **Cost Breakdown Structure**.
2. From the Saved Views drop-down list, select **Schedule Setup View**.
 - Review your cost items to decide which cost items need to be rolled up
3. Select the **Roll Up Schedule** checkbox on the Unclassified Excavation cost item.

CBS Position Code	Description	Scheduled	Roll Up Schedule
+ 1	Mobilization	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 2	Clearing & Grubbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
▣ 3	Unclassified Excavation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
+ 3.1	Excavation	<input type="checkbox"/>	<input type="checkbox"/>
+ 3.2	Embankment	<input type="checkbox"/>	<input type="checkbox"/>
▣ 4	Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.1	Furnish & Haul Base Material	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.2	Finegrade Subgrade	<input checked="" type="checkbox"/>	<input type="checkbox"/>
▣ 4.3	Install Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.3.1	Place Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.3.2	Blue Top Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>

5.2.3 Update Microsoft Project from InEight Estimate

Now that you have set up your schedule to integrate with Microsoft Project in Job Properties and scheduled your cost items in the CBS, you are ready to send your project information to Microsoft Project.

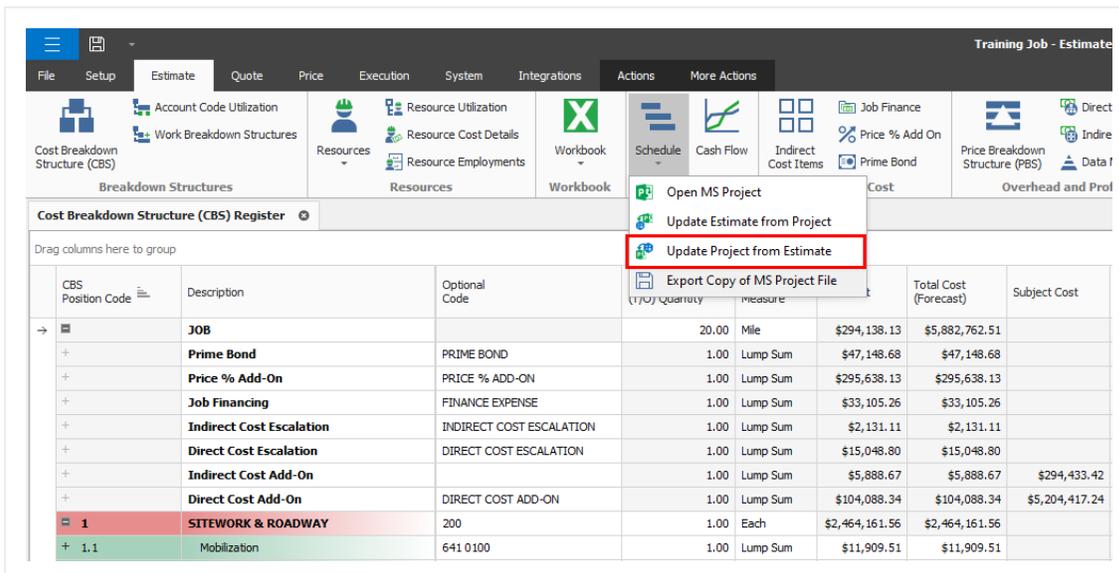
When you first update Microsoft Project from InEight Estimate, Microsoft Project will create a new project automatically and load it with the following information from InEight Estimate:

Data Sent from InEight Estimate to Microsoft Project		
Data Type	InEight Estimate	Microsoft Project
Project Data	Job Code	Project Name
Activity Data	CBS Position Code	01 - CBS Position Code
	Description	Description
	Days (Duration Driven)	Duration
Cost Data	Cost Category Total Cost	Cost Category (custom text columns)

The following steps walk you through updating Microsoft Project from InEight Estimate to create a new schedule.

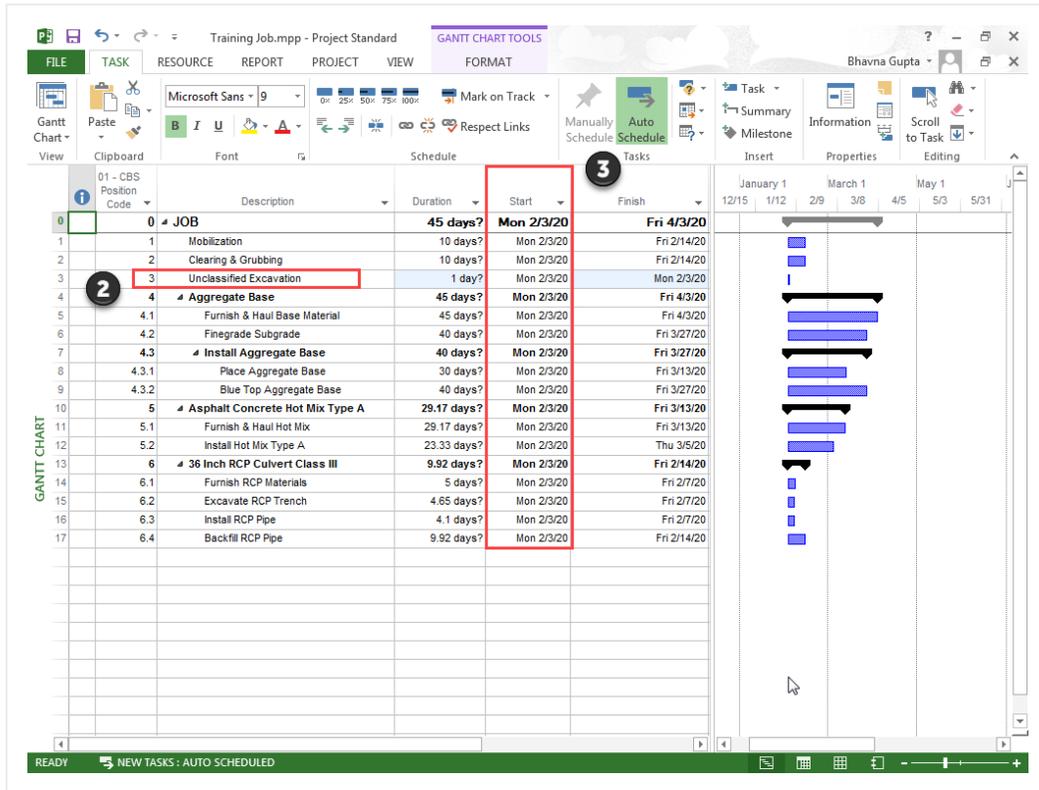
Step by Step — Update MS Project from InEight Estimate

1. From the Estimate tab, select **Schedule>Update Project from InEight Estimate**.



- Your job automatically opens in Microsoft Project
- The Work Breakdown Structure Layout displays for the project

- You can see the breakdown structure imported from InEight Estimate with durations, rolled up as specified by the Roll Up Schedule option in InEight Estimate
- Initially, the start date for your activities is the start date defined on the Job Properties > Cover Sheet tab (these will change as activity relationships are defined)



5.2.4 Update InEight Estimate from Microsoft Project

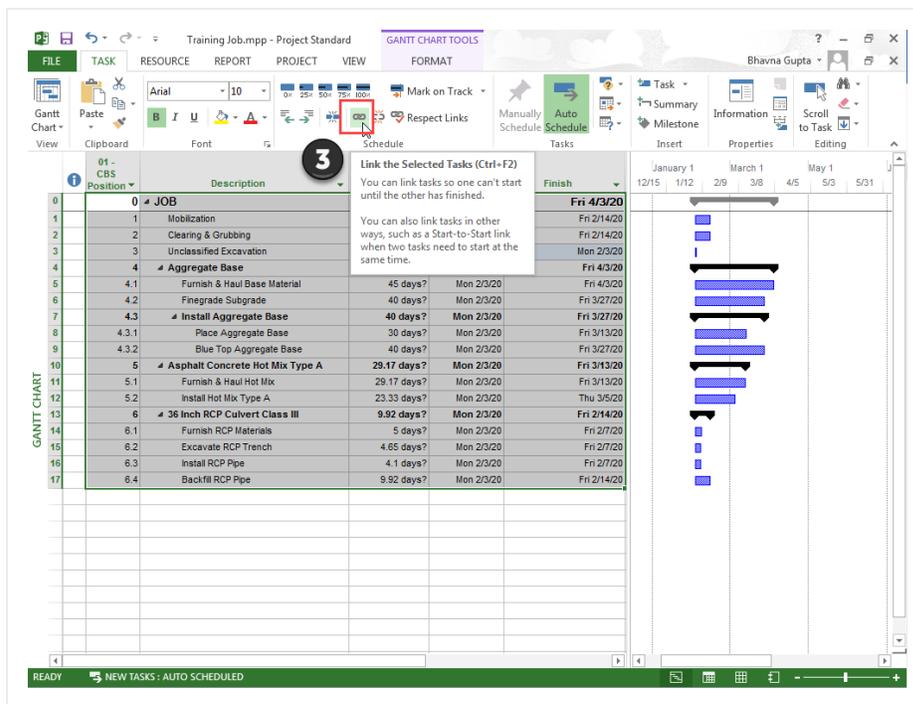
You can also bring information back from Microsoft Project into InEight Estimate. When you update InEight Estimate from Microsoft Project, the following information updates:

Update InEight Estimate from Microsoft Project		
Data Type	Microsoft Project	InEight Estimate
Activity Data	Start Dates	Start Dates
	Finish Dates	Finish Dates
	Hours	Hours

Walk through the following steps to practice updating InEight Estimate from Microsoft Project. You will create a scheduling relationship in Microsoft Project and then import the updated dates and relationships into InEight Estimate.

Step by Step — Update InEight Estimate from MS Project

1. Open your version of the **Training Job** project in Microsoft Project.
 - In the real world, it is likely that you would have overlapping activities or your activities would be out of order, however for this example you will link all activities from finish to start
2. Click on the **Link Tasks** icon to link all activities.



- Ensure the **Auto Schedule** button is selected
3. To update InEight Estimate with this change, go back to InEight Estimate and from the Estimate tab, select **Schedule>Update InEight Estimate from Project**.

The screenshot shows the 'Training Job - Estimate' interface. The 'Cost Breakdown Structure (CBS) Register' table is visible, with columns for CBS Position Code, Description, Optional Code, Quantity, Measure, Unit Cost, Total Cost (Forecast), and Subject Cost. The 'Update Estimate from Project' button is highlighted with a red box.

CBS Position Code	Description	Optional Code	Quantity	Measure	Unit Cost	Total Cost (Forecast)	Subject Cost
	JOB		20.00	Mile	\$294,138.13	\$5,882,762.51	
	Prime Bond	PRIME BOND	1.00	Lump Sum	\$47,148.68	\$47,148.68	
	Price % Add-On	PRICE % ADD-ON	1.00	Lump Sum	\$295,638.13	\$295,638.13	
	Job Financing	FINANCE EXPENSE	1.00	Lump Sum	\$33,105.26	\$33,105.26	
	Indirect Cost Escalation	INDIRECT COST ESCALATION	1.00	Lump Sum	\$2,131.11	\$2,131.11	
	Direct Cost Escalation	DIRECT COST ESCALATION	1.00	Lump Sum	\$15,048.80	\$15,048.80	
	Indirect Cost Add-On		1.00	Lump Sum	\$5,888.67	\$5,888.67	\$294,433.42
	Direct Cost Add-On	DIRECT COST ADD-ON	1.00	Lump Sum	\$104,088.34	\$104,088.34	\$5,204,417.24
1	SITWORK & ROADWAY	200	1.00	Each	\$2,464,161.56	\$2,464,161.56	
+ 1.1	Mobilization	641 0100	1.00	Lump Sum	\$11,909.51	\$11,909.51	

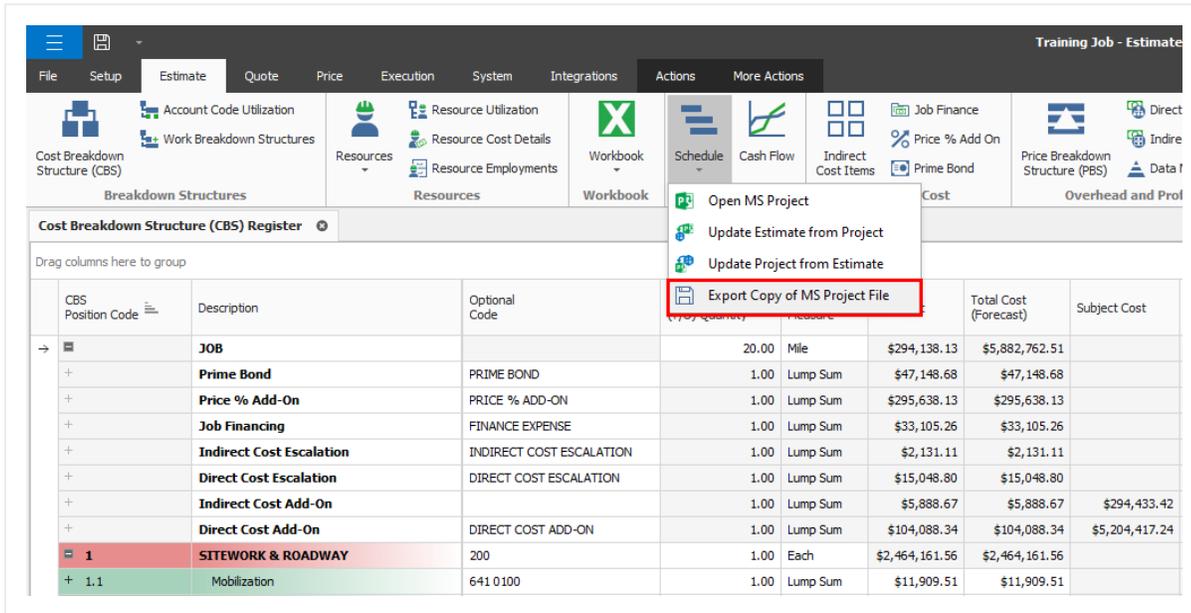
- On the Schedule Setup View, you can see the Start and Finish dates updated from MS Project.

CBS Position Code	Description	Start	Finish	Early Start	Early Finish	Late Start	Late Finish
+ 1	Mobilization	2/3/2020	2/14/2020	2/3/2020	2/14/2020	2/3/2020	2/14/2020
+ 2	Clearing & Grubbing	2/17/2020	2/28/2020	2/17/2020	2/28/2020	2/17/2020	2/28/2020
3	Unclassified Excavation	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
+ 3.1	Excavation	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
+ 3.2	Embankment	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
4	Aggregate Base	3/3/2020	10/5/2020	3/3/2020	10/5/2020	3/3/2020	10/5/2020
+ 4.1	Furnish & Haul Base Material	3/3/2020	5/4/2020	3/3/2020	5/4/2020	3/3/2020	5/4/2020
+ 4.2	Finegrade Subgrade	5/5/2020	6/29/2020	5/5/2020	6/29/2020	5/5/2020	6/29/2020
4.3	Install Aggregate Base	6/30/2020	10/5/2020	6/30/2020	10/5/2020	6/30/2020	10/5/2020
+ 4.3.1	Place Aggregate Base	6/30/2020	8/10/2020	6/30/2020	8/10/2020	6/30/2020	8/10/2020
+ 4.3.2	Blue Top Aggregate Base	8/11/2020	10/5/2020	8/11/2020	10/5/2020	8/11/2020	10/5/2020
5	Asphalt Concrete Hot Mix Type A	10/6/2020	12/17/2020	10/6/2020	12/17/2020	10/6/2020	12/17/2020
+ 5.1	Furnish & Haul Hot Mix	10/6/2020	11/16/2020	10/6/2020	11/16/2020	10/6/2020	11/16/2020
+ 5.2	Install Hot Mix Type A	11/16/2020	12/17/2020	11/16/2020	12/17/2020	11/16/2020	12/17/2020
6	36 Inch RCP Culvert Class III	12/17/2020	1/20/2021	12/17/2020	1/20/2021	12/17/2020	1/20/2021
+ 6.1	Furnish RCP Materials	12/17/2020	12/24/2020	12/17/2020	12/24/2020	12/17/2020	12/24/2020
+ 6.2	Excavate RCP Trench	12/24/2020	12/31/2020	12/24/2020	12/31/2020	12/24/2020	12/31/2020
+ 6.3	Install RCP Pipe	12/31/2020	1/6/2021	12/31/2020	1/6/2021	12/31/2020	1/6/2021
+ 6.4	Backfill RCP Pipe	1/6/2021	1/20/2021	1/6/2021	1/20/2021	1/6/2021	1/20/2021

5.2.5 Export Copy of MS Project File

If your project’s schedule is integrated with MS Project, you can export a copy of your MS Project file. This can be advantageous if a preliminary schedule is needed for a starting point schedule, as the

project goes into execution. Recreating the schedule from scratch can be time consuming and error prone, as the existing schedule details might not be properly captured in the beginning stages.



5.2.6 Manage Changes Between Estimate and Schedule

As changes to scope, resources, and costs come up in your estimate, and changes to relationships and dates occur in the schedule, you can continue updating your estimate and schedule as needed.

5.2.6.3 Plug Days

The Schedule Plug Days option allows you to define the duration in the schedule separate from the duration defined for your cost items on the Production tab. For example, your 10" PVC Pipe activity may have extra days in the schedule due to the delivery date of the pipe material, but you don't want those extra days to drive the costs in your estimate, since your crews won't be working on the activity on those extra days.

TIP All superior cost items are hard-coded to use Schedule Plug Days.

Step by Step — Schedule Plug Days

1. Look at the Days (Duration driven) column in the CBS where it shows 4.65 days for Excavate RCP Trench.
2. Make sure the **Schedule Plug Days** checkbox is selected on the Excavate RCP Trench cost item, and then enter a Plug Days duration for the number of days the item will be scheduled in Primavera (**7** days).

CBS Position Code	Description	Days (Duration driven)	Schedule Plug Days	Plug Days
6	36 Inch RCP Culvert Class III	18.66	<input checked="" type="checkbox"/>	26.01
+ 6.1	Furnish RCP Materials	0.00	<input checked="" type="checkbox"/>	5.00
+ 6.2	Excavate RCP Trench	4.65	<input checked="" type="checkbox"/>	7.00
+ 6.3	Install RCP Pipe	4.10	<input type="checkbox"/>	4.10
+ 6.4	Backfill RCP Pipe	9.92	<input type="checkbox"/>	9.92

- This allows you to maintain your duration of 4.65 days in the estimate and 7 days in the schedule.

Any duration changes made in Project will import into InEight Estimate as Plug Days automatically so that they can be reviewed by the estimator before making any changes to production in InEight Estimate.

5.2.6.4 Update Microsoft Project with InEight Estimate Changes

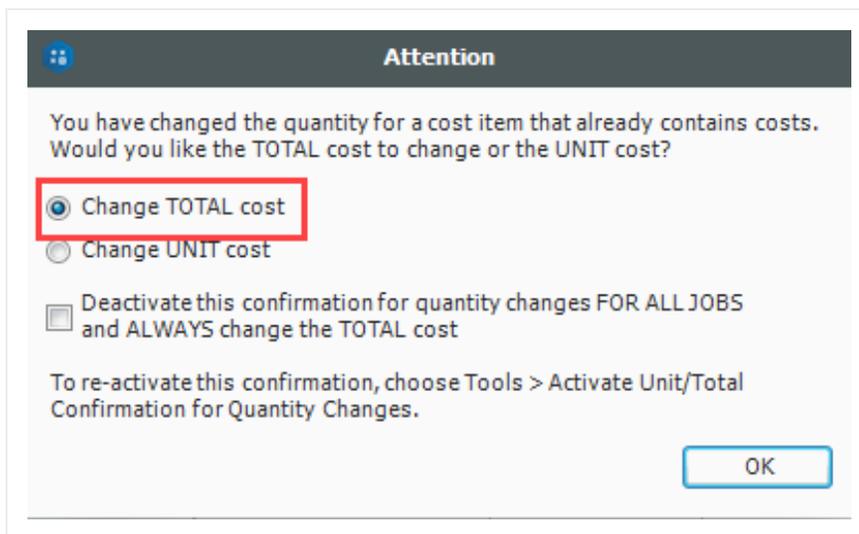
The following steps will walk you through updating the schedule with a scope change in your estimate.

Step by Step — Update MS Project with InEight Estimate Changes

1. In the InEight Estimate **Training Job**, from the Estimate tab, select **Cost Breakdown Structure**.
 - In this scenario, there is a scope change for your Excavation requiring you to change all of your quantities
2. Change the quantity in the Forecast (T/O) Quantity field in the CBS as specified below.

Quantity Change for Cost Item			
CBS Code	Description	Old Quantity	New Quantity
5	Asphalt Concrete Hot Mix Type A	35,000	25,000

- As you make your changes, take note of how your duration changes in the **Days (Duration driven)** column for these items.
- If prompted about changing Total or Unit Cost, select **Change TOTAL cost**, so that your unit costs stay intact



3. From the Estimate tab, select **Schedule>Update Project from InEight Estimate** to send the changed hours to Microsoft Project.
4. Go back to the **Training Job** in Microsoft Project.
 - The Microsoft Project scheduled duration should have changed from 4.65 days to 7 days to match the updated duration in InEight Estimate for Excavate RCP Trench
 - You can also see that the days for Asphalt Concrete Hot Mix Type A and its subordinates

adjusted because you adjusted the Forecast T/O Quantity in InEight Estimate

	01 - CBS Position Code	Description	Duration	Start	Finish
0	0	JOB	239.51 days?	Mon 2/3/20	Fri 1/1/21
1	1	Mobilization	10 days?	Mon 2/3/20	Fri 2/14/20
2	2	Clearing & Grubbing	10 days?	Mon 2/17/20	Fri 2/28/20
3	3	Unclassified Excavation	1 day?	Mon 3/2/20	Mon 3/2/20
4	4	Aggregate Base	155 days?	Tue 3/3/20	Mon 10/5/20
5	4.1	Furnish & Haul Base Material	45 days?	Tue 3/3/20	Mon 5/4/20
6	4.2	Finegrade Subgrade	40 days?	Tue 5/5/20	Mon 6/29/20
7	4.3	Install Aggregate Base	70 days?	Tue 6/30/20	Mon 10/5/20
8	4.3.1	Place Aggregate Base	30 days?	Tue 6/30/20	Mon 8/10/20
9	4.3.2	Blue Top Aggregate Base	40 days?	Tue 8/11/20	Mon 10/5/20
10	5	Asphalt Concrete Hot Mix Type A	37.5 days?	Tue 10/6/20	Thu 11/26/20
11	5.1	Furnish & Haul Hot Mix	20.83 days?	Tue 10/6/20	Tue 11/3/20
12	5.2	Install Hot Mix Type A	16.67 days?	Tue 11/3/20	Thu 11/26/20
13	6	36 Inch RCP Culvert Class III	26.01 days?	Thu 11/26/20	Fri 1/1/21
14	6.1	Furnish RCP Materials	5 days?	Thu 11/26/20	Thu 12/3/20
15	6.2	Excavate RCP Trench	7 days?	Thu 12/3/20	Mon 12/14/20
16	6.3	Install RCP Pipe	4.1 days?	Mon 12/14/20	Fri 12/18/20
17	6.4	Backfill RCP Pipe	9.92 days?	Fri 12/18/20	Fri 1/1/21

- Your Start and Finish dates are different now. In InEight Estimate, from the Estimate tab, select **Schedule >Update InEight Estimate from Project** to update InEight Estimate with the new dates.

CBS Position Code	Description	Start	Finish	Early Start	Early Finish	Late Start	Late Finish
+ 2	Clearing & Grubbing	2/17/2020	2/28/2020	2/17/2020	2/28/2020	2/17/2020	2/28/2020
3	Unclassified Excavation	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
+ 3.1	Excavation	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
+ 3.2	Embankment	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
4	Aggregate Base	3/3/2020	10/5/2020	3/3/2020	10/5/2020	3/3/2020	10/5/2020
+ 4.1	Furnish & Haul Base Material	3/3/2020	5/4/2020	3/3/2020	5/4/2020	3/3/2020	5/4/2020
+ 4.2	Finegrade Subgrade	5/5/2020	6/29/2020	5/5/2020	6/29/2020	5/5/2020	6/29/2020
4.3	Install Aggregate Base	6/30/2020	10/5/2020	6/30/2020	10/5/2020	6/30/2020	10/5/2020
+ 4.3.1	Place Aggregate Base	6/30/2020	8/10/2020	6/30/2020	8/10/2020	6/30/2020	8/10/2020
+ 4.3.2	Blue Top Aggregate Base	8/11/2020	10/5/2020	8/11/2020	10/5/2020	8/11/2020	10/5/2020
5	Asphalt Concrete Hot Mix Type A	10/6/2020	11/26/2020	10/6/2020	11/26/2020	10/6/2020	11/26/2020
+ 5.1	Furnish & Haul Hot Mix	10/6/2020	11/3/2020	10/6/2020	11/3/2020	10/6/2020	11/3/2020
+ 5.2	Install Hot Mix Type A	11/3/2020	11/26/2020	11/3/2020	11/26/2020	11/3/2020	11/26/2020
6	36 Inch RCP Culvert Class III	11/26/2020	1/1/2021	11/26/2020	1/1/2021	11/26/2020	1/1/2021
+ 6.1	Furnish RCP Materials	11/26/2020	12/3/2020	11/26/2020	12/3/2020	11/26/2020	12/3/2020
+ 6.2	Excavate RCP Trench	12/3/2020	12/14/2020	12/3/2020	12/14/2020	12/3/2020	12/14/2020
+ 6.3	Install RCP Pipe	12/14/2020	12/18/2020	12/14/2020	12/18/2020	12/14/2020	12/18/2020
+ 6.4	Backfill RCP Pipe	12/18/2020	1/1/2021	12/18/2020	1/1/2021	12/18/2020	1/1/2021

Lesson 5 Review

1. Under the Job Properties > Schedule tab, which setting can be enabled to account for plugged costs (e.g., for subcontractors)?
 - a. Resource price/unit
 - b. Expense Costs
 - c. Schedule ID
 - d. Actuals

2. For InEight Estimate schedule integration with Primavera, which of the following can be sent from your estimate to the schedule? (Select all that apply)
 - a. Activity data
 - b. Cash Flow graphs
 - c. Resource data
 - d. Cost data
 - e. Price data

3. The Schedule Plug Days option allows you to define the duration in the schedule separate from the duration defined for your cost items on the Production tab.
 - a. True
 - b. False

Lesson 5 Summary

As a result of this lesson, you can:

- Set up scheduling options
- Update Schedule from InEight Estimate
- Update InEight Estimate from Schedule
- Manage changes between estimate and schedule

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LESSON 6 – CASH FLOW

Lesson Duration: 25 Minutes

Lesson Objectives

After completing this lesson, you will be able to:

- Interpret cash flow and resource utilization on the Cash Flow graph
- Select Cash Flow Options
- Change Cash Flow Display Settings

Lesson Topics

6.1 CASH FLOW OVERVIEW

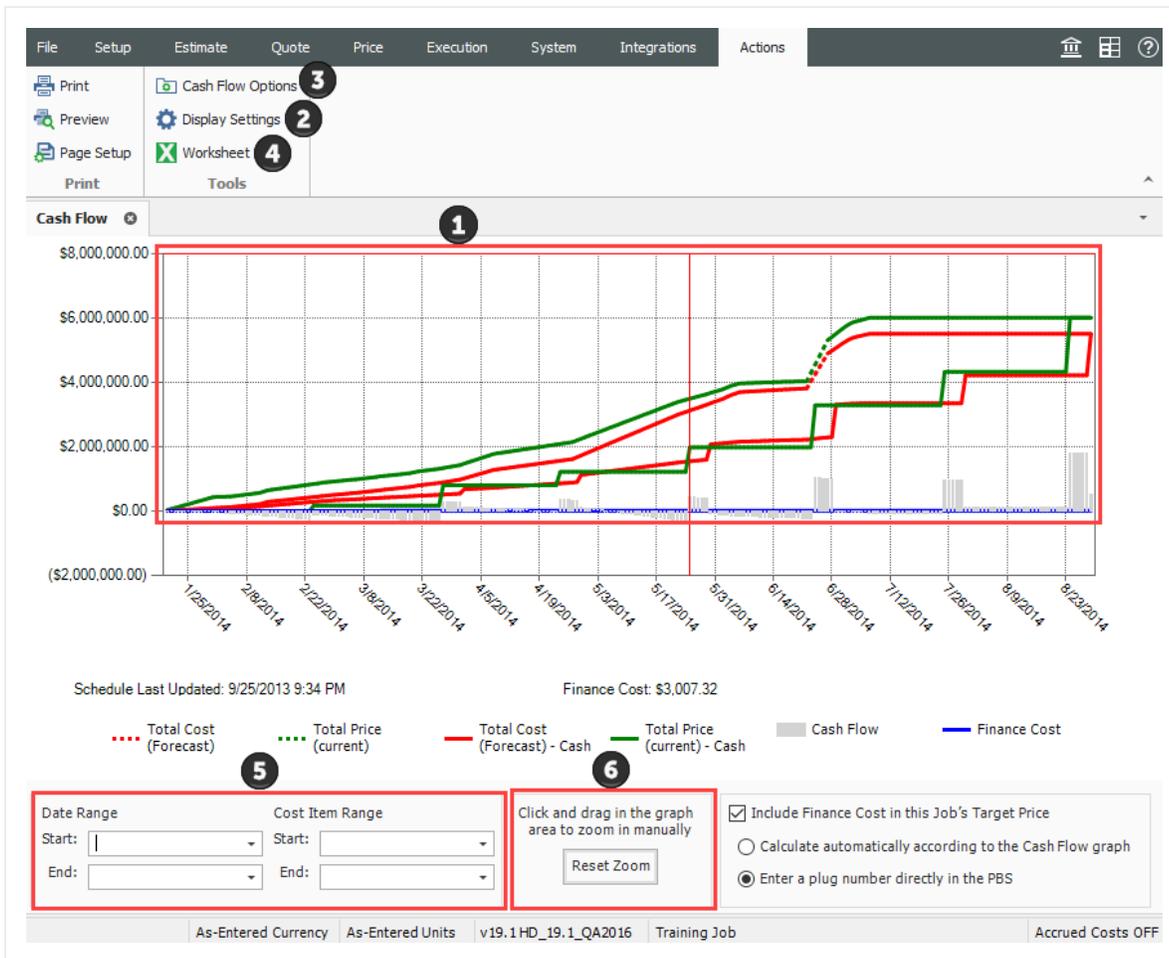
The Cash Flow form provides a graphical representation of the cash flow and resource utilization of your project, so you can quickly assess financing and resource needs.

You can open the Cash Flow form by selecting the **Estimate** tab from the Estimate landing page, then selecting **Cash Flow** from the Schedule section.

In order to generate a cash flow curve the estimate must be populated with schedule dates either directly from integration with Primavera, Microsoft project, or input manually.

Overview – Cash Flow Form

Section	Description
1	The graph displays the projected cash flow of your project, along with job financing expense, individual cost category costs and resource utilization. <ul style="list-style-type: none"> The x-axis measures time The left y-axis measures amounts The right y-axis measures quantities (when resource utilization is displayed) All graphs depicted on the Cash Flow form can be displayed based on Pay Quantity or Forecast (T/O) Quantity
2	Click on the Display Settings icon to indicate what to display on the graph. <ul style="list-style-type: none"> You can display total costs and price or specific cost categories You can also set the display settings to report on Resource Utilization
3	Click on the Cash Flow Options icon to specify revenue timing, cost timing, and cost of money.
4	Click the Excel icon to export the numerical data represented on the graph into an Excel spreadsheet where you can run additional analysis.
5	You can filter the Cash Flow graph by date range or by a range of cost items.
6	Click and drag over the graph to zoom in on a particular section. Click the Reset Zoom button to restore the graph to its original state.



6.2 CASH FLOW OPTIONS

The Cash Flow Options are used to define the cash flow rules (revenue timing, cost timing, cost of money, and quantities) needed to calculate the finance expense and cash flow for your project.

Cash flow rules (revenue timing, cost timing, cost of money, and quantities) describe how cash flow occurs between a contractor and a client, and between contractors or owners and vendors/subcontractors. Cash flow is then calculated based on both the earning and payment terms you specify, and the job's schedule and pay item prices.

To open the Cash Flow Options, click on the **Cash Flow Options** icon in the Tools section of the Actions tab.

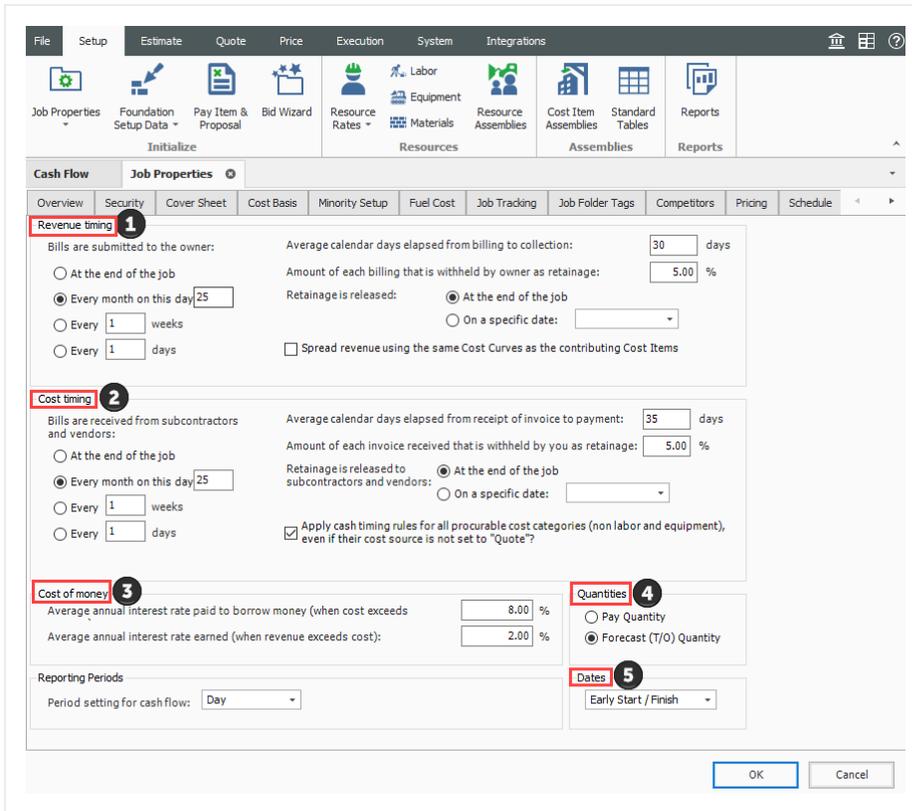
TIP You can also access Cash Flow Options from the Setup > Job Properties > Cash Flow tab.

1. **Revenue timing:** Revenue is the amount of money actually paid to a contractor by the client for the completion of project deliverables. This section contains options to specify when and how often payment is received.
2. **Cost Timing:** Cost is the amount of money expended to complete the scope of the project. This section contains options to specify when and how often you pay contractors, subcontractors and vendors.

NOTE

To include any of your costs in your cash flow (including indirect costs), they need to be scheduled

3. **Cost of Money:** Represents the financing cost to fund the project. This section contains fields to specify interest rates you pay for the money you borrow, and interest rates you earn for money invested, to determine a total Finance Cost.
4. **Quantities:** Allows you to calculate cash flow based on pay quantities or forecast (T/O) quantities.
5. **Dates:** By default, the scheduled Early Start and Early Finish dates of each cost item (and its resource employments) as listed in the CBS Register, provide the timing of the expenses, revenue, and costs that show up on the Cash Flow graph. You have the option to base cash flow timing on Start/Finish dates or Late Start/Finish dates.

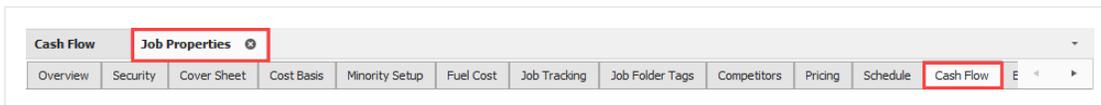


6.2.0.1 Cash Flow Options Set Up

The following steps walk you defining settings on the Cash Flow Options form.

Step by Step — Cash Flow Options Setup

1. In the **E101 – Training Job**, from the Estimate tab, select **Setup >Job Properties >Cash Flow**.



- You will see the default options already there
 - You will adjust a few of those options
2. Change your Revenue timing to **Every month on the 10th**.

- The average calendar days from billing to collection should be set to 25 days

3. For Cost timing, bills are received from subcontractors and vendors **Every month on the 25th.**

- Average calendar days elapsed from receipt of invoice to payment should be set to 30 days

4. For Cost of money, enter **10%** for the Average annual interest rate paid to borrow money (when cost exceeds revenue) and **2%** for Average annual interest rate earned (when revenue exceeds cost).

5. Leave all remaining options as originally defaulted.

6.3 CASH FLOW DISPLAY SETTINGS

6.3.1

6.3.2 Cost Items and Cost Categories

The Cash Flow Display Settings allow you to control what information displays on the Cash Flow graph. To open the Display Settings click on the **Actions > Display Settings**  icon in the Tools section.

Overview – Cash Flow Display Settings – Cost Items and Cost Categories

Section	Description
1	You can save your display settings for future use.
2	Select how the graph measures the timing of your cash flow. Options include: Day, Week, Month, Quarter, and Year.
3	<p>Under the Cost Items section, you can select:</p> <ul style="list-style-type: none"> • Total Cost (Forecast): The total cost of your scheduled cost items, based on when your costs are accrued (when your cost items are scheduled). This is displayed as a dashed line on the graph • Total Price (current): The total revenue of your pay items, based on when the revenue is earned (when your cost items are scheduled). This is displayed as a dashed line on the graph • Total Cost (Forecast) - Cash: The total cost of your scheduled cost items, reflecting the cost timing you specify in the Cash Flow Options. This is displayed as a solid line on the graph • Total Price (current) - Cash: The total revenue of the pay items, reflecting the revenue timing you specify in the Cash Flow Options. This is displayed as a solid line on the graph • Cash Flow: Displays the difference between your Total Cost - Cash and Total Price - Cash values, so you can see if you are making or losing money • Finance Cost: Displays the Cost of Money amount calculated from the settings you specify in the Cash Flow Options
4	<p>You can check the Estimated box for any specific cost categories you need to display.</p> <ul style="list-style-type: none"> • The other check boxes are used for InEight Estimate Performance

Cash Flow Display Settings

Settings: Default

Display this text **1** Custom report title:

2

Period: Day

3

Cost Items

- Total Cost (Forecast)
- Total Price (current)
- Total Cost (Forecast) - Cash
- Total Price (current) - Cash
- Cash Flow
- Finance Cost
- As-Built Total Cost
- CE-Total Cost Earned (to-date)

4

Cost Categories	Estimated	As-Built	Planned To Date
Labor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Owned Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rented Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Subcontract	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allowance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Custom Category1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Undefined	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Resources

Resource Utilization

Summarize resources by: Resource Type

Get data from: This job's utilized resources All Library resources

Value	Qty	Cost	AB Qty	AB Cost
<input type="checkbox"/> Labor				
<input type="checkbox"/> Construction Equipment				
<input type="checkbox"/> Rented Construction Eq...				
<input type="checkbox"/> Installed Material				
<input type="checkbox"/> Installed Equipment				
<input type="checkbox"/> Supply				
<input type="checkbox"/> Unique				

Quantity: None Cost: None

As-Built Quantity: None As-Built Cost: None

OK Cancel

6.3.2.1 Cash Flow Display Set Up

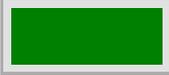
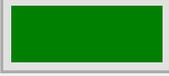
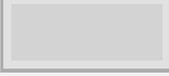
The following steps walk you through setting up your Cash Flow Display Settings.

Step by Step — Cash Flow Display Settings Set Up

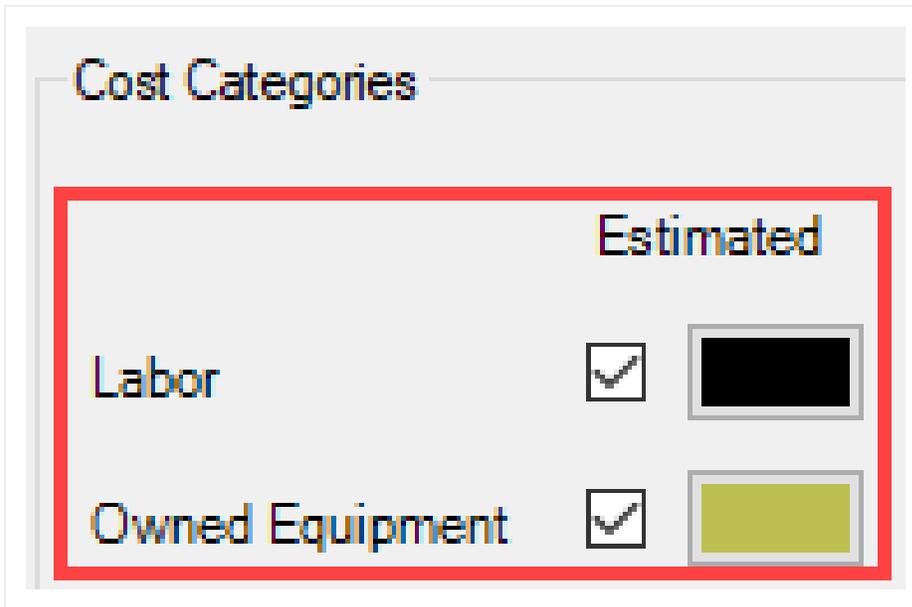
1. In the **E101 – Training Job**, from the Estimate tab, select **Cash Flow** from the Schedule section.
2. On the **Actions** tab, select **Display Settings** to open the Display Settings window.
3. From the Period drop-down list, select **Week**.
4. Under the Cost Items section, make sure the following are selected:
 - Total Cost (Forecast)
 - Total Price (Forecast)
 - Total Cost (Forecast) – Cash
 - Total Price (Forecast) – Cash
 - Cash Flow

- Finance Cost

Cost Items

<input checked="" type="checkbox"/>	Total Cost (Forecast)	
<input checked="" type="checkbox"/>	Total Price (current)	
<input checked="" type="checkbox"/>	Total Cost (Forecast) - Cash	
<input checked="" type="checkbox"/>	Total Price (current) - Cash	
<input checked="" type="checkbox"/>	Cash Flow	
<input checked="" type="checkbox"/>	Finance Cost	
<input checked="" type="checkbox"/>	As-Built Total Cost	
<input type="checkbox"/>	CE-Total Cost Earned (to-date)	

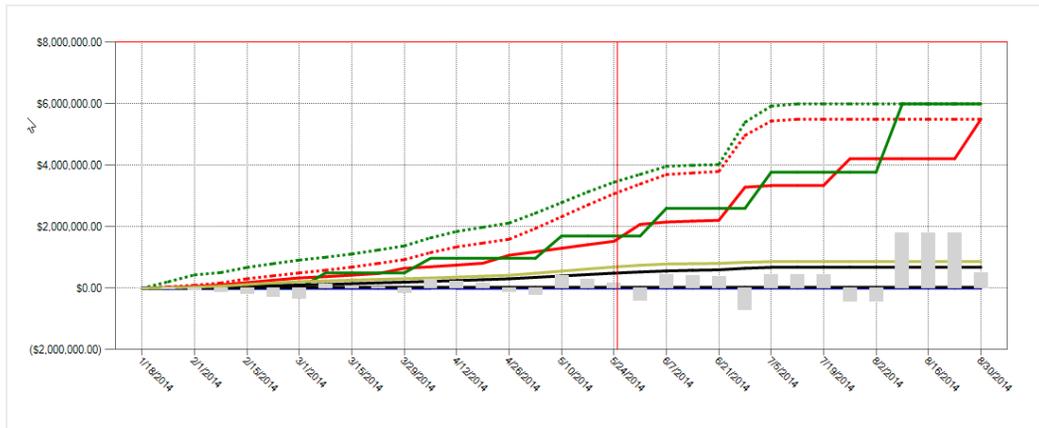
5. Under the **Cost Categories** section, check the **Estimated** checkbox for the Labor and Owned Equipment categories.



6. Click **OK** to close the Display Settings window.

- Your Total Cost (Forecast) displays as a dashed red line, indicating your accrued costs based on when your cost items are scheduled and the assigned cost curves for each cost item.
- Your Total Price (current) displays as a dashed green line, indicating the revenue you've earned, based on the timing of your pay items
- Your Total Cost (Forecast) – Cash displays as a solid red line, indicating your costs, based on when your cost items are scheduled *and* the cost timing defined in Cash Flow Options
- Your Total Price (current) – Cash displays as a solid green line, indicating your revenue, based on the timing of your pay items *and* the revenue timing defined in Cash Flow Options
- Your Cash Flow displays grey bars indicating when your cash flow is negative or positive

- Your Finance Cost displays as a blue line on the graph



- To filter your graph by date range, click on the **Start** drop-down arrow and select a start date of your date range filter.

Thursday, December 27, 2018

February 2014

SU	MO	TU	WE	TH	FR	SA
26	27	28	29	30	31	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	1
2	3	4	5	6	7	8

Clear

Date Range:

Start: Start:

End: End:

- Click on the **End** drop-down arrow and select an end date of your date range filter.

- Your graph now only includes your cost items that fall within the specified date range
9. To remove the filter, click in the **Start** field and press the **Backspace** key.
 10. Do the same for the End field.

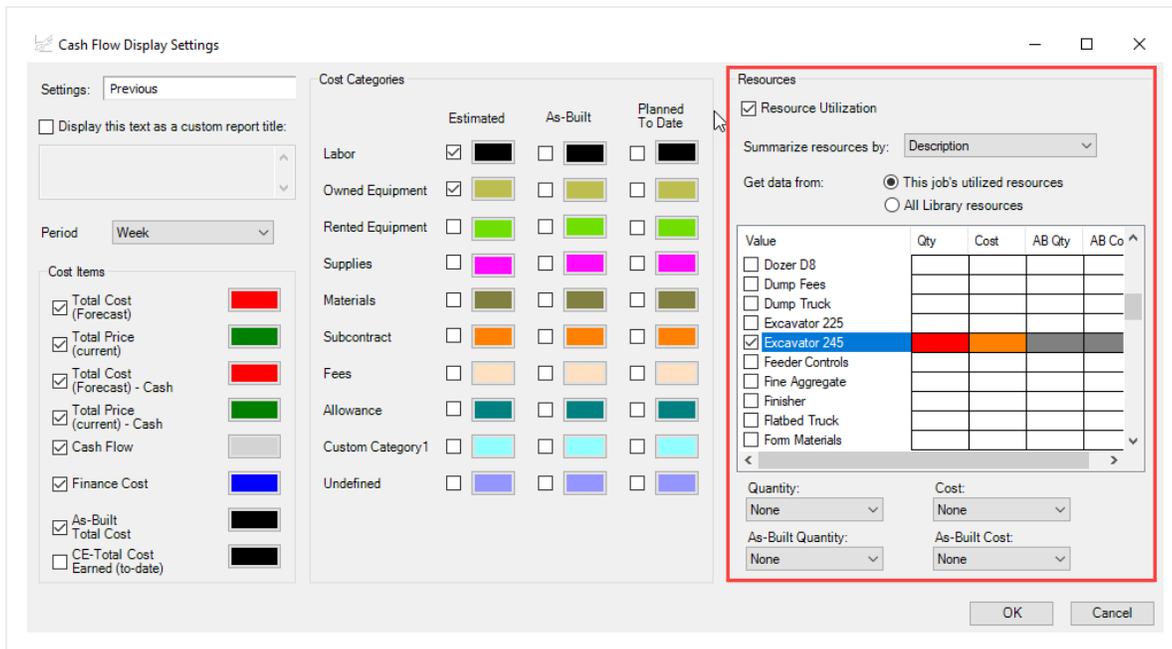
6.3.3 Resource Utilization

You can also use the Cash Flow graph to report on resource utilization. For example, you may want to run a report that displays a work hours curve for a particular labor trade or to see the peak usage times for a particular piece of heavy equipment.

You can run resource utilization graphs based off of any of the following:

- Resource Type
- Resource Code
- Description
- Organizational Category
- Tag 1, 2, and 3
- Quote Group
- Account Code and Cost Item Account Code
- Fuel Type

You set up your resource utilization settings from the same Display Settings window you use for setting up Cash Flow, **Display Settings**  in the Tools section of the Actions menu.



6.3.3.2 Resource Utilization Display Set Up

The following steps walk you through setting up your Cash Flow graph to report on Resource Utilization.

Step by Step — Resource Utilization Display Setup

1. In the **E101 – Training Job**, from the Estimate tab, select **CashFlow** from the Schedule section.
2. On the Actions tab, select **Display Settings** to open the Display Settings window.
3. Make sure the all checkboxes are unchecked under the Cost Items and Cost Categories sections.
4. Under the Resources section, check the **Resource Utilization** checkbox.
5. From the Summarize resources by drop-down list, select **Description**.

Resources

Resource Utilization

Summarize resources by:

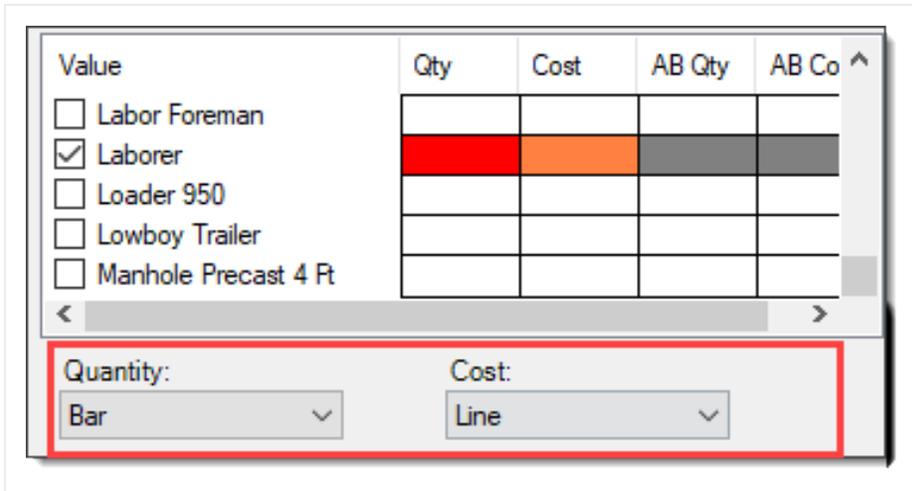
Get data from: This job's utilized resources
 All Library resources

6. From the resulting list of Values, select **Laborer**.
7. Click in the **Qty** field for the selected value and select a color of your choice.
 - In this case the Qty represents the work hours for your Laborer resource
8. Click in the **Cost** field for the selected value and select a different color of your choice.

Get data from: This job's utilized resources
 All Library resources

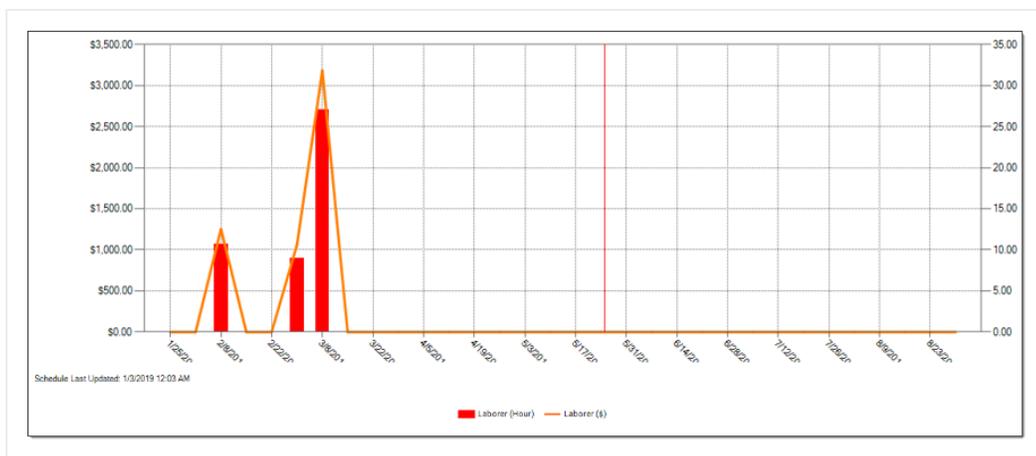
Value	Qty	Cost	AB Qty	AB Co ^
<input type="checkbox"/> Labor Foreman				
<input checked="" type="checkbox"/> Laborer				
<input type="checkbox"/> Loader 950				
<input type="checkbox"/> Lowboy Trailer				

9. From the **Quantity and Cost** drop down lists, you can select how your quantities and costs will display on the graph. In this case select the Quantity to display as a **Bar** and Cost to display as a **Line**.



10. Click **OK** to close the Display Settings window.

- The graph now displays the utilization of your Laborer resource, showing the work hours and costs used over time



The graphs displayed on the Cash Flow form are based on the estimated cost of each cost item and its resource employments (in the case of resource utilization).

Lesson 6 Review

1. Under what cash flow form can you set up your revenue and cost timing?
 - a. Cash Flow Options
 - b. Display Settings
 - c. Worksheet
 - d. Page Setup

2. By default, the red dashed line on the Cash Flow graph represents the:
 - a. Total Cost (Forecast)
 - b. Total Price (current)
 - c. Total Cost (Forecast) – Cash
 - d. Total Price (current) - Cash

3. In the Cash Flow Display Settings, Resource Utilization allows you to view a graphical summarization of your resources by which of the following? (Select all that apply)
 - a. Resource File Description
 - b. Resource Type
 - c. Resource Code
 - d. Description
 - e. Wage Zone
 - f. Organizational Category

Lesson 6 Summary

As a result of this lesson, you can:

- Interpret cash flow and resource utilization on the Cash Flow graph
- Select Cash Flow Options
- Change Cash Flow Display Settings



LESSON 7 – INEIGHT ESTIMATE CALCULATORS

Lesson Duration: 20 Minutes

Lesson Objectives

After completing this lesson, you will be able to:

- Use the Haul Calculator
- Use the Trench Calculator
- Use the In-Field Calculator

Lesson Topics

7.1 HAUL CALCULATOR

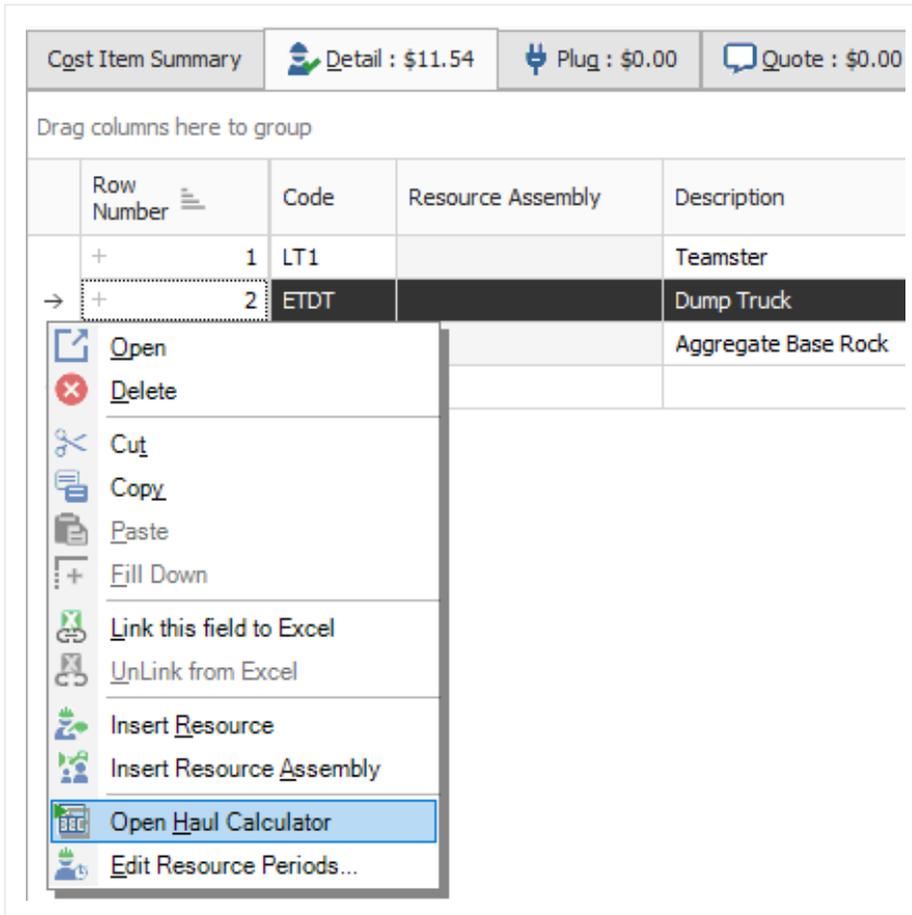
The **Haul Calculator** allows you to enter the specifics of up to three haul routes (distance, travel speed, etc.). Once entered, you can either:

- Calculate the number of trucks required to complete the haul in a set amount of time, or
- Calculate how long it will take to complete the haul with a set number of trucks

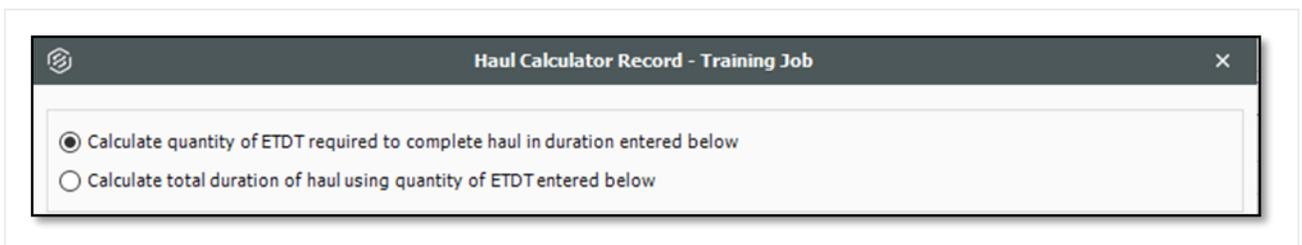
The following activity walks step by step through using the Haul Calculator to calculate the number of trucks needed for a cost item.

Step by Step — Haul Calculator – Calculate Quantity of Trucks

1. Open the **Training Job** and from the Estimate tab, select **Cost Breakdown Structure**.
2. Open cost item **4.1 – Furnish & Haul Base Material**.
3. On the Cost Item Record, click the **Detail tab**.
4. Right click on the **ETDT – Dump Truck** row header and select **Open Haul Calculator**.



- On the Haul Calculator, select the **Calculate quantity of ETDT required to complete haul in duration entered below** radio button. (ETDT is the resource code for the Dump Truck you selected.)



- For the **Haul Distance**, type **5**.
- Enter an **Average Payload (Ton)** of **30**.
- For **Load Time (Minutes)**, type **3**.
- Enter a **Travel Speed Full** of **35 Mile/Hour**.

10. For **Dump Time (Minutes)**, type **2**.
11. Enter a **Travel Speed Empty** of **45** Mile/Hour. Notice this calculates a cycle time of 20.24.
12. Enter a **Work Efficiency** of **90** percent.

Route 1	
Quantity (Ton)	45,000.00
Haul Distance - One Way (Mile)	5.00
Average Payload (Ton)	30.00
Total Loads	1,500.00
Load Time (Minutes)	3.00
Travel Speed Full (Mile/Hour)	35.00
Dump Time (Minutes)	2.00
Travel Speed Empty (Mile/Hour)	45.00
Cycle Time (Minutes)	20.24
Work Efficiency (%)	90.00
Total Hauler Hours	562.17
Hours Per Shift	8.00

- The calculator shows a result of 1.56 concurrent haulers

Results

Quantity of resource ETDT	1.56	0.00	0.00	1.56	Concurrent Haulers
Total duration (Hours)	0.00	0.00	0.00	360.00	Hours

13. Click **OK**.
14. Your cost item now shows a quantity of 1.56. Round up the Quantity to **2**. Also, adjust the Teamster Quantity to **2** (if needed).

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure
+	1	LT1	Teamster			2.00	Each
+	2	ETDT	Dump Truck			2.00	Each
+	3	MBR	Aggregate Base Rock	45,500.00	5.00	47,775.00	Ton

Step by Step — Haul Calculator – Calculate Total Duration

1. Open the **Training Job** and from the Estimate tab, select **Cost Breakdown Structure**.
2. Open cost item **4.1 – Furnish & Haul Base Material**.
3. On the Cost Item Record, click the **Detail** tab.
4. Change your Teamster and Dump Truck quantities back to **2 each**.
5. Right click on the **ETDT – Dump Truck** row header and select **Open Haul Calculator**.
6. On the Haul Calculator, select the **Calculate total duration of haul using quantity of ETDT entered below** radio button.
 - With the previous information you entered still there, the calculator calculates a total duration of 281.08 hours

Haul Calculator Record - Training Job

Calculate quantity of ETDT required to complete haul in duration entered below
 Calculate total duration of haul using quantity of ETDT entered below

	Route 1	Route 2	Route 3	TOTAL	
Quantity (Ton)	45,000.00	0.00	0.00	45,000.00	Ton
Haul Distance - One Way (Mile)	5.00	0.00	0.00	5.00	Mile
Average Payload (Ton)	30.00	0.00	0.00	30.00	Ton
Total Loads	1,500.00	0.00	0.00	1,500.00	
Load Time (Minutes)	3.00	0.00	0.00	3.00	Minutes
Travel Speed Full (Mile/Hour)	35.00	0.00	0.00	35.00	Mile/Hour
Dump Time (Minutes)	2.00	0.00	0.00	2.00	Minutes
Travel Speed Empty (Mile/Hour)	45.00	0.00	0.00	45.00	Mile/Hour
Cycle Time (Minutes)	20.24	0.00	0.00	20.24	Minutes
Work Efficiency (%)	90.00	100.00	100.00	90.00	%
Total Hauler Hours	562.17	0.00	0.00	562.17	Hours
Hours Per Shift	8.00	8.00	8.00	8.00	

Results

Quantity of resource ETDT	0.00	0.00	0.00	2.00	Concurrent Haulers
Total duration (Hours)	281.08	0.00	0.00	281.08	Hours

OK Cancel

7. Click **OK**.

- The Hours field on the Production tab updated to 281.08
- Your ETDT Dump Truck quantity remains at 2

7.2 TRENCH CALCULATOR

The **Trench Calculator** allows you to quickly calculate trench, pipe, and bedding values. You can perform pipe-related take-off by defining the details of the trench (e.g., length, depth, width, hinge elevation, backslope, and swell factor), the pipe (diameter, elevation, and waste factor), and up to four beddings.

With this information, the Trench Calculator can automatically calculate:

- Total excavation volume (neat-line)
- Total excavation volume (including swell/shrinkage)

- Total pipe to purchase
- Lift Volume (for up to four beddings)
- Lift Weight (for up to four beddings)

You can use these calculations to define certain cost item setup data:

- You can use the Total Excavation Volume that is calculated as the quantity of the cost item
- You can use the Total pipe to purchase calculation as the quantity of a resource (e.g., pipe) that has been employed to the cost item
- You can use the Lift Volume or Lift Weight that is calculated as the quantity of a resource employed to the cost item in either cubic yards or tons
- You can click the Toggle English / Metric button at the bottom of the dialog to switch between the English and Metric systems for entering data

TIP

You can access the Trench Calculator from the Actions tab of a Cost Item Record

NOTE

When copying cost items in a job or from job to job, the Trench Calculator variable data is included with the data being copied. When a cost item is copied to the clipboard, Trench Calculator variable data is also included.

7.2.1 Trench Calculator – Trench Tab

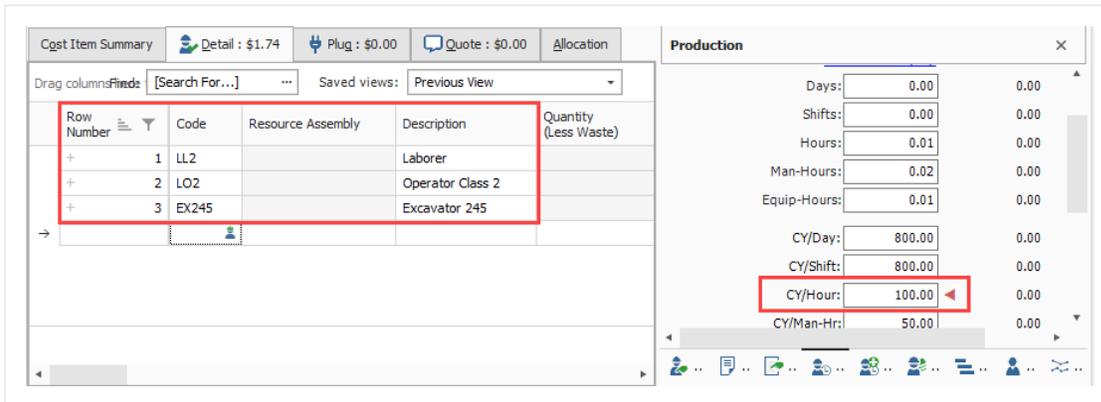
The following steps walk through using the Trench Calculator to take-off excavation volume.

Step by Step — Trench Calculator – Trench

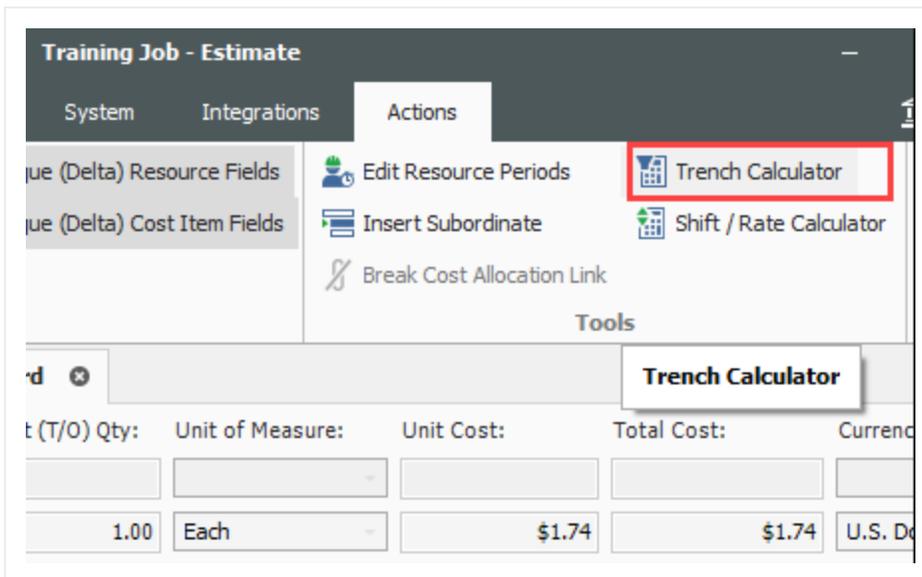
1. Open the **Training Job** and from the Estimate tab, select **Cost Breakdown Structure**.
2. Create a new cost item from the bottom row of your CBS and call it **24" Pipe**.
3. Add the following three subordinates and update their Units of Measure:
 - Excavate Trench: **CY**
 - Install Pipe: **LF**
 - Backfill Trench: **CY**
4. Open the **Excavate Trench** Cost Item Record. Add the following resources:

- **LL2 Laborer – 1**
- **LO2 Operator Class 2 – 1**
- **EX245 Excavator 245 – 1**

5. Adjust the Production to: **100 CY/Hour**.



6. On the Cost Item Record's Actions tab, select **Trench Calculator**.



7. For **Trench Length**, type **1000.00** feet.
8. For **Trench Width** (at the bottom) type **4.00** feet.
9. Enter a **Trench Depth** of **10.00** feet.
10. Enter a **Hinge Elevation** of **5.00** feet.

11. Enter a **Backslope** of **45** degrees.
12. Define the **Material Swell/Shrinkage Factor** (fraction expressed as a decimal) at **.10**.
 - You can select either a “neat-line” total volume or include swell/shrinkage
13. Select the “Total excavated volume (including swell/shrinkage)” checkbox.

Trench Calculator

Trench Pipe Beddings

Variables

Trench length: 1000.00 feet

Trench width (at bottom): 4.00 feet

Trench depth: 10.00 feet

Hinge elevation: 5.00 feet

Backslope: 45.00 degrees

Material swell/shrinkage factor: 0.10 (decimal)

Results

Total excavation volume (neat-line): **2,407.41** CY

Use this volume as the quantity on this cost item

Total excavated volume (including swell/shrinkage): **2,648.15** CY

Use this volume as the quantity on this cost item

Save Configuration to Library Load Configuration from Library Toggle English / Metric OK Cancel

14. Click **Save Configuration to Library** and save the Trench calculator as **Trench Example** with your initials.
15. Click **OK**.

7.2.2 Trench Calculator – Pipe Tab

You can also use the Trench Calculator to take off how much piping and bedding you need for the trench.

Step by Step — Trench Calculator – Pipe

1. On the CBS Register, adjust the Forecast T/O Quantity for the Install Pipe cost item to **1000 LF**.
 - Assume this quantity is based off manual take-off calculations you already did
2. Open the **Install Pipe** Cost Item Record.
3. Add the Resource Assembly of **CPIPE - Pipe Crew** and adjust the production to **300 LF / Day**.
4. On the Cost Item Record's Actions tab, select **Trench Calculator**.
5. Select **Load Configuration from Library**.
6. Select **Trench Example** (with your initials).

Name	Comments	Pipe Diameter	UM	Pipe Type	Pipe Class	Agency	Last Changed	Last Changed By
→ New Trench Configuration (bla...)		0.00	inches					
24" PVC Sewer at 10' Deep (1)		26.00	inches				7/29/2009 2:13:19 PM	wmfarr
Trench Example PB		0.00	inches				2/15/2019 11:59:52 AM	Paul.Benn

7. Click **OK**.
8. On the Trench Calculator, select the **Pipe** tab.
9. Enter the following for the size and position of the pipe:
 - Pipe exterior diameter: **26.00** inches
 - Pipe center elevation (from bottom): **19.00** inches
 - Waste factor: **10%**
10. Click on the resource icon to pull up the Resource Rate Register.
11. Select the Installed Material tab.
12. Select **MPP24 Pipe 24" PVC SDR35**, then click **OK**.
 - The Pipe variables you entered should match the following image:

13. Click **Save Configuration to Library** and save the Trench calculator as **Trench Example** with your initials.
14. When prompted to overwrite the existing saved file, click **Yes**.
15. Click **OK** to close the Trench Calculator.

7.2.3 Trench Calculator – Beddings Tab

The following steps walk you using the Trench Calculator to calculate bedding take-offs.

Step by Step — Trench Calculator – Beddings

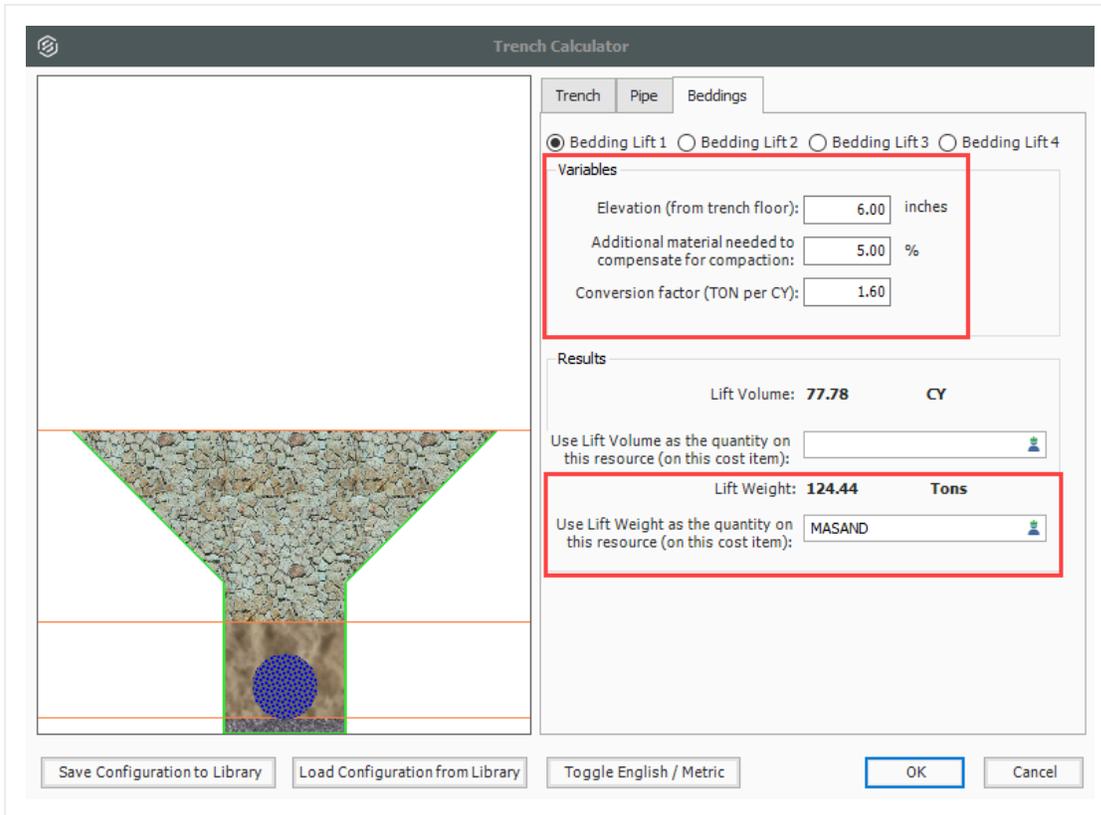
1. Back on the CBS Register, adjust the Forecast T/O Quantity for **Backfill Trench** to **2300 CY**, based on manual calculations.
2. Open the **Backfill Trench** Cost Item Record.

3. Add the following resources:
 - **LL2 Laborer – 3**
 - **LO2 Operator Class 2 – 1**
 - **RPC Plate Compactor – 1**
 - **EL950 Loader 950 – 1**
4. Adjust the Production to **160 CY/Day**.
5. From the Cost Item Record's Actions tab, select **Trench Calculator**.
6. Select **Load Configuration from Library**
7. Select **Trench Example** (with your initials), then click **OK**.
8. On the Trench Calculator, select the **Beddings** tab.
9. On the Beddings tab, you can define up to four beddings to backfill the trench
 - The variables you enter will determine how much bedding you need
10. Enter the following variables for each bedding:

	Bedding Lift 1	Bedding Lift 2	Bedding Lift 3
Elevation (from trench floor)	6.00	38.00	76.00
Additional material needed	5.00	5.00	5.00
Conversion factor	1.60	1.70	1.60

- Under Results, you can match each of the Bedding Lifts with a material resource, by selecting the **resource** icon and selecting the resource you want to employ from the Material tab
11. Selecting the resource from the Tons selection field, select the following materials for each bedding:

	Resource Code	Resource Description
Bedding Lift 1	MASAND	Sand
Bedding Lift 2	MAFA	Fine Aggregate
Bedding Lift 3	MACA1-1/2	Coarse Aggregate



12. Click **OK**.

- Note that the pipe and bedding materials are added to the cost item with their quantities

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure
+	1	LL2	Laborer			3.00	Each
+	2	LO2	Operator Class 2			1.00	Each
+	3	RPC	Plate Compactor			1.00	Each
+	4	EL950	Loader 950			1.00	Each
+	5	MASAND	Sand	124.44	0.00	124.44	Ton
+	6	MAFA	Fine Aggregate	593.66	0.00	593.66	Ton
+	7	MACA1...	Coarse Aggregate ...	3,327.59	0.00	3,327.59	Ton

Exercise 7.1 – Trench Calculator

In this exercise, you will practice using the Trench Calculator to take-off piping and bedding materials. Complete the following steps:

1. In the **Training Job**, create a new cost item called **Underground Pipe**.

2. Give the cost item a quantity and unit of measure of **1640 Linear Feet**.

3. Open the new cost item and open the **Trench Calculator**.

4. On the **Trench tab**, enter the variables for the trench:

Trench length	1000 feet
Trench width (at bottom)	4 feet
Trench depth	10 feet
Hinge elevation	5 feet
Backslope	45 degrees
Material swell/shrinkage factor	0.10 (decimal)

- Do NOT check the box to bring in volume shrinkage.

5. Select the **MPR36** material resource from the drop-down Results list.

6. On the **Beddings** tab, enter bedding variables.

Bedding lift 1	
Elevation (from trench floor)	6 inches
Additional material needed to compensate for compaction	5.00%
Conversions factor (Ton per CY)	1.3

Bedding lift 1

Bedding material resource (Tons)	MASAND
----------------------------------	--------

Bedding lift 2

Elevation (from trench floor)	38 inches
Additional material needed to compensate for compaction	5.00%
Conversions factor (Ton per CY)	1.1
Bedding material resource (Tons)	MAFA

Bedding lift 3

Elevation (from trench floor)	76 inches
Additional material needed to compensate for compaction	5.00%
Conversions factor (Ton per CY)	1.1
Bedding material resource (Tons)	MACA1-1/2

7. Select **OK** and confirm that the pipe material and bedding materials populated the cost item.

You should end up with the following results

Cost Breakdown Structure (CBS) Register **Cost Item Record**

CBS Code: Optional Code: Description: Forecast (T/O) Qty: Unit of Measure: Unit Cost: Total Cost: Currency:

26 Underground Pipe 1,640.00 LF \$34.59 \$56,734.45 U.S. Dollar

PI Assignment: PI Line Number: PI Description: Cost Segment: Pay Quantity: Cost Source: Alternate:

Job Overhead 1,640.00 Detail BASE

Cost Item Summary Detail : \$34.59 Plug : \$0.00 Quote : \$0.00 Allocation

Production

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure
+	1	MPR36	Pipe RCP 36 In	1,000.00	0.00	1,000.00	Linear Feet
+	2	MASAND	Sand	101.11	0.00	101.11	Ton
→ +	3	MAFA	Fine Aggregate	384.13	0.00	384.13	Ton
+	4	MACA1...	Coarse Aggregate ...	2,153.15	0.00	2,153.15	Ton

Duration Driven Resources Qty Driven Hourly Resources

Days: 0.00 0.00

Shifts: 0.00 0.00

Hours: 0.00 0.00

Man-Hours: 0.00 0.00

Equip-Hours: 0.00 0.00

LF/Day: 0.00 0.00

OK Cancel < Prev Next >

Congratulations, you have completed this exercise!

7.3 IN-FIELD CALCULATOR

You can use the In-field Calculator to do simple mathematical calculations in any numeric field on records, registers, and tree lists. You use this calculator much like an Excel workbook field, by inserting the cursor in the field where you want to perform a calculation, then pressing the "=" key, followed by a valid arithmetic expression. To display the calculated result, you press the tab key. The resulting value is stored without the arithmetic expression used to calculate the value.

The following steps walk through using the In-field Calculator to calculate the area of how much sandblasting is needed for painting the steel bridge structure specified in the Training Job.

NOTE

The resulting field value is stored without the arithmetic expression used to calculate the value.

Step by Step — In-Field Calculator

1. Open the **Training Job** and from the Estimate tab, select **Cost Breakdown Structure**.
2. Scroll to find cost item **13.3 Sandblast**.
3. Click in the **Forecast (T/O) Quantity** field.

Item ID	Description	Forecast (T/O) Quantity	Unit
13	Paint Existing Steel Bridge Structure	1.00	Lump Sum
+ 13.1	Setup Equipment	1.00	Lump Sum
+ 13.2	Wash-Remove-Dispose of Water	25,000.00	Square Feet
+ 13.3	Sandblast	2500	Square Feet
+ 13.4	Apply Primer	25,000.00	Square Feet
+ 13.5	Paint Top Coat	25,000.00	Square Feet

4. Press the = key, then type **10*250**.

- 13	Paint Existing Steel Bridge Structure	1.00	Lump Sum
+ 13.1	Setup Equipment	1.00	Lump Sum
+ 13.2	Wash-Remove-Dispose of Water	25,000.00	Square Feet
+ 13.3	Sandblast	=10*250	Square Feet
+ 13.4	Apply Primer	25,000.00	Square Feet

5. Press the **Tab** key and it calculates the result.

Lesson 7 Review

1. The Haul calculator allows you to:
 - a. Calculate the number of trucks required to complete the haul in a set amount of time
 - b. Calculate how long it will take to complete the haul with a set number of trucks
 - c. Neither
 - d. Both

2. The Trench Calculator allows you to quickly calculate _____ values.
 - a. Trench
 - b. Pipe
 - c. Bedding
 - d. All of the above

3. For the in-field calculator, what symbol needs to be at the beginning of the math equation for it to calculate?
 - a. +
 - b. -
 - c. =
 - d. (

Lesson 7 Summary

As a result of this lesson, you can:

- Use the Haul Calculator
- Use the Trench Calculator
- Use the In-Field Calculator