

5.2.2.4.5

Item Trend Filters in iPDWeb

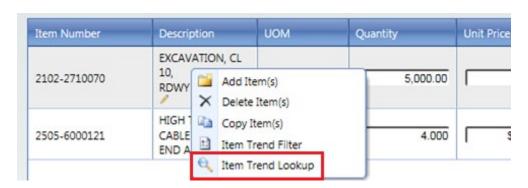
Project and Program Delivery Manual
Chapter 5
Cost Estimating

Originally Issued: 11-07-24 Revised: 09-03-25

After the plan item list has been created the plan items are ready to have pricing assigned. IPDWeb has been created with a tool that performs an analysis based on filtered data and provides a suggested price for the user to evaluate. These filters are initially assigned by the software and in most cases will provide sufficient data samples to allow for reasonable prices to be generated. The user can also manually adjust these filters to generate pricing when the software returns insufficient data samples or when the pricing needs to be fine-tuned.

When working with individual item filters it is important to understand how the Estimate Trend Filter functions see chapter (5.2.2.4 Estimate Trend Filters) in order to avoid the possibility of losing the work previously done on plan item filters when adjusting the Estimate Trend Filter. Notes and documents can also be added to each plan item providing documentation of the plan item process. This documentation is helpful when adjustment made to items have a significant impact on the estimate total. It allows for others reviewing the estimate to easily understand the thought process and decisions that were used when building the estimate. The following chapter explains how to use the Item Trend Lookup, and the process for generating pricing for plan items.

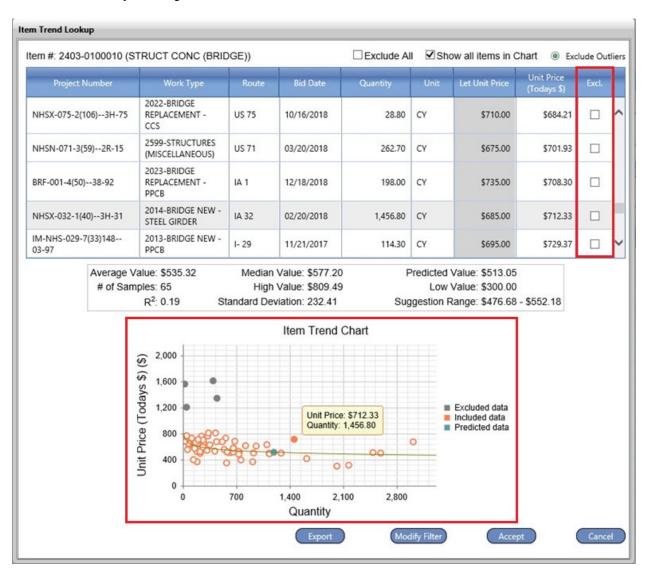
To access the Item Trend Lookup, select the desired item and right click then select the Item Trend Lookup.



Item Trend Lookup Screen: Layout Detail Description

The "Item Trend Chart" displays the bid item information for each filtered project that was used in the regression analysis. The orange and grey dots represent a "sample" project data point. The orange dots are data points included in the regression analysis. The gray dots are outliers which are more than two standard deviations from the average price and have been automatically excluded from the regression analysis.

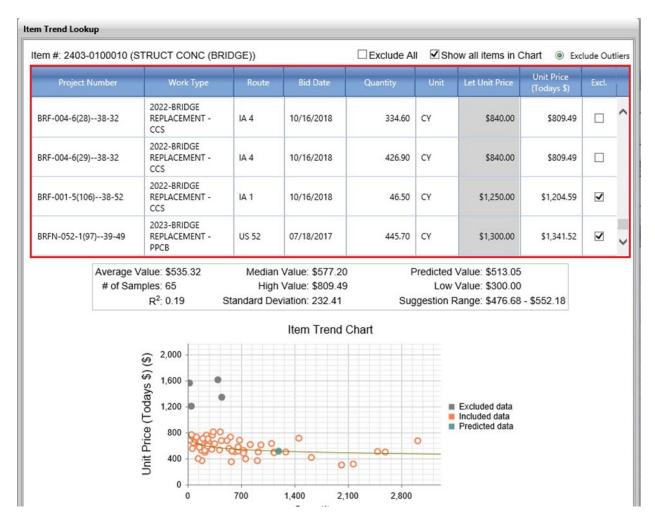
Selecting an orange or grey dot with a single click will highlight the applicable project in the table. Double clicking on an orange dot will exclude that item turning it grey and vice versa for a grey item. Items can also be excluded by marking the excluded box in the table above.



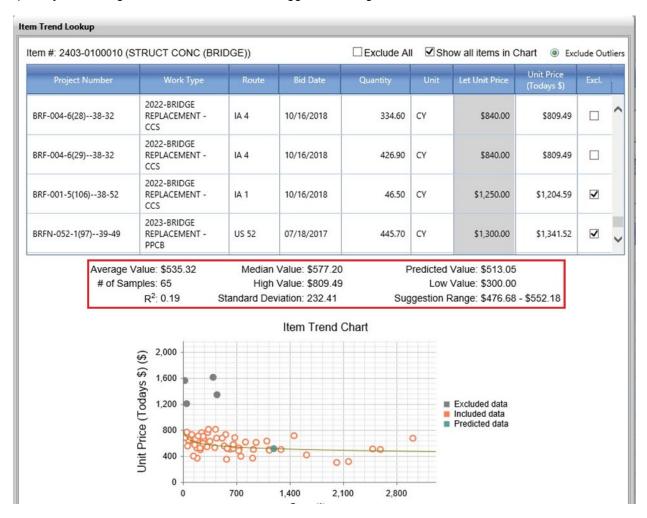
The top portion of the screen provides a table with project information and the data points that were included on the analysis chart. Projects can be individually excluded from the data analysis by clicking on the box in the exclude column or globally excluded by checking the exclude all box at the top. The information in the chart can be sorted in ascending or descending order by clicking on the header. This table also shows the let data and the let unit price. The column labeled **Unit Price (Todays \$)** shows the adjusted unit price in current dollars.



NOTE: The unit price has already been modified for inflation and the Construction Cost Index (CCI) so no additional adjustments to the unit price are needed. This can cause the current unit price to be higher or lower than the let unit price. It is a good practice to review the Let Unit Price and Unit Price (Todays \$) when analyzing the price of a bid item. In rare occurrences the CCI calculation can cause the Today \$ unit price to be significantly higher or lower than the let unit price. This can occur to the pricing for recently let projects after the CCI has been updated in the system. When this occurs, it is best to analyze the item's unit price for the recently let project to make sure the applied inflation makes sense.

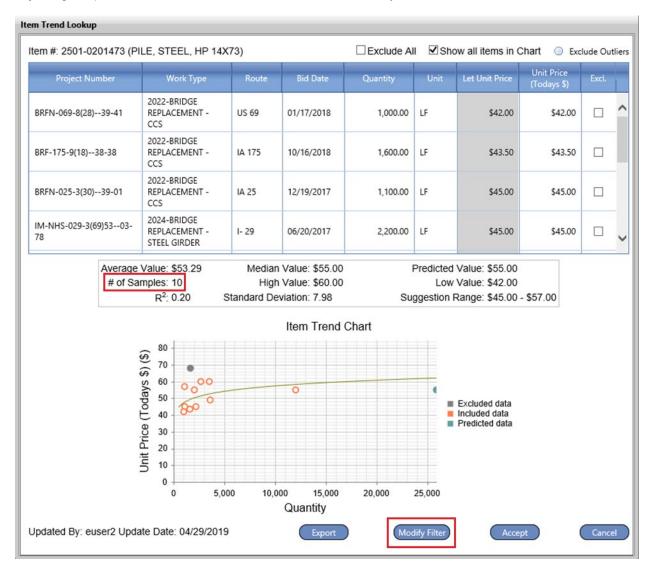


The center section of the screen has information on the calculations of the data. This includes basic analysis data such as the number of samples, weighted average, median, and high and low prices from the compiled data. The R² value shows how well the calculated curve fits the data points shown in the graph and ranges from 0 to 1. The closer to 1, the more data falls on or near the calculated curve and the better the regression. The "Suggestion Range" is a 95 percent prediction interval for a new value of a quantity. The range of values shown in the Suggestion Range also affects the R² value.



Item Trend Lookup: Analysis of Data

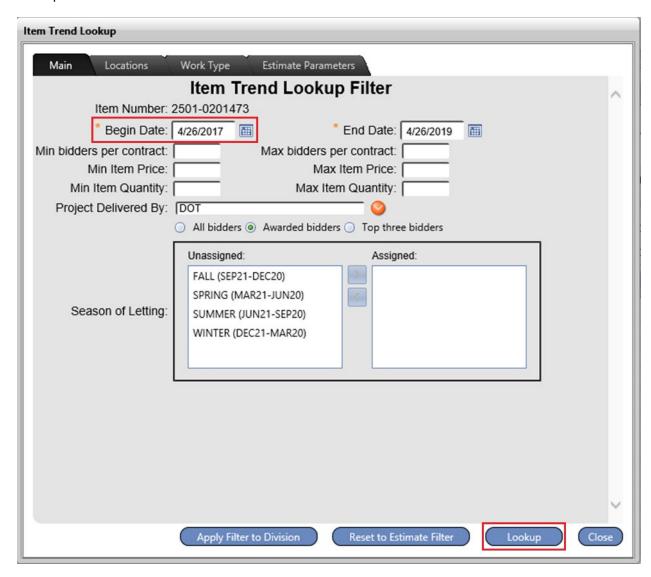
For this scenario, we are looking at item 2501-0201473 (PILE, STEEL, HP 14X73) which is one of the identified plan items containing 83% of the cost for this estimate. This plan item only has 10 samples. Increasing the number of samples will help to provide a better predicted value. This can be done by adjusting the plan item filters. To do this, left click on the "Modify Filter" button.



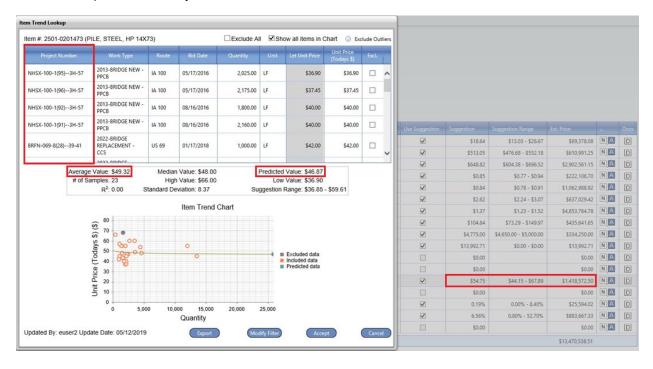
This will open the Item Trend Lookup screen. This screen is the same as the Estimate Trend Filter except any changes made will only affect the current bid item that has been selected. The quickest way to include more samples into the pricing calculation is to expand the "Begin Date" found in the Main tab. This can easily be done by adjusting the date back by 1 year in the Begin Date box.



NOTE: The software assigns the End Date based on the date the estimate was created in the software and the Begin Date is set to 2 years ahead of the End Date. Once this change has been made, click on the "Lookup" button to go back to the Item Trend Lookup screen.

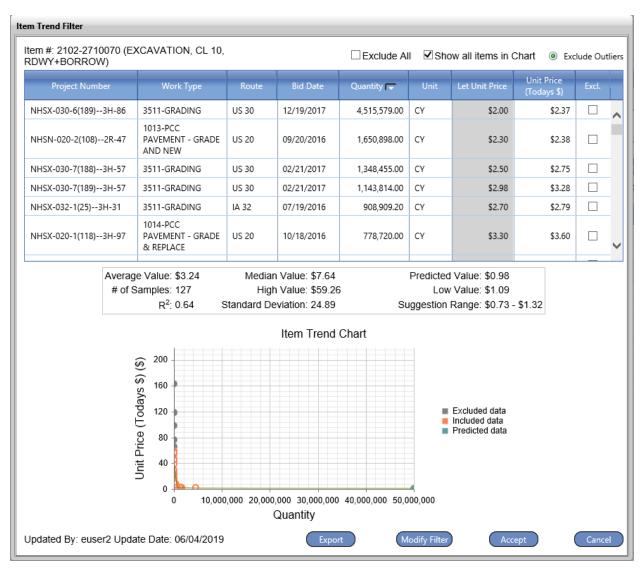


The Item Trend Lookup screen will re-appear showing the new samples and price analysis. The samples were increased from 10 to 23 and the new Predicted Value of \$46.87 is shown. The previous Suggested Price and Suggestion Range can still be referenced on the main screen for comparison. If sufficient data samples were not generated it would be necessary to enter into the Modify Filter screen again and further adjust the Begin Date. As shown in this example 23 samples have been generated and will now allow for the data and price to be analyzed further.



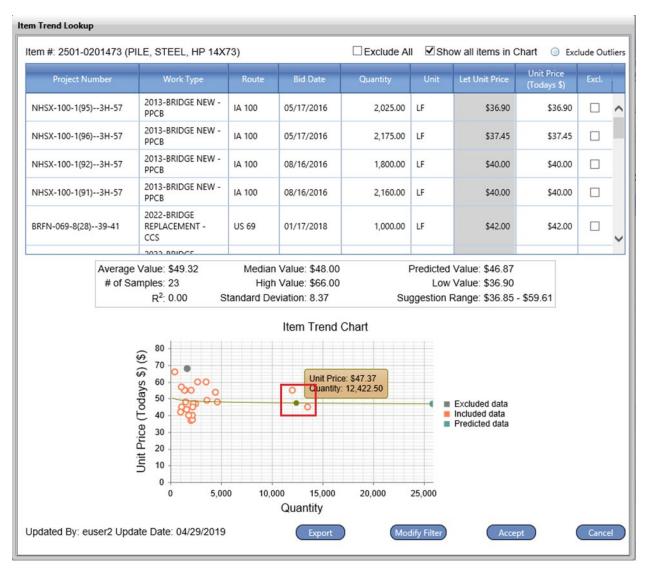
Roadway Example

In certain scenarios, the quantity may be greater than any previous project totals and special care will need to be taken during the price analysis. In this scenario, we have an Excavation Class 10 bid item with a quantity of 50,000,000 CY. This quantity is higher than any past projects. The regression curve will continue to slope down towards zero and the software will then place the data point on the regression curve at the quantity of 50,000,000. This causes the predicted value to be \$0.98/CY which is unrealistic for earthwork and will need to be further analyzed. When reviewing the price, it is best to filter by the quantity and look at pricing for the projects with higher quantities. In this scenario, we can see highest quantity projects range from \$2.00 to \$2.98. Using this information, and estimator experience, the price will need to be manually changed in the division bid item screen (see Manual Adjustment of Unit Price).



Bridge Example

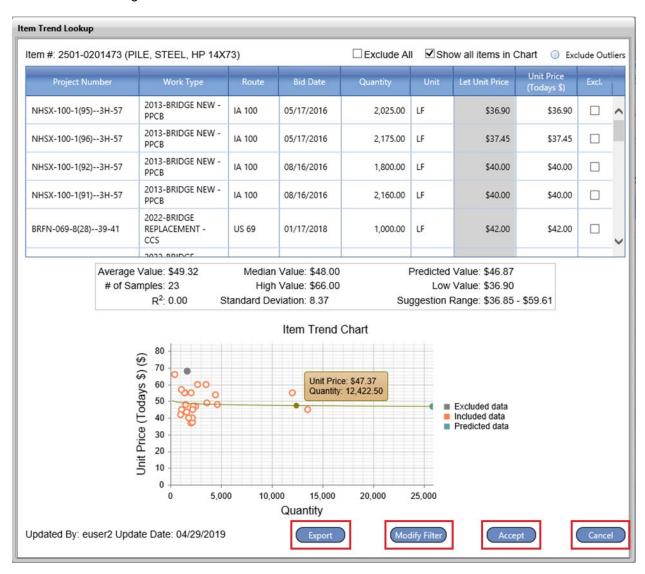
As shown in the graph below, the software has assigned a predicted value based on the regression curve. However, there are not any previous samples that are close to the quantity for this plan item. In this situation the regression line is continuing to project outwards at a steady decrease until arriving at the plan item quantity. When this happens, it is best to move the predicted value back to the nearest data points and then analyze the project data as well as the Average and Median Values. Pricing can vary for many reasons which can include project phasing, limited workspace, or accelerated schedules. This information can be found through researching the plans of the data points shown or through estimator experience.



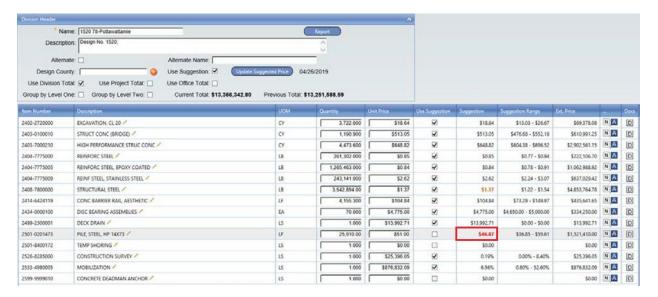
Once analysis of the pricing is complete, the data from the analysis can be exported to Excel by clicking on the "Export" button. Clicking on "Accept" will update the estimate with updated pricing analysis shown in the Item Trend Chart. Clicking on "Cancel" will close the Item Trend Lookup and return the estimate using the original suggested price.



NOTE: Clicking on Cancel will not reset any changes to the filters, or the updated pricing analysis shown on the Item Trend Chart. This can be done by clicking on "Modify Filter" and returning to the filters screen.

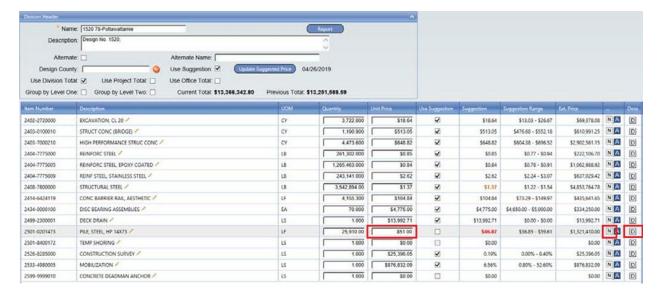


The updated pricing will be shown in the "Suggestion" and "Suggestion Range" column. The unit price in the "Suggestion" column will now show as red. This is to show that the bid item filter was modified from the original estimate trend filter. Orange colored unit pricing is displayed when data samples in the lookup were manually excluded or included into the unit price calculation. This pricing will always override to red when a bid item has modified filters and manual data point changes.



Manual Adjustment of Unit Prices

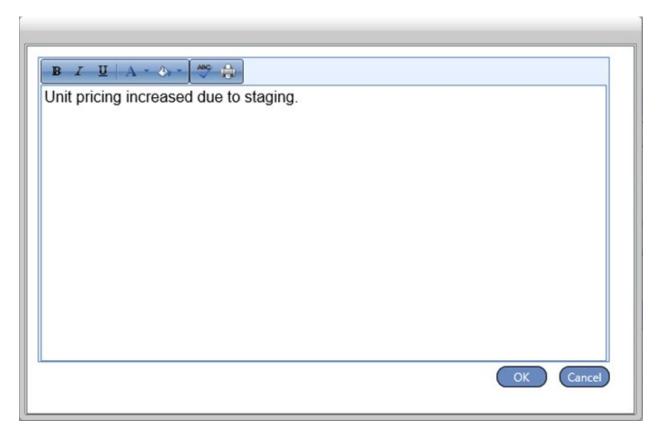
The "Unit Price" can now be left as is or modified by typing in a new price based on the judgment of the estimator. In this example we have increased the price of the Steel Pile to \$51.00/LF. Typing in a unit price will automatically uncheck the "Use Suggestion" box.



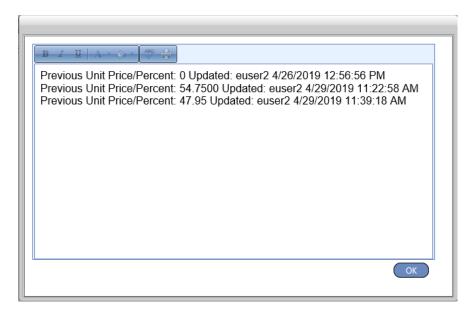


NOTE: Additional documentation explaining the changes to the unit price should be added in the form of Notes and/or attaching documents.

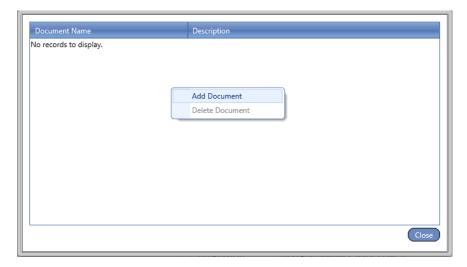
Clicking on the "N" icon will open a Notes screen allowing for the estimator to document any changes or reasoning for the adjustments to bid item pricing. Once finished click on "OK". The "N" icon will change color from white to blue to show that notes have been added for this bid item.



Clicking on the "A" icon will open an automated screen showing a log of all pricing changes made to the bid item. This information includes the previous bid price, the user who made the changes, and the date the changes were made.



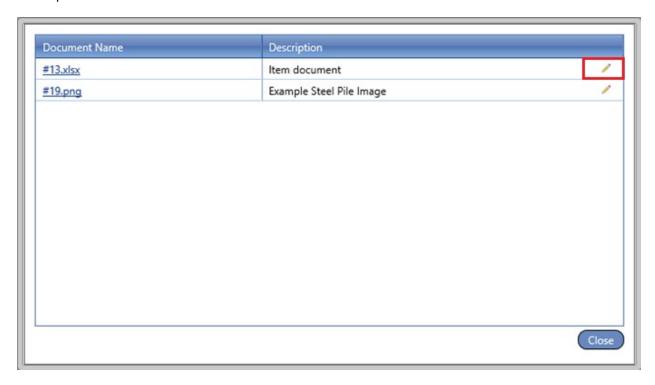
Documents can also be attached to each bid item by clicking on the "D" icon in the Docs column. Once on the document screen right click to add or remove a document.



A document upload dialog box will appear allowing documents to be attached.



The description of uploaded documents can be changed by clicking on the pencil icon. Once Finished click on "Close". The "D" icon will now change color to blue to show that a document has been attached to this plan item.



Non-Standard Plan Items

Many standard lump sum (LS) and all non-standard (2599-category) plan items will not be able to have a price calculated by the software. These are unique non-standard bid items on a project, and it is up to the user to determine these costs. This can be gathered from previous projects, manufacturer literature, etc. Documentation explaining the basis of pricing for these items should be added to the notes and/or the documents tabs in the software.

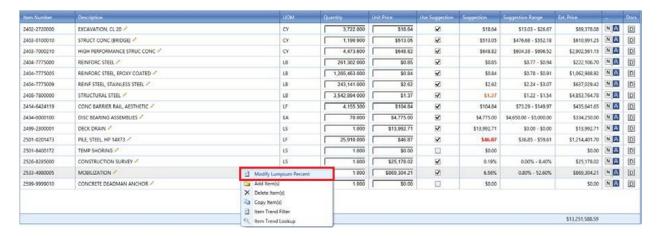


Some lump sum items such as "2533-4980005 MOBILIZATION AND 2562-8285000 CONSTRUCTION SURVEY" are percentage based. These lump sum items are identified by having a LS as the unit of measure and a suggested price in percent in the software. The percentage used to calculate the mobilization cost is based on a percent cost of the total division cost, which includes the cost of the mobilization plan item. Analysis of this item is similar to standard plan items using the "Item Trend Lookup" feature with the one difference being the calculation is based on % of project rather than unit price. Further information on Percentage Based plan items can be found in Chapter 5.2.2.5_Specialty_Plan_Items_In_iPDWeb.

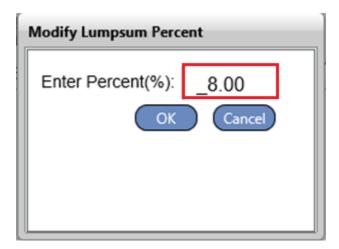
item Number	Description	JOM	Quantity	Unit Price	Use Suggestion	Suggestion	Suggestion Range	Ext Price		Doca
2402-2720000	EXCAVATION, CL 20 /	CY	3,722.000	\$18.64	S	\$18.64	\$13.03 - \$26.67	\$69,378.08	NA	D
2403-0100010	STRUCT CONC (BRIDGE) /	CY	1,190.900	\$513.05	Ø	\$513.05	\$476.68 - \$552.18	\$610,991.25	NA	D
2403-7000210	HIGH PERFORMANCE STRUC CONC -	CY	4,473.600	\$648.82	₩.	\$648.82	\$604.38 - \$696.52	\$2,902,561.15	NA	(D)
2404-7775000	REINFORC STEEL 💉	1.8	261,302.000	\$0.85	₩.	\$0.85	\$0.77 - \$0.94	\$222,106.70	NA	0
2404-7775005	REINFORC STEEL, EPOXY COATED >	1.8	1,265,463.000	\$0.84	Ø	\$0.84	\$0.78 - \$0.91	\$1,062,988.92	NA	0
2404-7775009	REINF STEEL, STAINLESS STEEL 🖍	LB	243,141.000	\$2.62	Ø	\$2.62	\$2.24 - \$3.07	\$637,029.42	NA	D
2408-7800000	STRUCTURAL STEEL /	LB	3,542,894.000	\$1.37	8	\$1.37	\$1.22 - \$1.54	\$4,853,764.78	NA	D
2414-6424119	CONC BARRIER RAIL, AESTHETIC /	LF.	4,155.300	\$104.84	80	\$104.84	\$73.29 - \$149.97	\$435,641.65	NA	D
2434-0000100	DISC BEARING ASSEMBLIES 🗸	EA	70 000	\$4,775.00	82	\$4,775.00	\$4,650.00 - \$5,000.00	\$334,250.00	NA	D
2499-2300001	DECK DRAIN /	LS	1.000	\$13,992.71	8	\$13,992.71	\$0.00 - \$0.00	\$13,992.71	NA	D
2501-0201473	PILE, STEEL, HP 14X73	UF	25,910.000	\$46.87	8	\$46.87	\$36.85 - \$59.61	\$1,214,401.70	NA	D
2501-8400172	TEMP SHORING /	LS	1.000	\$0.00		\$0.00		\$0.00	NA	D
2526-8285000	CONSTRUCTION SURVEY /	LS	1.000	\$25,178.02	2	0.19%	0.00% - 8.40%	\$25,178.02	NA	D
2533-4980005	MOBILIZATION /	LS	1.000	\$869,304.21	8	6.56%	0.80% - 52.60%	\$869,304.21	NA	D
2599-9999010	CONCRETE DEADMAN ANCHOR A	LS	1.000	\$0.00		\$0.00		\$0.00	NA	(D)

Lump Sum Items

The percent can be manually modified by the user by right clicking on the plan item and selecting "Modify Lumpsum Percent".



A popup screen will appear allowing for the new percentage to be entered. Click on "OK" to accept the change and update the item in the estimate.



Chronology of Changes to Manual Section:

5.1.2 Item Trend Filters in iPDWeb

11/07/2024 NEW

07/28/2025 Removed broken hyperlinks. 09/03/2025 Removed Header on pages.

Checked Accessibility