

Civil 3D Quantities using QTO, Excel, and FDOT Tables within the State Kit



All Presentations and Downloads will be available online
A link will be emailed to all class registrants

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“Analyze” Ribbon

QTO Manager & Takeoff

The screenshot shows the 'Analyze' ribbon in AutoCAD software. The 'QTO Manager' and 'Takeoff' buttons are highlighted with a red box. Below the ribbon, two callout boxes provide details for each button. The 'QTO Manager' callout describes its function in managing pay items and lists supported file formats. The 'Takeoff' callout describes its function in computing quantity takeoff and includes a warning about material definitions and a help prompt.

QTO Manager
Manages pay items to analyze material quantities

A pay item file contains the pay item codes, descriptions, and units of measure for the master pay item list. The pay item file is formatted as either a Comma Separated Variable (CSV) file or an eXtensible Markup Language (XML) file.

QTOManager
Press F1 for more help

Takeoff
Computes quantity takeoff using pay items

Before you create a quantity takeoff report or table, materials must be defined in the Sample Line Group properties or computed using the Compute Materials command.

Takeoff
Press F1 for more help

The logo for the 2013 Design Training Expo is located at the bottom left of the slide.

Setting up your Pay item file

*Tip – You only have to set up your Pay Item File Once.

QTO Manager

Enter text to filter

- Open pay item file
- Save as
- Open

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FDOT2014.C3D

Data

- Pay Item Data
- AECMERGE
- FloridaCategories

Open Pay Item File

Pay item file format: Florida DOT

Pay item file: C:\fdot2012.c3d\data\pay item data\aecmerge.xml

Pay item categorization file: C:\fdot2012.c3d\data\pay item data\floridacategories.xml

Advanced Options

OK Cancel Help

Set Pay Item file format to Florida DOT

Point to the aecmerge.xml file located in your root folder

Categorization file points to the floridacategories.xml file

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Generating a Report

Summary or Detailed

QTO Manager

Takeoff

Statio Tracks

QTO

Takeoff

Click Takeoff in the Ribbon to Launch the Report Dialog Box

Report type

- Summary
- Detailed

Report extents

Drawing

Report quantity for sheet extents only

Limit extents to alignment station range

Alignment: CL-SR7 [路標]

Start station: 18+00.00'

End station: 265+79.25'

Report output

Report selected pay items only

Report station and offset relative to: CL-SR7 [路標]

Compute Close Help

You can report drawing wide or per individual sheets

You can create a report for a station range. The default is the entire alignment

For generating station/offset information select the alignment.

Click compute to generate a report.

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Adjusting the look of the report

Click the pull down to pick the desired type of .xsl report

A (csv) comma separated value file is perfect for excel

Click the Save As button to save the report that will be imported into Microsoft Excel for additional formatting

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Excel Magic

The "Before" unformatted look of the raw csv file.

The "After" formatting. The columns are formatted to mimic the AutoCAD table that it will be linked to.

Create a duplicate sheet tab to create your formatted sheet

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Pole No.	Circuit	BASELINE STATION	Dist Arm	Lum Watt	Height	OFFSET	PAY_ITEM_ID
1	CL-SR7	06-27.42	15	400	50	58.80	0715 4113
2	CL-SR7	07-07.44	15	400	50	58.90	0715 4113
3	CL-SR7	09-13.00	15	400	50	58.94	0715 4113
4	CL-SR7	09-17.75	15	400	50	59.03	0715 4113
5	CL-SR7	91-38.41	15	400	50	60.31	0715 4113
6	CL-SR7	92-89.09	15	400	50	59.10	0715 4113
7	CL-SR7	93-79.03	15	400	50	58.88	0715 4113
8	CL-SR7	95-23.44	15	400	50	59.06	0715 4113

Setting up the Table to accept Data

Select the table then right click and go to properties

Make the following changes; Table breaks will allow the table to duplicate itself to the right as data increases and repeating top labels does as it says

Select the first cell in which data will reside in then click on the Link Cell along the top of the ribbon

Enabled	Yes
Direction	Right
Repeat top labels	Yes
Repeat bottom labels	No
Manual positions	No
Manual heights	No
Break height	9.3002
Spacing	0.2673

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Creating a New data link and selecting Excel file

Create a new Excel link in this case we name it Pole Data

Browse for the Excel file that contains the formatted Pole Data

Quantities
Name
Raw Pole Data (CSV)

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Setting the options for the Data Link

The image shows two dialog boxes from Microsoft Excel. The first, 'New Excel Data Link: Pole Data', has the following settings: File path is 'F:\FDOT Plug_Design Expo\FDOT Fall Plug 2012\Q...', Link options are 'Select Excel sheet to link to: Formatted Pole Data', 'Link to range' is selected with 'A:1:174' entered, and 'Preview' is checked. The second, 'Select a Data Link', shows 'Pole Data' selected in the Links list, with 'Link name: Pole Data', 'File name: F:\FDOT Plug_Design Expo\FDOT Fall ...', and 'Link details: Range: A1:174'. Annotations include: 'Select the sheet tab you want Linked' pointing to 'Formatted Pole Data'; 'You can link to a cell range instead of the whole sheet' pointing to 'Link to range'; and 'Select OK to continue' pointing to the OK button.

The data as it first looks in the Table

The image displays an Excel table with 32 columns and 32 rows of data. The columns are: POLE NO., COUNTY, C/L CONTRACT NO., START DATE, DIST. OF ADD., LUMINAIRE SPACING, HOUSING HEIGHT, POLE SPACING, and PAY ITEM. The data consists of numerical values for each field. A callout box at the bottom right contains the text: 'You can see that initially the table expands beyond the sheet border. Let's adjust that.'

Adjusting the Locked Cells

	A	B	C	D	E
1	POLE DATA				
2	POLE NO.	CIRCUIT	C/L CONSTRUCTION	STATION	DIST. OF ARM
3	1	A-1	CL-SR7	86+27.42	15
4	2		CL-SR7	87+70.44	15
5	3		CL-SR7	89+13.00	15
6	4		CL-SR7	90+17.75	15
7	5		CL-SR7	91+38.41	15

You can still adjust the column width without compromising the Link. As you adjust the column widths it also adjusts the expanded tables to the right to bring the table borders within the sheet border.

POLE NO.	CIRCUIT	C/L CONSTRUCTION	STATION	DIST. OF ARM	LUMINAIRE WATTAGE
1	A-1	CL-SR7	86+27.42	15	400
2					
3					
4					
5					
6					



Adjusting the Locked Cells

POLE DATA										POLE DATA									
POLE NO.	CIRCUIT	C/L CONSTRUCTION	STATION	DIST. OF ARM	LUMINAIRE WATTAGE	HEIGHT	POLE HEIGHT	PAR. TYP.		POLE NO.	CIRCUIT	C/L CONSTRUCTION	STATION	DIST. OF ARM	LUMINAIRE WATTAGE	HEIGHT	POLE HEIGHT	PAR. TYP.	
1	CL-SR7	CL-SR7	86+27.42	15	400	80	80.00	CL-SR7		41	CL-SR7	CL-SR7	86+27.42	15	400	80	80.00	CL-SR7	
2	CL-SR7	CL-SR7	87+70.44	15	400	80	80.00	CL-SR7		42	CL-SR7	CL-SR7	87+70.44	15	400	80	80.00	CL-SR7	
3	CL-SR7	CL-SR7	89+13.00	15	400	80	80.00	CL-SR7		43	CL-SR7	CL-SR7	89+13.00	15	400	80	80.00	CL-SR7	
4	CL-SR7	CL-SR7	90+17.75	15	400	80	80.00	CL-SR7		44	CL-SR7	CL-SR7	90+17.75	15	400	80	80.00	CL-SR7	
5	CL-SR7	CL-SR7	91+38.41	15	400	80	80.00	CL-SR7		45	CL-SR7	CL-SR7	91+38.41	15	400	80	80.00	CL-SR7	
6	CL-SR7	CL-SR7	92+58.97	15	400	80	80.00	CL-SR7		46	CL-SR7	CL-SR7	92+58.97	15	400	80	80.00	CL-SR7	
7	CL-SR7	CL-SR7	93+79.53	15	400	80	80.00	CL-SR7		47	CL-SR7	CL-SR7	93+79.53	15	400	80	80.00	CL-SR7	
8	CL-SR7	CL-SR7	94+00.09	15	400	80	80.00	CL-SR7		48	CL-SR7	CL-SR7	94+00.09	15	400	80	80.00	CL-SR7	
9	CL-SR7	CL-SR7	95+20.65	15	400	80	80.00	CL-SR7		49	CL-SR7	CL-SR7	95+20.65	15	400	80	80.00	CL-SR7	
10	CL-SR7	CL-SR7	96+41.21	15	400	80	80.00	CL-SR7		50	CL-SR7	CL-SR7	96+41.21	15	400	80	80.00	CL-SR7	
11	CL-SR7	CL-SR7	97+61.77	15	400	80	80.00	CL-SR7		51	CL-SR7	CL-SR7	97+61.77	15	400	80	80.00	CL-SR7	
12	CL-SR7	CL-SR7	98+82.33	15	400	80	80.00	CL-SR7		52	CL-SR7	CL-SR7	98+82.33	15	400	80	80.00	CL-SR7	
13	CL-SR7	CL-SR7	99+02.89	15	400	80	80.00	CL-SR7		53	CL-SR7	CL-SR7	99+02.89	15	400	80	80.00	CL-SR7	
14	CL-SR7	CL-SR7	100+23.45	15	400	80	80.00	CL-SR7		54	CL-SR7	CL-SR7	100+23.45	15	400	80	80.00	CL-SR7	
15	CL-SR7	CL-SR7	101+44.01	15	400	80	80.00	CL-SR7		55	CL-SR7	CL-SR7	101+44.01	15	400	80	80.00	CL-SR7	
16	CL-SR7	CL-SR7	102+64.57	15	400	80	80.00	CL-SR7		56	CL-SR7	CL-SR7	102+64.57	15	400	80	80.00	CL-SR7	
17	CL-SR7	CL-SR7	103+85.13	15	400	80	80.00	CL-SR7		57	CL-SR7	CL-SR7	103+85.13	15	400	80	80.00	CL-SR7	
18	CL-SR7	CL-SR7	104+05.69	15	400	80	80.00	CL-SR7		58	CL-SR7	CL-SR7	104+05.69	15	400	80	80.00	CL-SR7	
19	CL-SR7	CL-SR7	105+26.25	15	400	80	80.00	CL-SR7		59	CL-SR7	CL-SR7	105+26.25	15	400	80	80.00	CL-SR7	
20	CL-SR7	CL-SR7	106+46.81	15	400	80	80.00	CL-SR7		60	CL-SR7	CL-SR7	106+46.81	15	400	80	80.00	CL-SR7	
21	CL-SR7	CL-SR7	107+67.37	15	400	80	80.00	CL-SR7		61	CL-SR7	CL-SR7	107+67.37	15	400	80	80.00	CL-SR7	
22	CL-SR7	CL-SR7	108+87.93	15	400	80	80.00	CL-SR7		62	CL-SR7	CL-SR7	108+87.93	15	400	80	80.00	CL-SR7	
23	CL-SR7	CL-SR7	109+08.49	15	400	80	80.00	CL-SR7		63	CL-SR7	CL-SR7	109+08.49	15	400	80	80.00	CL-SR7	
24	CL-SR7	CL-SR7	110+29.05	15	400	80	80.00	CL-SR7		64	CL-SR7	CL-SR7	110+29.05	15	400	80	80.00	CL-SR7	
25	CL-SR7	CL-SR7	111+49.61	15	400	80	80.00	CL-SR7		65	CL-SR7	CL-SR7	111+49.61	15	400	80	80.00	CL-SR7	
26	CL-SR7	CL-SR7	112+70.17	15	400	80	80.00	CL-SR7		66	CL-SR7	CL-SR7	112+70.17	15	400	80	80.00	CL-SR7	
27	CL-SR7	CL-SR7	113+90.73	15	400	80	80.00	CL-SR7		67	CL-SR7	CL-SR7	113+90.73	15	400	80	80.00	CL-SR7	
28	CL-SR7	CL-SR7	114+11.29	15	400	80	80.00	CL-SR7		68	CL-SR7	CL-SR7	114+11.29	15	400	80	80.00	CL-SR7	
29	CL-SR7	CL-SR7	115+31.85	15	400	80	80.00	CL-SR7		69	CL-SR7	CL-SR7	115+31.85	15	400	80	80.00	CL-SR7	
30	CL-SR7	CL-SR7	116+52.41	15	400	80	80.00	CL-SR7		70	CL-SR7	CL-SR7	116+52.41	15	400	80	80.00	CL-SR7	
31	CL-SR7	CL-SR7	117+72.97	15	400	80	80.00	CL-SR7		71	CL-SR7	CL-SR7	117+72.97	15	400	80	80.00	CL-SR7	
32	CL-SR7	CL-SR7	118+93.53	15	400	80	80.00	CL-SR7		72	CL-SR7	CL-SR7	118+93.53	15	400	80	80.00	CL-SR7	
33	CL-SR7	CL-SR7	119+14.09	15	400	80	80.00	CL-SR7		73	CL-SR7	CL-SR7	119+14.09	15	400	80	80.00	CL-SR7	
34	CL-SR7	CL-SR7	120+34.65	15	400	80	80.00	CL-SR7		74	CL-SR7	CL-SR7	120+34.65	15	400	80	80.00	CL-SR7	
35	CL-SR7	CL-SR7	121+55.21	15	400	80	80.00	CL-SR7		75	CL-SR7	CL-SR7	121+55.21	15	400	80	80.00	CL-SR7	
36	CL-SR7	CL-SR7	122+75.77	15	400	80	80.00	CL-SR7		76	CL-SR7	CL-SR7	122+75.77	15	400	80	80.00	CL-SR7	
37	CL-SR7	CL-SR7	123+96.33	15	400	80	80.00	CL-SR7		77	CL-SR7	CL-SR7	123+96.33	15	400	80	80.00	CL-SR7	
38	CL-SR7	CL-SR7	124+16.89	15	400	80	80.00	CL-SR7		78	CL-SR7	CL-SR7	124+16.89	15	400	80	80.00	CL-SR7	
39	CL-SR7	CL-SR7	125+37.45	15	400	80	80.00	CL-SR7		79	CL-SR7	CL-SR7	125+37.45	15	400	80	80.00	CL-SR7	
40	CL-SR7	CL-SR7	126+58.01	15	400	80	80.00	CL-SR7		80	CL-SR7	CL-SR7	126+58.01	15	400	80	80.00	CL-SR7	

The finished Table within the Sheet Border. Remember any adjustment you make on the Table on the Left (Parent) will adjust the one on the Right (Child)



Adding data manually to the excel file

	A	B	C	D	E	F	G	H	I
1	Pole No.	Circuit	BASELINE	STATION	Dist Arm	Lum Watt	Height	OFFSET	PAR_LINK_ID
2	1	A-1	CL-SR7	86+27.42	12'	400	50'	58.80' LT	0715_4113
3	2	A-1	CL-SR7	87+70.44	12'	400	50'	58.90' LT	0715_4113
4	3	A-1	CL-SR7	89+13.00'	12'	400	50'	58.94' LT	0715_4113
5	4	A-1	CL-SR7	90+17.75'	12'	400	50'	59.07' LT	0715_4113
6	5	A-1	CL-SR7	91+20.41'	12'	400	50'	60.31' LT	0715_4113
7	6	A-1	CL-SR7	92+29.09'	12'	400	50'	59.10' LT	0715_4113
8	7	A-1	CL-SR7	93+79.03'	15'	400	50'	58.88' LT	0715_4113
9	8	A-1	CL-SR7	95+23.44'	15'	400	50'	59.06' LT	0715_4113
10	9	A-1	CL-SR7	96+72.26'	15'	400	50'	59.09' LT	0715_4113
11	10	A-1	CL-SR7	98+07.50'	15'	400	50'	59.55' LT	0715_4113
12	11	A-1	CL-SR7	99+43.49'	15'	400	50'	60.31' LT	0715_4113
13	12	A-1	CL-SR7	100+57.53'	15'	400	50'	60.90' LT	0715_4113
14	13	A-II	CL-SR7	101+73.03'	15'	400	50'	61.74' LT	0715_4113
15	14	A-II	CL-SR7	102+86.97'	15'	400	50'	62.10' LT	0715_4113
16	15	A-II	CL-SR7	104+02.51'	15'	400	50'	62.83' LT	0715_4113
17	16	A-II	CL-SR7	105+25.52'	15'	400	50'	63.43' LT	0715_4113
18	17	A-II	CL-SR7	107+29.03'	15'	400	50'	63.88' LT	0715_4113
19	18	A-II	CL-SR7	107+60.00'	15'	400	50'	63.69' LT	0715_4113
20	19	A-II	CL-SR7	108+94.94'	15'	400	50'	77.86' LT	0715_4113
21	20	A-II	CL-SR7	110+30.16'	15'	400	50'	64.29' LT	0715_4113
22	21	A-II	CL-SR7	112+07.20'	15'	400	50'	76.20' LT	0715_4113
23	22	A-II	CL-SR7	114+22.20'	15'	400	50'	76.16' LT	0715_4113
24	23	A-II	CL-SR7	115+57.17'	15'	400	50'	76.24' LT	0715_4113
25	24	A-II	CL-SR7	116+82.90'	15'	400	50'	76.39' LT	0715_4113

You can add data manually to the columns that will automatically get added to the AutoCAD Table. Just Save the file and switch over to your AutoCAD Drawing

Once you switch to your drawing a pop up box will notify you that your Data Links have changed and need to be updated. Click the Blue Link to update your table

Viewing the updated Table

POLE NO.	CIRCUIT	C/L CONSTRUCTION	STA
1	A-1	CL-SR7	86+27.42
2	A-1	CL-SR7	87+70.44
3	A-1	CL-SR7	89+13.00
4	A-1	CL-SR7	90+17.75
5	A-1	CL-SR7	91+20.41
6	A-1	CL-SR7	92+29.09
7	A-1	CL-SR7	93+79.03
8	A-1	CL-SR7	95+23.44
9	A-1	CL-SR7	96+72.26
10	A-1	CL-SR7	98+07.50
11	A-1	CL-SR7	99+43.49
12	A-1	CL-SR7	100+57.53
13	A-II	CL-SR7	101+73.03
14	A-II	CL-SR7	102+86.97
15	A-II	CL-SR7	104+02.51
16	A-II	CL-SR7	105+25.52
17	A-II	CL-SR7	107+29.03
18	A-II	CL-SR7	107+60.00
19	A-II	CL-SR7	108+94.94
20	A-II	CL-SR7	110+30.16
21	A-II	CL-SR7	112+07.20
22	A-II	CL-SR7	114+22.20
23	A-II	CL-SR7	115+57.17
24	A-II	CL-SR7	116+82.90

The updated table displays the newly added data that was added to the Excel File

Advantages of AutoCAD Tables

- * Add Formulas within AutoCAD
- * Add Columns & Rows
- * Edit the Table Size

Adding FDOT Tables to your Drawing



Adding Tablestyles to your Drawing

Right Click to Add Table Style to Currently Open Drawing

Using Design Center, Add the Desired Table.

All of the Tables reside in the "Master Table Drawing" located in the Blocks Folder

FDOT2012.C3D
 .lvn
 APPS
 CAICE
 Data
 Blocks
 Corridor Design Standards

Master Table Drawing 4/30/2013 3:57 PM AutoCAD Drawing 818 KB



Inserting a Table in your Drawing

On the Command Line Type "Table" and under the Table Style Pull-down select the Desired Table to insert it in the Drawing

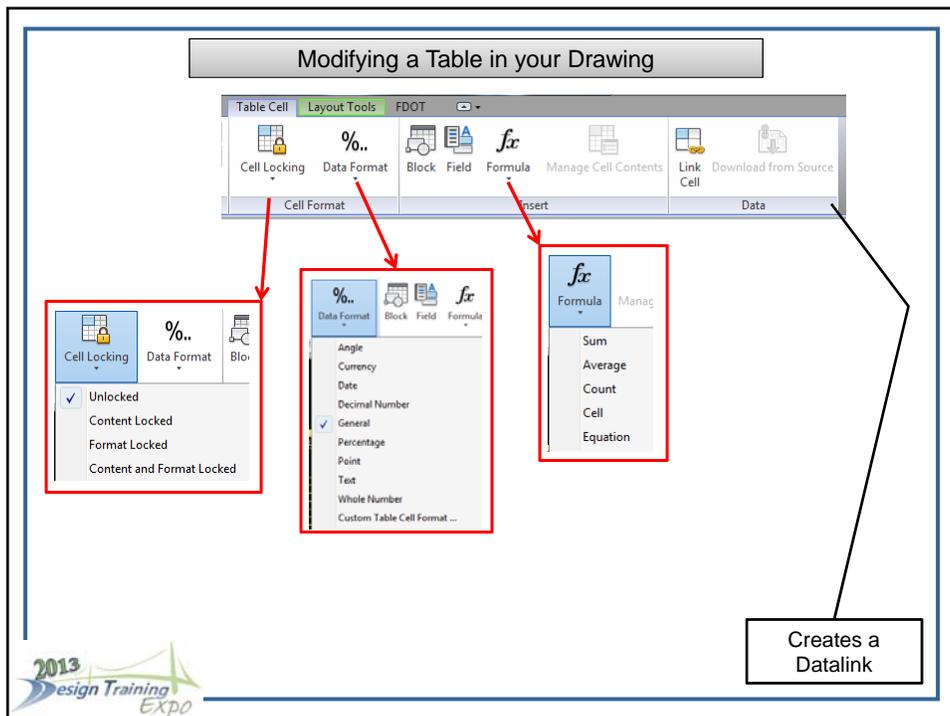
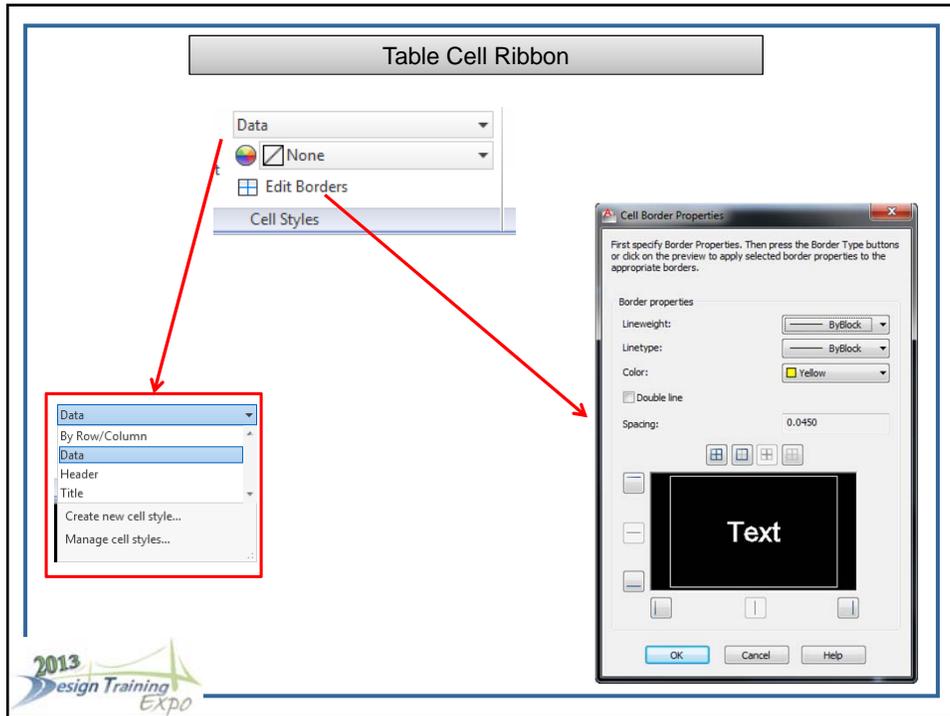
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Table Cell Ribbon

Delete or add Rows and Columns

Acts like Match Properties

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Modifying a Table in your Drawing

Right Click Options →

- Cut
- Copy
- Paste
- Recent Input ▶
- Cell Style ▶
- Background Fill
- Alignment ▶
- Borders...
- Locking ▶
- Data Format...
- Match Cell
- Remove All Property Overrides
- Data Link...
- Insert ▶
- Edit Text
- Manage Content ...
- Delete Content ▶
- Delete All Contents
- Columns ▶
- Rows ▶
- Merge ▶
- Unmerge
- Properties...
- Quick Select...

