

HYDRAULIC DATA SUMMARY AND IRRIGATION DATA SUMMARY IN AUTODESK

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Overview

This document contains the workflows necessary for creating Hydraulic Data Summaries and Irrigation Data Summaries in Civil 3D.

Process Provenance

- Date of development: *12/22/2023*
- Application/Tool(s): *Autodesk Civil 3D*
- Version(s): *13.4.2429.0 Civil 3D 2022.2.5 Update*
- Environment(s): *MDT Civil 3D State Kit r2022 v1.23.1*

Statement of Need

The purpose of this document is to provide guidance to MDT Autodesk users for creating Hydraulic Data Summaries (HDS) and Irrigation Data Summaries (IDS) for plans production in Civil 3D.

Acronyms/Definitions Used in This Document

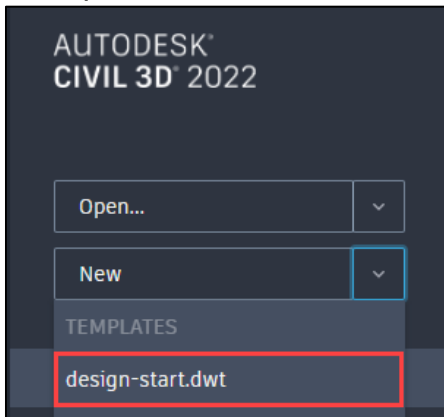
OLE – Object Linking and Embedding. OLEs are embedded copies of information from another document.

Process Description and Examples

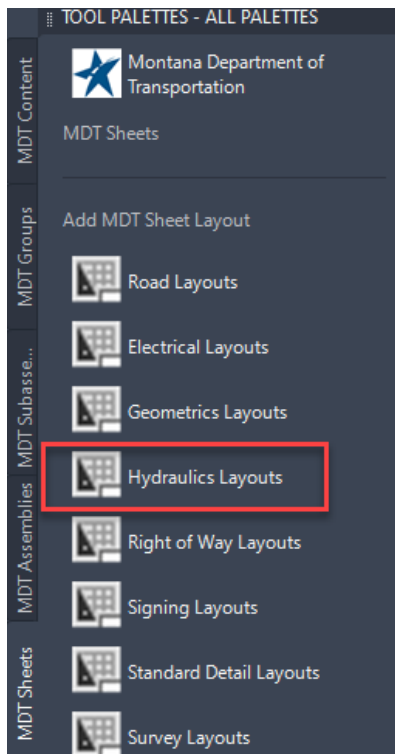
Section I. File Setup

Procedure – Civil 3D File Setup

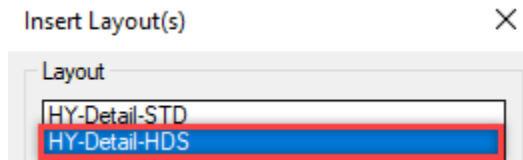
1. Create a new file using the **design-start.dwt** template. Save it as **[UPN#]HYHDS001.dwg** (for example, **9422000HYHDS001.dwg**) in the HY directory of the project on BIM 360. Use **CTRL+S** or navigate to the C3D icon in the top left and save the file.



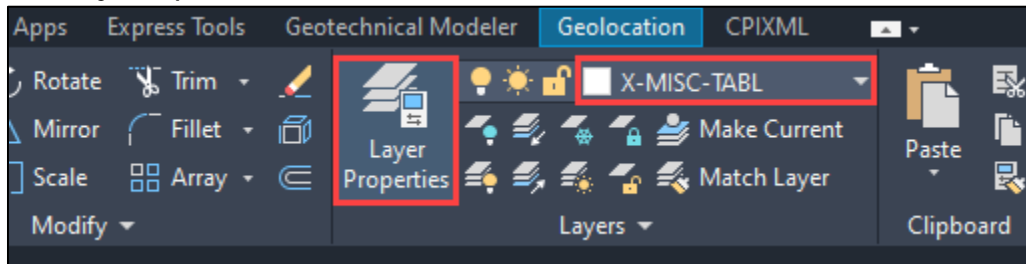
2. Create a new layout using the **Hydraulic Layouts** within the **MDT Sheets** tab of the **MDT Tool Palette**.



3. Select the **HY-Detail-HDS** or **HY-Detail-IDS** layout.



4. Set the active layer to **X-MISC-TABL** by selecting it from the layer dropdown in the **Layers** panel on the **Home** tab.



5. Type the command **OLEFRAME**, press **Enter**, and change the variable to <2> by typing **2** then hitting **Enter**. This allows the frames to display grip handles but will not plot the border frame. Changing the value to 1 will plot the border frame.

NOTE: Because this process pertains to a system variable and not a file, it only needs to be completed once. It will also need to be completed each time after updating the State Kit.

Procedure – Excel File Setup

1. Create a new HDS or IDS sheet by navigating to C:\mdoh\StateKit\Civil 3D\2022\Tools\ExcelManager\Hydraulics\HydraulicDataSummary_IrrigationData Summary.
2. Save the file as **[UPN#]HYHDS001.xlsx** and browse to the HY directory within the project through ACCDocs, or save the file locally and upload the file to BIM 360 via the web version.

NOTE: Saving the file to BIM 360 will allow dynamic updates in the summary sheets as information is edited in the Excel workbook.

3. Fill out the tables in the Excel workbook to meet the project needs.

Procedure – Insert OLE Objects

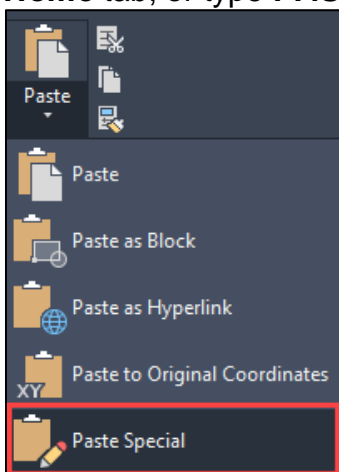
1. Within Civil 3D, open the [UPN#]HYHDS001.dwg file created in Step 1 of the Civil 3D File Setup procedure if not already open.
2. Select the **HY-Detail-HDS** or **HY-Detail-IDS** layout tab.
3. Open the [UPN#]HYHDS001.xlsx workbook from ACCDocs within the project directory on Windows Explorer.

NOTE: Having both files open at the same time will ensure that the two files are updated concurrently while working within them.

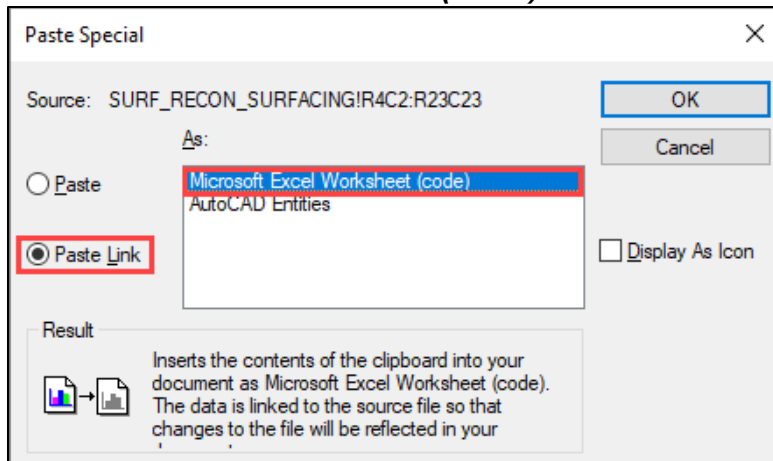
4. Select the HDS or IDS table. Highlight the table as shown below, selecting the cells just outside of the borders of the frame. Copy the data to the clipboard using **CTRL+C** and return to Civil 3D.

STATION	STREAM NAME (IF NAMED)	DRAINAGE AREA (SQ. FT.)	SIDETYPE STRUCTURE	DESIGN FLOOD		BASE FLOOD (1%)		OVERTOPPING FLOOD			REMARKS (FLOOD OF RECORD, Q _T (Q ₁₀₀), etc.)
				MAGNITUDE (CFS)	FREQUENCY (Y)	M.W. ELEV. (FT)	MAGNITUDE (CFS)	M.W. ELEV. (FT)	MAGNITUDE (CFS)	SPFREQ. FREQUENCY (Y)	

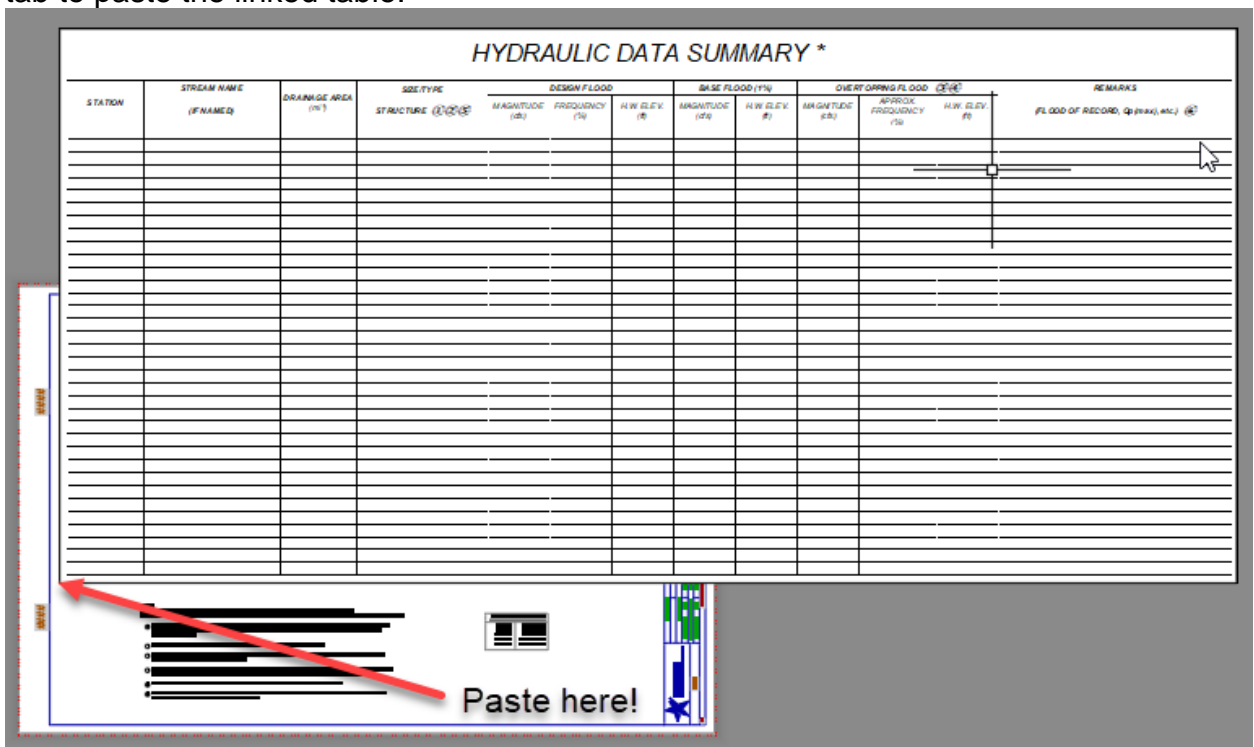
5. Select **Paste Special** from the **Paste** dropdown in the **Clipboard** panel on the **Home** tab, or type **PASTESPEC** and press **Enter**.



- In the **Paste Special** dialog box, select **Paste Link** and set the source as **Microsoft Excel Worksheet (code)**. Then select **OK**.

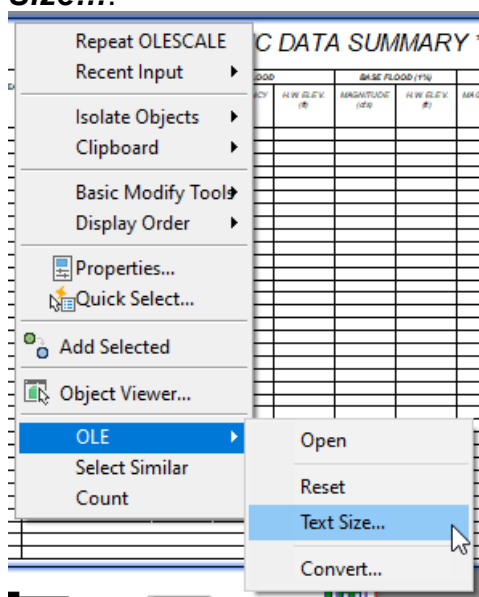


- Select a point in paper space on the **HY-Detail-HDS** or **HY-Detail-IDS** layout tab to paste the linked table.

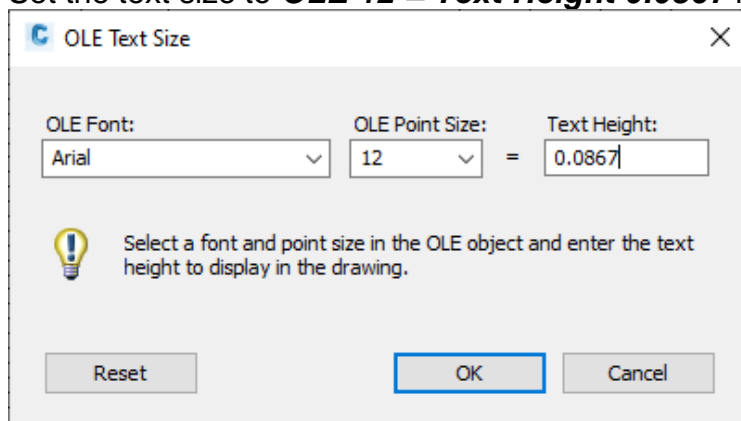


NOTE: The OLE will be too large for the summary sheet and must be scaled to fit.

8. Select the summary frame, right click, and hover over **OLE** and select **Text Size...**



9. Set the text size to **OLE 12 = Text Height 0.0867** for the Arial font.



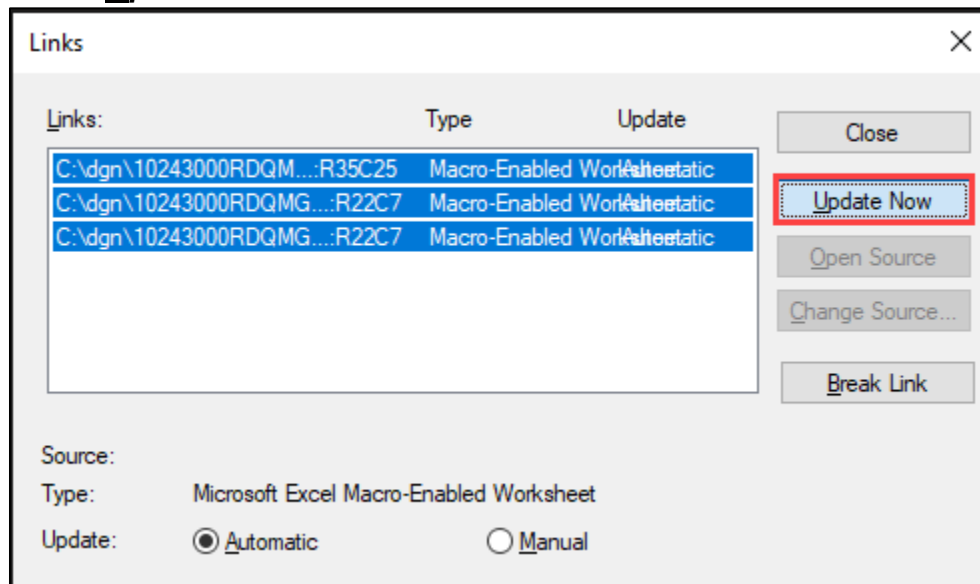
NOTE: The font displayed in the OLE Text Size window is the typically largest text size detected in the linked Excel spreadsheet. Updating any font text height will update all other font text heights in the OLE. Use the following table for converting text heights other than OLE Point Size 12:

OLE Point Size	OLE Text Size
12	0.0867
14	0.1011
16	0.1156
18	0.1300
20	0.1444
22	0.1589
24	0.1733

10. Repeat Steps 4-9 and paste into the additional layouts as necessary.
11. After the summary frames have been imported and scaled into the layout, arrange them by using the **Move** command under the **Modify** panel in the **Home** tab, typing **MOVE** then pressing **Enter**, or by holding a left click and dragging the linked summary frame to its desired location in the paper space.

NOTE: Linked OLEs should update automatically after saving changes in Excel. If the OLEs do not update, perform the following steps:

- a. Type the command **OLELINKS** and press **Enter**.
- b. In the popup box, select all the links using a shift select, or select a specific frame that needs to be updated.
- c. Select **Update Now**.



- d. When the update is complete, select **Close**.