This guide is for the **MH Detail** AutoCAD block, developed by Dan Perde-Zundel, CAD Tech with BES, City of Portland.

The block is used to create maintenance hole (MH) details needed to depict special build conditions. It is also used to export MH data to a spreadsheet used by the MH Checker tool developed by Daniel Boatman P.E. with BES, City of Portland.

## INSTRUCTIONS FOR CREATING A MH DETAIL:

1.  Snap to insertion point of the **C3D structure**.
2.  In the block's **Properties**:
    a.  Select the MH radius.
    b.  Select number of pipes.
    c.  Input pipes sizes.
    d.  Rotate the pipes as needed using the provided grip or input rotation angle.
    e.  Input pipes offsets if applicable.
    f.  Select offset direction.
    g.  Select the pipes flow direction.
    h.  Regenerate the drawing to update all the fields
3.  In the **Attribute Edito**r:
    i.  Change MH label to reflect the correct condition (existing/proposed). The size is auto filled.
    j.  Change pipe label to reflect the correct condition (existing/proposed) and material. The size is auto filled.
    k.  Input pipes IE
    l.  Input pipe specs for the proposed pipes (no need for existing) by double-click the field->select *Object*->pick the **Civil 3D pipe**->select *Description*. (convert field to text so the value is not lost when moving the block to another drawing)
    m.  Input project number and name by double-click the fields->point to the project's sheet set (no need to convert to text, but no harm if you do)
4.  In the **Layer Manager**, change the pipes and structure's layers name to include MH ID (i.e., MH-01_1st Pipe), and the colors by selecting **Green** for *Existing* and **Yellow** for *Proposed*, as needed.
5.  Change the block name to include **MH ID** (i.e., MH-01 Detail or ABC123 Detail), by using the command *rename*.
6.  Copy the detail to the CD sheet (you might need to change the drawing scale to match the design dwg scale and then back to your desired detail scale to activate the labels size).

7. Label the detail with angles and offset measurements as needed.

*NOTES:*
- If you need to reset a pipe, follow the steps c-g in reverse order.
- If you need to resize the MH, reset all the pipes first, then modify the MH.
- To reset the entire block, type *resetblock* in the command line

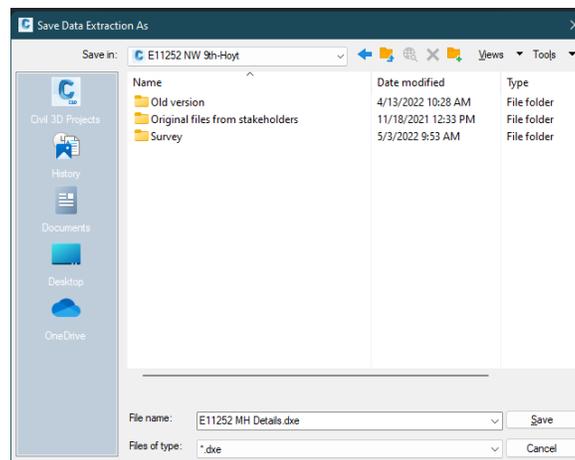## INSTRUCTIONS FOR EXPORTING THE DATA TO THE MH CHECKER:

1. Under **Insert** menu, **Linking & Extraction** tab, choose **Extract Data**.
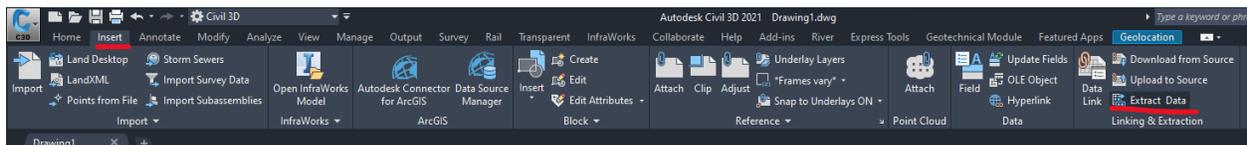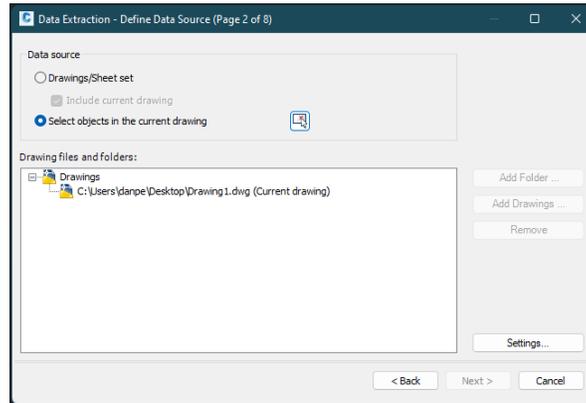


2. Check C**reate a new data extraction** option and click *Next*.
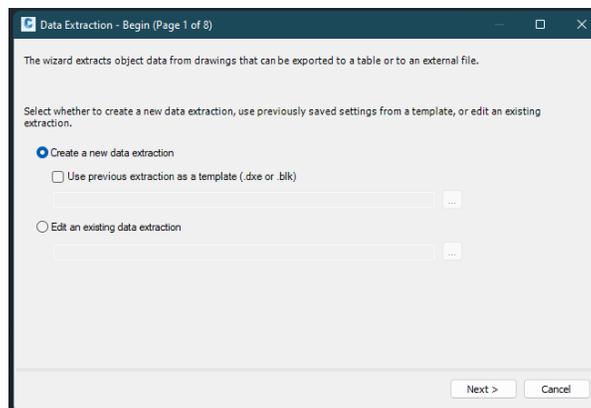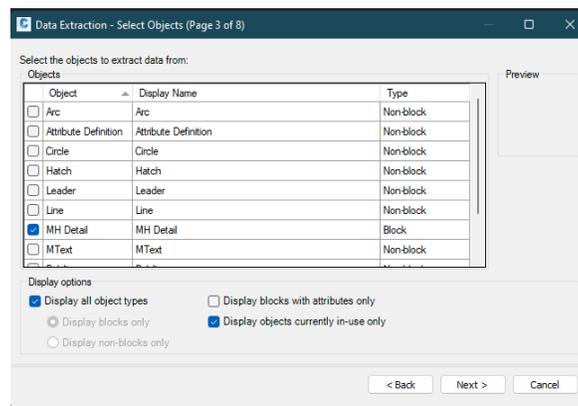


3. Save the file in the project's folder for further edits or resets. Name the file **Exxxx MH Details.dxe**.

4.  Under *Data source* check **Select object in the current drawing** and use the pick-box to select all the MH details. Click *Next*.



5.  Under *Select objects to extract data from*, make sure that you select only the MH Details blocks. Click *Next*.
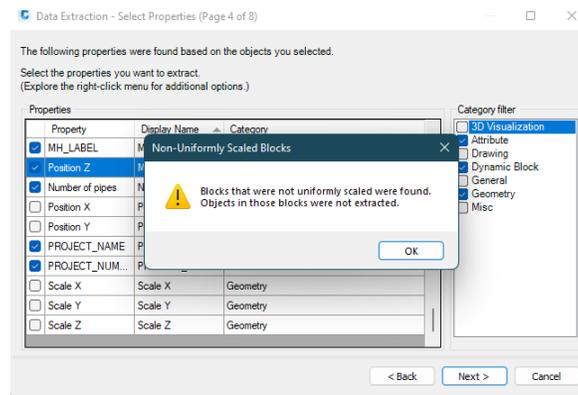


6.  Under *Category filter*, select only **Attribute**, **Dynamic Block**, and **Geometry**. Sort the *Properties* by **Display Name**.
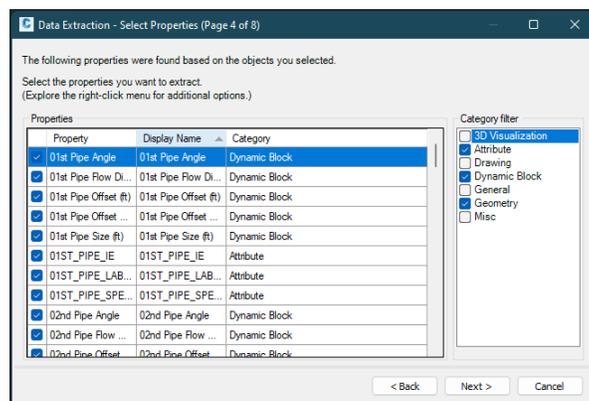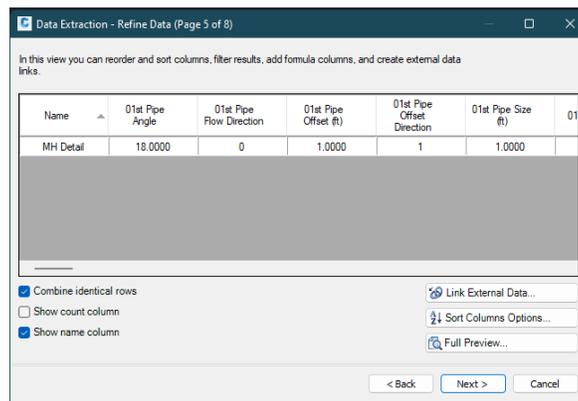
7. Scroll down to the bottom of the list and deselect **Position X**, **Position Y**, **Scale X**, **Scale Y**, and **Scale Z**. Only **Position Z** remains checked. Rename the its *Display Name* to **MH_RIM**. Click *Next*.
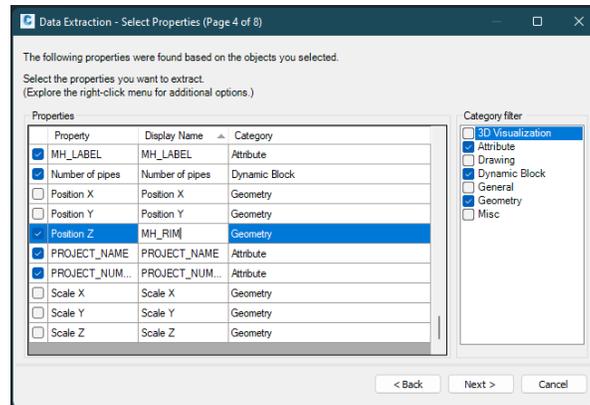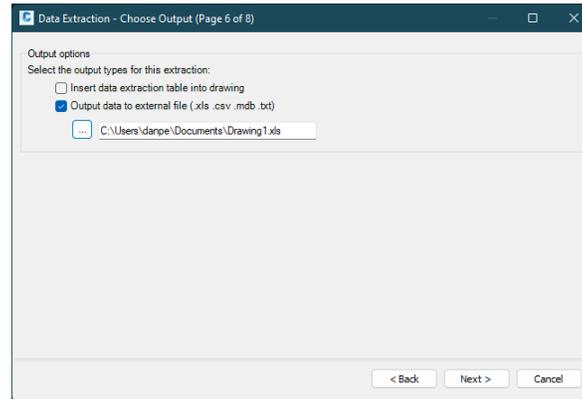


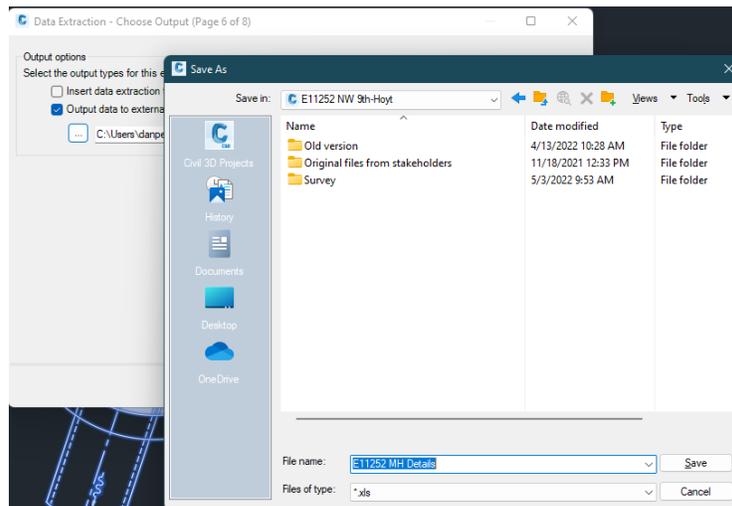8. Ignore the warning message.



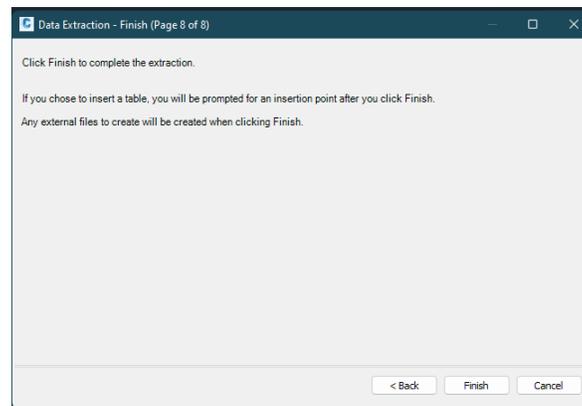9. Uncheck the **Show count column** option. Click *Next*.

10. Under *Output options*, select **Output data to external file**.



11. Browse to the project's folder and save the file with the name **Exxxx MH Details.xls**. Click *Next*.



12. Click *Finish* to complete the extraction.



13. Send the created Excel file to the designer for import into the MH Checker.