SIGNING PLAN PREPARATION – SPECIFICATION SUMMARY

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Overview

This guide provides details for working with the signing specifications summary ("spec sum") Excel workbook and how to link the spreadsheets into AutoCAD Civil 3D. Designers use the specification summary Excel spreadsheets to provide construction locations, quantities, and summary tables for all road projects that require signing.

Process Guide

Application/Tool(s):	Civil 3D, Microsoft Excel
Version(s):	13.6.2123.0 Civil 3D 2024.4.6 Update
Environment:	MDT Civil 3D State Kit r2024 v2.3.1
Released/Revised:	3/17/2026



SUPPORT
Open a Case

Statement of Need

Most state transportation projects require signing updates to remain federally compliant, improve public safety, and communicate information to drivers. This document is a reference to help designers with preparing summary frames and sign specification and location sheets for signing plans.

Acronyms/Definitions Used in This Document

MUTCD – Manual on Uniform Traffic Control Devices (Federal Manual)

SHS – Standard Highway Signs (Federal Sign Design Drawings Publication)

References

MDT Traffic Engineering Manual (Chapter 18, "Highway Signing")

MUTCD

SHS

Revisions

3/17/2026	Updated for 508 ADA compliance.

Process Description and Examples

Section I. Getting Started

Procedure – Create New Spec Sum DWG and Spreadsheet

1. With MDT State Kit 2.1.0 or newer installed, open AutoCAD using the Civil 3D 2024 Montana Icon.

2. Expand New, select Browse Templates, choose the Speed Sheet folder and select MDTSI_SpecSum.dwt. Save as .dwg in project folder.

3. Go to the MDT Tools toolbar. In the MDT Excel section, click the arrow under MDT Excel Tools and choose Excel SISUM Template from the drop-down list.

4. In the Excel file, click Enable Content on the yellow banner under the toolbar ribbon. Save the file to the relevant project folder, replacing the hash marks in the filename with the Unique Project Number (UPN).

Section II. Excel Formatting Notes

Procedure – Familiarize Yourself with Formatting

1. *Do not merge cells within the table, except to make a heading.*
    - If a project has multiple sites, or includes interstate ramps and crossroads, one row may be merged to put a title in for the site change, ramp, or crossroad.

11	26.661	R	REPLACE	R2-1	36 X 48				10.0	5" Treated Wood Pole
12	26.685	L	REPLACE	R2-1	36 X 48				10.0	5" Treated Wood Pole
13										
14	**Site 2: North of Victor**									
15	69.382	R	REPLACE	W1-2R	36 X 36	FY			10.0	4" Treated Wood Pole
16	69.441	L	REPLACE	RA-3 MT	12 X 18				20.0	2.0lb Steel U Post

2. *Font sizes, styles, and decimal places should not be changed.* If data is cut off or unreadable after printing to PDF, text size can be changed in that cell.

3. *Sheets are protected in the workbook.* This prevents unintentional formatting and formula changes. Some cells that have formulas may be locked. If a cell needs to be changed, unprotect the sheet to make the change.
    - To unprotect a sheet, go to the Review toolbar tab and select “Unprotect Sheet”. Sheets can be protected again by selecting “Protect Sheet” in the same toolbar location.

Section III. Fill Out Sheets S2-S15

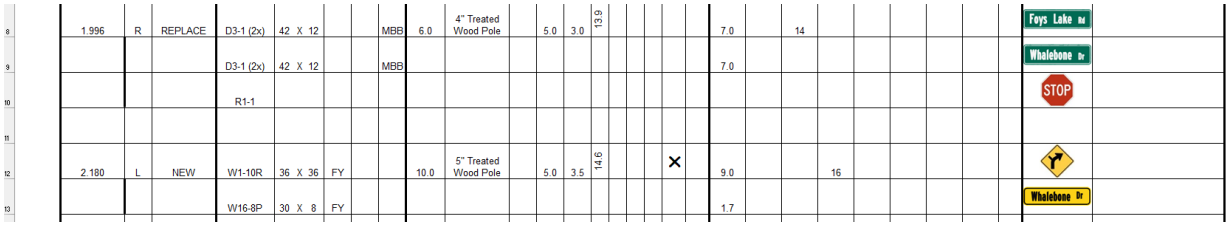
Procedure – Add Sign Information in The Spreadsheet

1. There are many sheet tabs on the bottom of the Excel workbook. Begin inputting data in the S2 sheet and continue moving to the right across the tabs to S15.
    - In the S2 tab, “S” is for signing. “2” is the start of the location and specification sheets. S1 consists of summary tables and notes added at the end of the project (see section IV).
    - Tabs with “CON_” are for construction use. There are also buttons on the top left of S2-S15 to toggle between construction and design tables.
    - If the project requires more sheets, another file may be started to continue the spec sum sheets.

2. *Fill out sign specifications that require manual input* (further detail in table at the end of this section). Leave non-applicable cells blank (do not input 0s or n/a).

3. *Leave a gap row above and below all multi-sign assemblies.* This gives a break for aesthetic purposes and room for checkers to put comments.
    - Specs for multi-sign assembly supports should be added in the top row of that assembly group.

4. *For all multi-sign assemblies (or retroreflective strips), add a vertical black line underneath the sign location.* There are vertical lines in the upper left of all spec sum sheets for this purpose (lengthen as needed). For example, for a 3-sign assembly at the start of S2, copy the middle line, select cell E10, and paste so the line extends down to the bottom of the rows used for the 3 signs.



TECH TIP!

Need to move a row of sign data?

Unprotect Sheet – Select Cells – Copy – Paste Special – <u>Formulas</u>

This keeps formulas intact to count summary quantities correctly.

Column Heading	Input required?	What to Input
Station / R.P.	Y	Stationing or reference post relative location.
LFT / MDN / RGT / OH	Y	Drop-down list sign location (Left, Median, Right, or OverHead). Right is the right side of the road when RPs/stationing is increasing.
Action	Y	Drop-down list for the action taken during project construction. ONLY ONE ACTION PER ASSEMBLY – individual panel actions are within the remarks column. “Guide” is used if there are multiple supports or if overhead.
Sign No. (MUTCD)	Y, N	Drop-down list for standard MUTCD/MDT sign designation, manual entry for guide signs (type, highway # - milepost, # guide sign within that mile) (e.g. G89-3a is the first guide sign on highway 89 after milepost 3, G89-3b would be the second guide sign within the same mile)
Panel Size (Inches)	Y	Width X Height. X autofills when width is input.
Fluorescent Yellow or Fluorescent Yellow Green, Back Bracing Req’d / 1 or 2 Angle Irons Req’d, Mount Back to Back / Chevron Angle Mount	Y	Drop-down abbreviation lists
Clearance/Offset	Y	Drop-down list
Type of Support	Y	Drop-down list
Support Spacing	N	
Mounting Height	Y	Drop-down list
Sign Height + Gaps	Y	Height of sign assembly above mounting height. Standard gap is 1 inch between panels.
Foundation Depth	N	
Support Length (X Y Z)	Y	Calculate estimated length(s)
Cantilever	Y	X to indicate cantilever
Breakaway Type	N	(symbols correspond to detailed drawings)
Behind Guardrail	Y	Drop-down abbreviation
Panel, Wood Pole, Steel Post quantities	N	
# of Breakaways	N	
Remove, Reset (sign/guide)	N	1 if sign is removed (when replacing panel or supports) or reset to other location. Guide is used if sign has 2+ supports or is overhead.
Sign Image	Y, N	Standard signs autofill, images that do not autofill need to be added manually (can be done via Snip & Sketch tool)
Remarks	Y	Additional notes. “Move to right side of approach”, “Reuse panel on new supports” (would be with a reuse action), etc.

Section IV. Summary Table and Delineation Table (S1)

Procedure – Input and Check Quantities

1. Go to the Delin_Table sheet and enter delineation totals. Hide unused rows.

2. Go to the Summary_Table sheet and check totals. Add/paste rows for infrequently used items to table, if needed. Many bid items are on the list on the right side. Hide unused rows in the table.
    - If multiple summary tables are necessary (e.g.: multiple sites or counties), copy table formatting (formatting paintbrush tool is helpful) and break up totals as needed. This will require unprotecting the Quantities and S1 sheets to modify formulas (see end of Section II).
    - The Quantities sheet counts totals for the summary table. There are S2-S15 sheet totals to help with checking project quantities.

Section V. Finishing The Spec Sum

Procedure – Linking Spreadsheets to AutoCAD

1. Start Autodesk Civil 3D.

2. Open the .dwg file created in Section 1, step 2.

3. Navigate to the S2 view frame in model view.

4. Go back to the Excel spreadsheet. Beginning with tab S2, use the buttons in the top left of the spreadsheet to *hide the 6in wood column* (if unused on the entire project) and to *hide the sign height column* (this is filled out by designers to help with construction quantities, but is not needed on final plan sheets).

5. Select “Print_Area” from the Name Box in the upper left corner of the spreadsheet formula bar to copy the spreadsheet table.

6. Next, in the AutoCAD .dwg file, on the Home tab, expand the drop-down arrow under Paste, then choose Paste Special. In the dialogue box, select Paste Link, As Microsoft Excel Worksheet, then confirm with OK.
    - After pasting as a link, when changes are made to the Excel file, the changes will update automatically when starting a new session of AutoCAD.
    - *It is recommended to avoid saving the Excel file while the .dwg file is open.* Sometimes the scale of the pasted sheets changes.

7. Repeat steps 4-6 to paste the rest of the S3-S15 tables used for the project.

8. Summary, delineation tables, and the project totals row (from the Quantities sheet) do not use “Print_Area”.
    - After hiding unused rows, manually select the table area needed, copy, then Paste Special as a Microsoft Excel Worksheet Link like the rest. The summary and delineation tables may need to be scaled by 2 after pasting in the summary frame area.

9. The following table is a written description of the sheet order and contents for an AutoCAD signing plan file:

Sheet Number	AutoDesk Sheet Description	Contents
S1 (Multiple sites may require many summary tables, if these summaries need to spill over onto S2, the sign location and specification sheets start on the next available sheet)	SIGNING NOTES AND SUMMARY FRAME(S) (These descriptions are used on the MDT sheet borders on Civil 3D layouts along with project and designer information, and page numbers)	Left half of sheet: standard notes (MDT_SI_NOTES block) A vertical black line separates the two halves of sheet S1 Right half of sheet: summary and delineation tables
S2 and beyond (For example, if there are 14 pages of spec sum sheets after 1 page of summary tables, S2-S15 use this same format)	SIGN LOCATIONS AND SPECIFICATIONS	Spec sum tables, last page of tables also contains project totals after end of table (project totals row from the QUANTITIES tab of Excel spreadsheet)
After spec sum tables (Using same example above, S16-S19 could be details)	DETAIL	Project specific detailed drawings
After details (Using same example above, S20-S33 could be plan sheets)	PLAN SHEET	Visual map of project signing/pavement marking and delineation specifications