Carlson Survey Drawing Error Fixes

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1 INTRODUCTION

Errors can appear in drawings from a number of sources, below are four ways to help fix these errors.
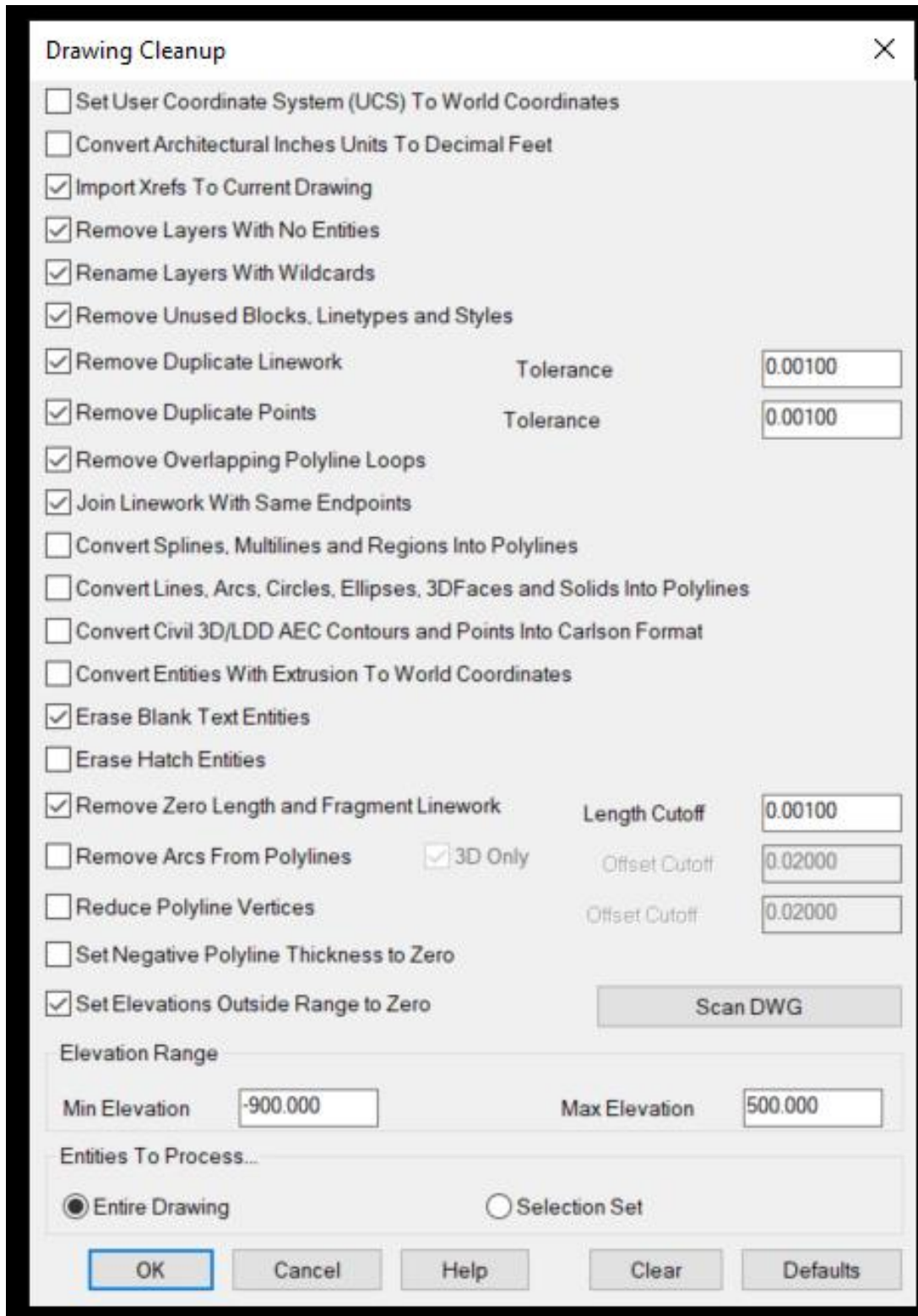
- Drawing Cleanup
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2 Drawing Cleanup

This command is found under **File** or by typing 'dwg_cleanup' in the command line
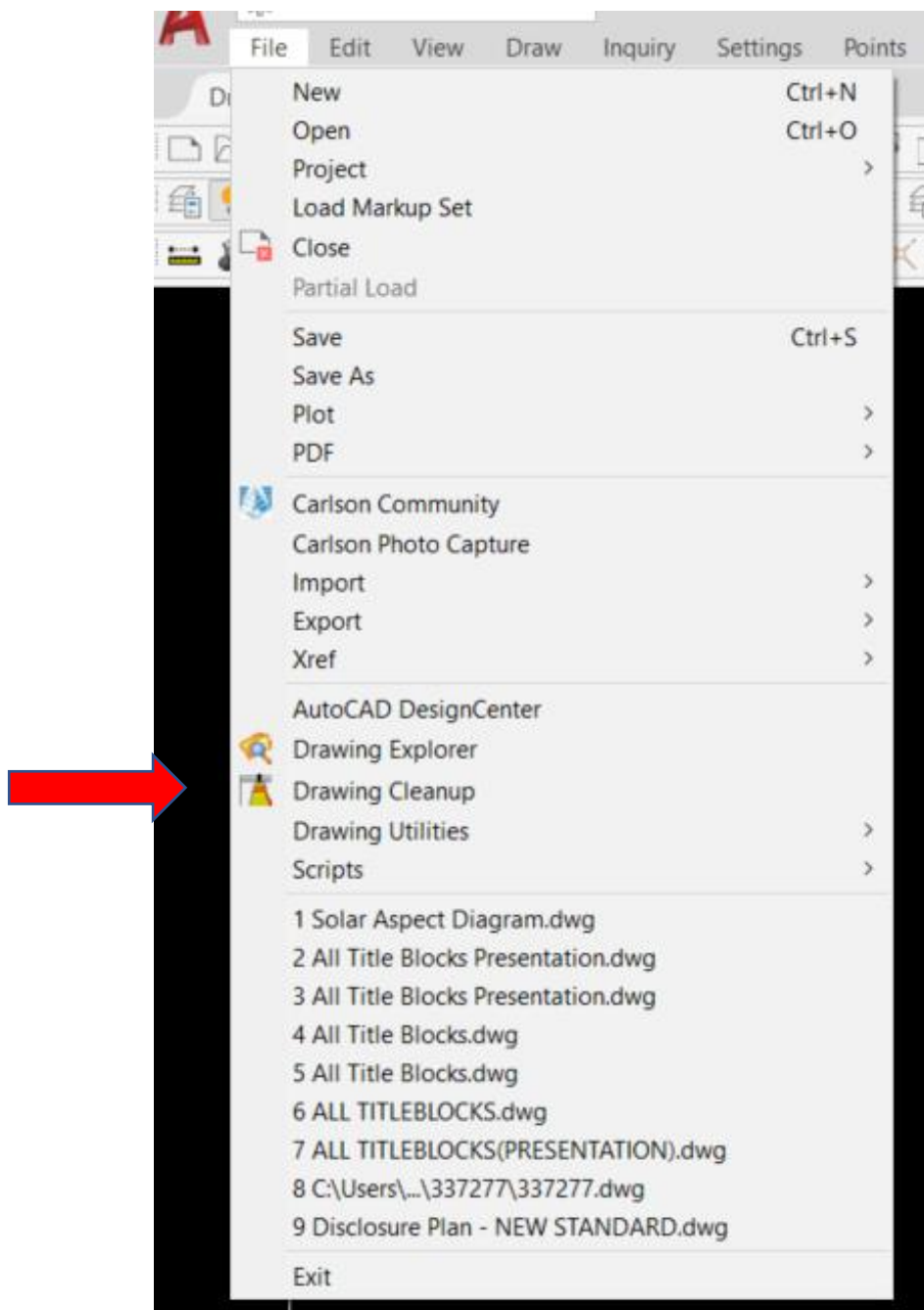
The Drawing Cleanup dialog box allows you to perform many functions that fix common errors, and it removes unnecessary data found in many drawing files. It also converts incompatible data into useful entities. This command offers many filters that audit the drawing file and allows you to select which options and settings you want to use. A report of the cleanup results will be displayed upon completion. Always save your file when the drawing cleanup routine is complete.

2.1 Set UCS to World Coordinates

This sets the UCS (user coordinate system) to the world coordinate system (WCS). Carlson works exclusively in the world coordinate system and there is no way to change this setting. In CAD, it is possible to change the coordinate system from WCS. If you receive a drawing in which the coordinate system is not set to world, click this on to restore the UCS.

2.2 Convert Architectural Inches Units To Decimal Feet
Not used with the metric system so leave unticked.

2.3 Import Xrefs To Current Drawing
This routine allows you to import any 'found' external reference files (Xrefs) into the current drawing. If the path is not found, the Xref file will not be brought into the drawing. To set the Path for any unfound Xrefs, run Import Xref to Current Drawing under File.

2.4 Remove Layers With No Entities
Drawings work with a "BYLAYER" concept meaning that layer definitions define the drawing. For example, the layer named EOP might be used to display polylines at the Edge Of Pavement in the drawing. Many times extra layers get defined by a user but not used to display any objects. This function removes any layers defined in the drawing that are not being used

2.5 Rename Layers With Wildcards
Layers with wildcard characters such as "*" can interfere with Carlson layer matching functions. This routine renames layers by replacing any wildcard characters with an underscore "_".

2.6 Remove Unused Blocks, Linetypes and Styles
This functions removes any unused blocks, linetypes or styles from the drawing.

2.7 Remove Duplicate Linework
This function seeks out and removes any linework definition that have zero length. Point nodes are not removed. A **Tolerance** will need to be set.

2.8 Remove Duplicate Points
This function searches the drawing (but not the .CRD file) for points with the same northing, easting and elevation. The **Tolerances** for considering points to have the same coordinate are set to the right. To be counted as the same coordinate, the northing/easting and elevation must be within the tolerance distance.

2.9 Remove Overlapping Polyline Loops
Polylines that completely overlap themselves are broken into two different polylines.

2.10 Join Linework With same Endpoints
This function finds common endpoints on linework, on common layers, with common elevations and joins the linework into a continuous polyline. This is very helpful for future selection sets.

2.11 Convert Splines, Multilines and Regions Into Polylines

Some CAD applications utilize Spline Object Definitions and Regions, Carlson utilizes basic polyline/polygon definitions. This function finds any Splines and/or Regions defined in the drawing and re-defines them as simple polylines or polygons.

2.12 Convert Lines, Arcs, Circles, Ellipses, 3DFaces and Solids Into Polylines

By converting Lines, Arcs, Circles, Ellipses, 3D Faces, and Solids into Polylines, you can use the variety of Polyline commands available in Carlson.

2.13 Convert Civil 3D/LDD AEC Contours and Points Into Carlson Format

Drawings created in Civil 3D or the Land Development Desktop CAD program can contain special objects known as LDD-AEC contours that define their topographic contour display. This function locates those special objects and re-defines them as simple 2D polylines retaining their elevation values.

2.14 Convert Entities With Extrusion To World Coordinates

This function removes extrusion assigned to entities and puts the entities coordinates into true world coordinates.

2.15 Erase Blank Text Entities

This function removes any text boxes defined in the drawing that are not being used.

2.16 Erase Hatch Entities

Carlson offers many hatch display options, however hatch entities have no 3D value. This function removes all hatch entities in the original drawing to help reduce the size and clutter of the drawing file.

2.17 Remove Zero Length and Fragment Linework

This function seeks out and removes any linework definition that have zero length. Point nodes are not removed. The **Length Cutoff** will need to be set.

2.18 Remove Arcs From Polylines

This function replaces arcs in polylines with a series of short chord segments. The purpose is to prepare the polylines for modeling since arcs need to be converted into segments to be part of the triangulation model. The density of chord segments is controlled by the **Offset Cutoff**. This cutoff represents how much the polyline can move horizontally. A smaller cutoff will result in more chord segments. The option for **3D Only** controls whether only polylines at zero elevation or both zero and elevated polylines get processed. Sometimes you may want to leave the arcs in zero elevation polylines when these polylines represent road alignments and are not part of the surface model.

2.19 Reduce Polyline Vertices

This function utilizes the **Offset Cutoff** amount and removes unnecessary polyline vertices that fall within the offset amount.

2.20 Set Negative Polyline Thickness to Zero

This function sets the thickness property of polylines to zero for polylines with negative thickness.

2.21 Set Elevations Outside Range to Zero

This function comes with a "Scan DWG" option that audits the elevation range in the drawing file. Once the minimum and maximum elevation range has been set, manually or by a scan, all objects that fall outside the set range are moved to elevation zero. All objects at zero elevation do not contribute to the 3D model.
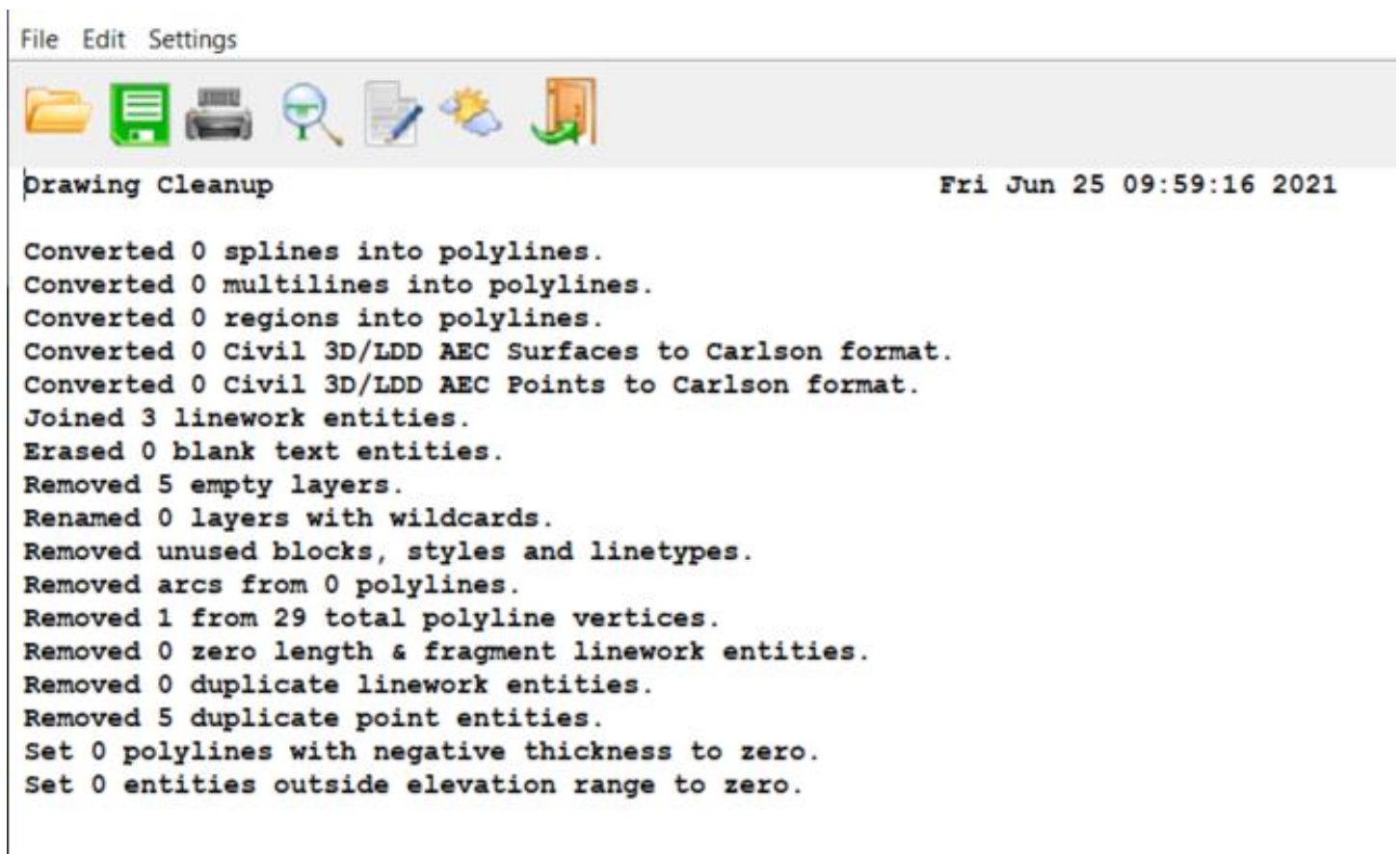
2.22 Entities To Process...

This allows you to run the command for the entire drawing or for a selected set.

2.23 Clear and Defaults

These functions allow you to clear all settings or use the Carlson Drawing Cleanup default settings.

2.24 Final Report

This example report displays the results of drawing cleanup. Like all reports in Carlson, this report can be saved to a text file, sent directly to your printer, or pasted onto the screen ad text entities.


```
File  Edit  Settings

Drawing Cleanup                              Fri Jun 25 09:59:16 2021

Converted 0 splines into polylines.
Converted 0 multilines into polylines.
Converted 0 regions into polylines.
Converted 0 Civil 3D/LDD AEC Surfaces to Carlson format.
Converted 0 Civil 3D/LDD AEC Points to Carlson format.
Joined 3 linework entities.
Erased 0 blank text entities.
Removed 5 empty layers.
Renamed 0 layers with wildcards.
Removed unused blocks, styles and linetypes.
Removed arcs from 0 polylines.
Removed 1 from 29 total polyline vertices.
Removed 0 zero length & fragment linework entities.
Removed 0 duplicate linework entities.
Removed 5 duplicate point entities.
Set 0 polylines with negative thickness to zero.
Set 0 entities outside elevation range to zero.
```

3 Audit

Audit is found under **File/Drawing Utilities/Audit**

Evaluates the integrity of a drawing and corrects some errors. Audit places the objects with errors that are in the current space into the Previous selection set. If the AUDITCTL system variable is set to 1, a text file with an ADT file extension is created that describes the problem and the action taken. If a drawing contains errors that AUDIT cannot fix, use RECOVER to retrieve the drawing and correct its errors. **Fix any errors detected?** Specify whether you want to correct problems found by the audit (Yes or No).

4 Overkill

Removes duplicate geometry as well as overlapping lines, arcs, and polylines. Also, combines partially overlapping or contiguous ones.
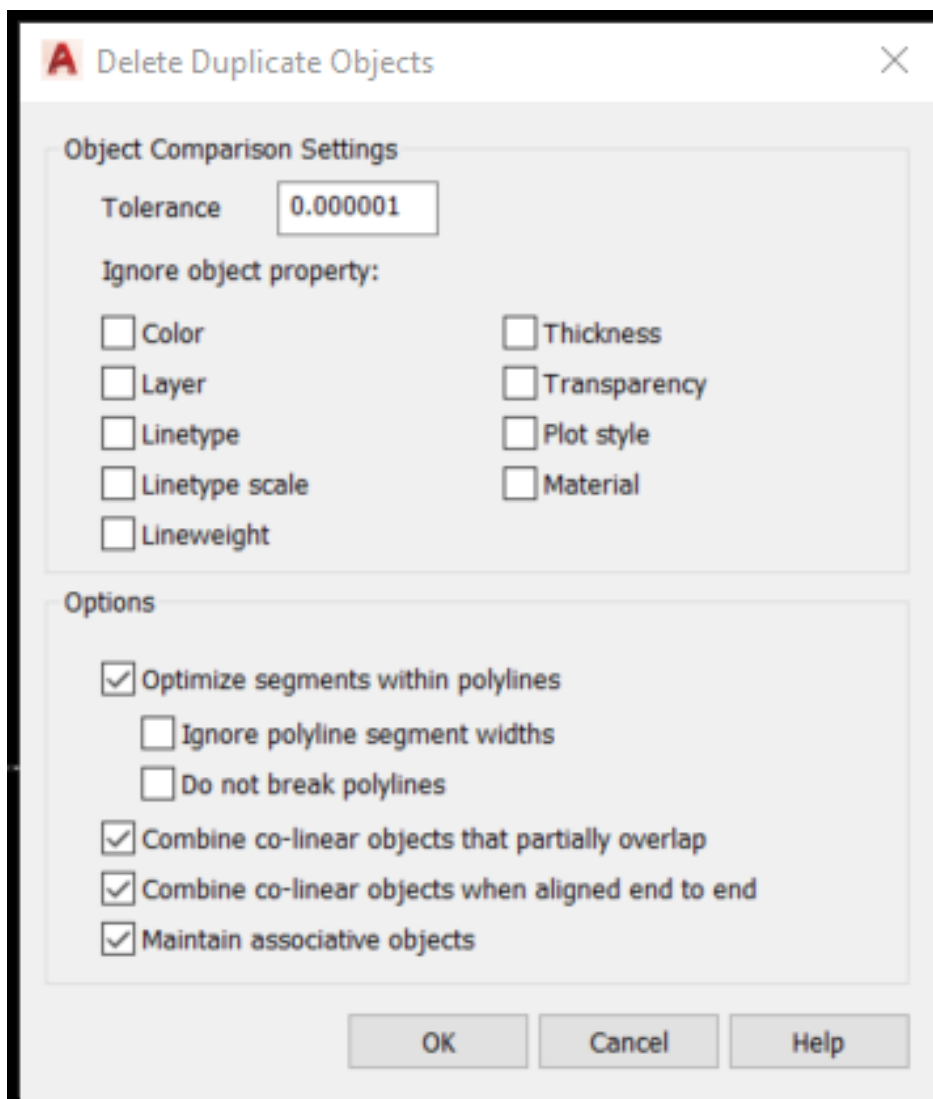
The following prompts are displayed.

4.1   Object Comparison Settings

Tolerance

Controls the precision with which OVERKILL makes numeric comparisons. If this value is 0, the two objects being compared must match before OVERKILL modifies or deletes one of them.

Ignore Object Property

Select these object properties to ignore them during comparison.

- Color
- Layer
- Linetype
- Linetype scale
- Lineweight
- Thickness
- Transparency
- Plot style
- Material

4.2   Options

Use these settings to control how OVERKILL deals with lines, arcs, and polylines.

Optimize Segments Within Polylines

When selected, individual line and arc segments within selected polylines are examined. Duplicate vertices and segments are removed.

Also, OVERKILL compares individual polyline segments with completely separate line and arc segments. If a polyline segment duplicates a line or arc object, one of them is deleted.

If this option is not selected, polylines are compared as discreet objects and two sub-options are not selectable.

- **Ignore Polyline Segment Width.** Ignores segment width, while optimizing polyline segments.
- **Do Not Break Polylines.** Polyline objects are unchanged.

Combine Collinear Objects That Partially Overlap

Overlapping objects are combined into single objects.

Combine Collinear Objects When Aligned End to End

Objects that have common endpoints are combined into single objects.

Maintain Associative Objects

Associative objects are not deleted or modified.

5 Remove Data Links

In Carlson on AutoCad® a table can be linked to data in a Microsoft Excel (XLS, XLSX, or CSV) file. You can link to an entire spreadsheet, individual row, column, cell, or cell range in Excel ,you can remove unwanted Data Links by typing '**_datalink**' into the command line which will bring up the **Data Link Manager**, select the link that needs to be removed and delete.