

MicroStation – 3D Clash Detection

Tools > Clash Detection

[Example Data File](#)

Overview

Clash detection is used to analyze the potential conflicts between multiple elements in a 3D file. Based on criteria you set, it detects geometrical clashes between object element sets. You can then interactively and graphically review these clashes.

Suppression rules can be applied to identify clashes that should not be reported.

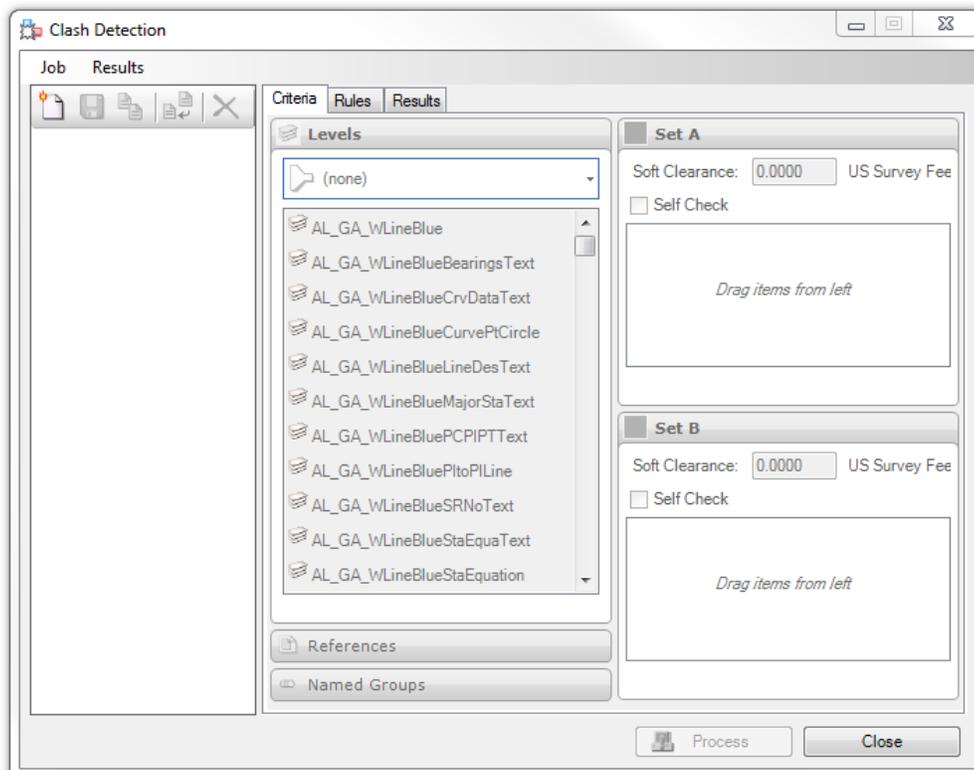
The settings associated with the clash runs are managed and tracked as a clash job. A job is a container of criteria, rules and results, which are set up and saved in the active file for reuse. A job can also be stored in a DGN library.

Workflow

The clash detection workflow includes creating a job, selecting elements to compare, setting criteria and rules, then initiating the process and reviewing the results.

Create a Clash Detection job

1. In a 3D DGN, select *Tools > Clash Detection > Clash Detection*.



The left pane lists created/saved jobs. The right portion includes three tabs for element selection and grouping, rules, and results.

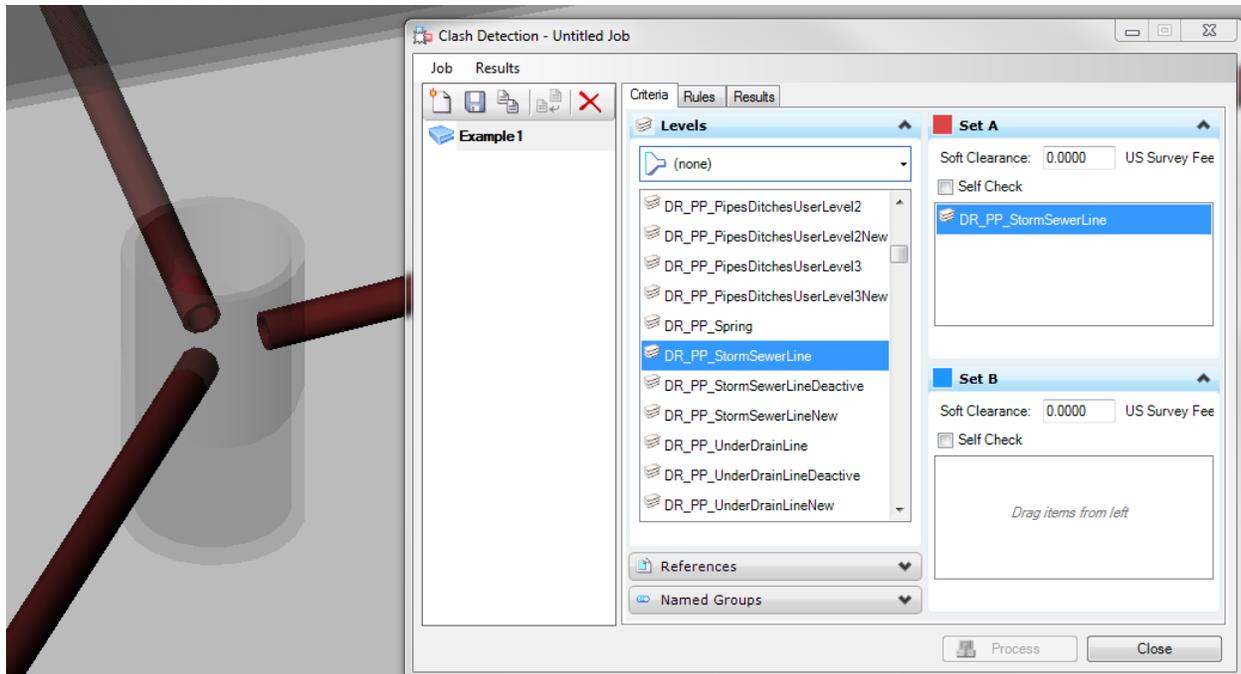
2. Select *Job > New*.
3. Provide a name.
This can be changed later if needed.
4. Select the **Results** pull-down option and toggle on the **Animate Transitions** option.
This is not functionally necessary, but helps while navigating between clashes.
5. In the *Rules* tab, review and consider unchecking **Suppress clashes between elements that are touching**.

Select Elements

Two sets of elements may be compared for clash. Elements may be selected by Level, Reference, or Named Groups.

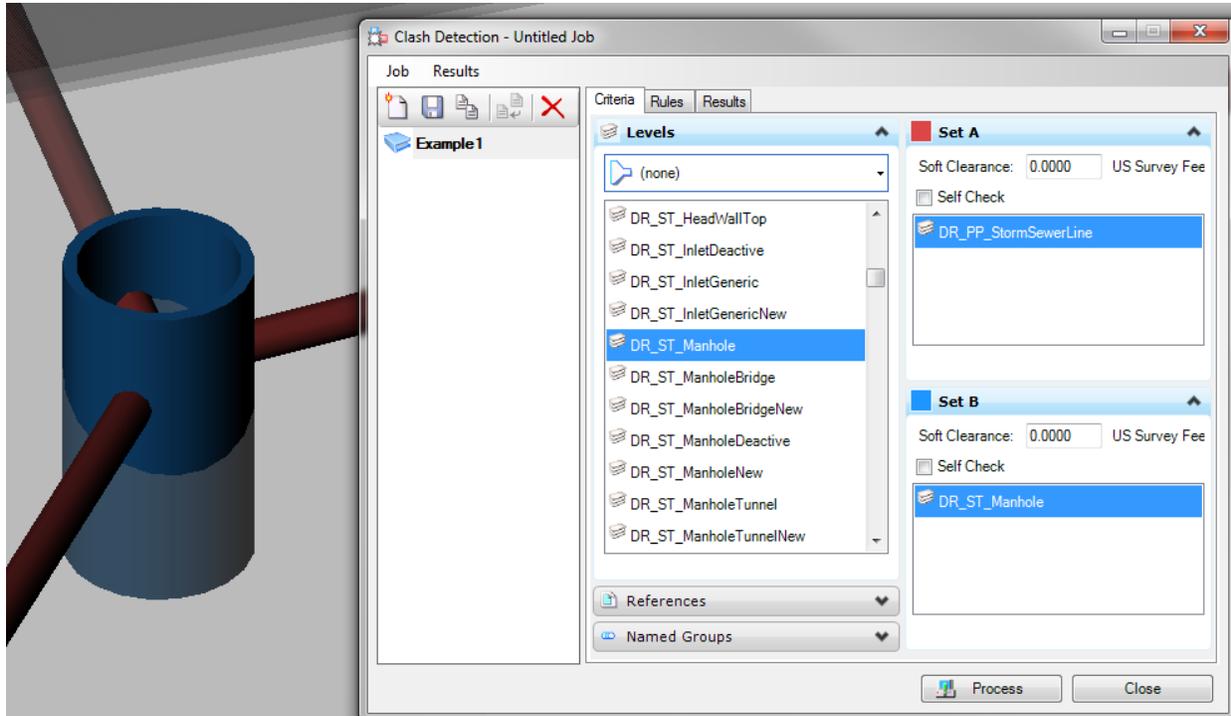
6. In the *Criteria* tab, highlight levels for *Set A*.
Click a single level, use the **CTL+click**, or **SHIFT+click** to select a subset.
Do not pick all levels.
7. Left-click and drag the selection into the box under *Set A*.

Note that MicroStation grays out all other levels and highlights the selected ones in red.



8. Highlight levels for *Set B*.
9. Left-click and drag the selection into the box under *Set B*.

Note that MicroStation maintains the *Set A* display and highlights the selected ones in blue.



Set criteria and rules, then Process

In the *Criteria* tab, each set includes two options to customize the detection analysis.

10. Enter a value for *Soft Clearance* to mandate a buffer.

For example, you may want to see where a pipe is closer than 2ft from the finished surface.

Entering 2 for the set containing **XS_SF_Finished** will return all conflicts within 2ft of that set.

11. If you wish to detect clashes within the set, toggle on the **Self Check** option.

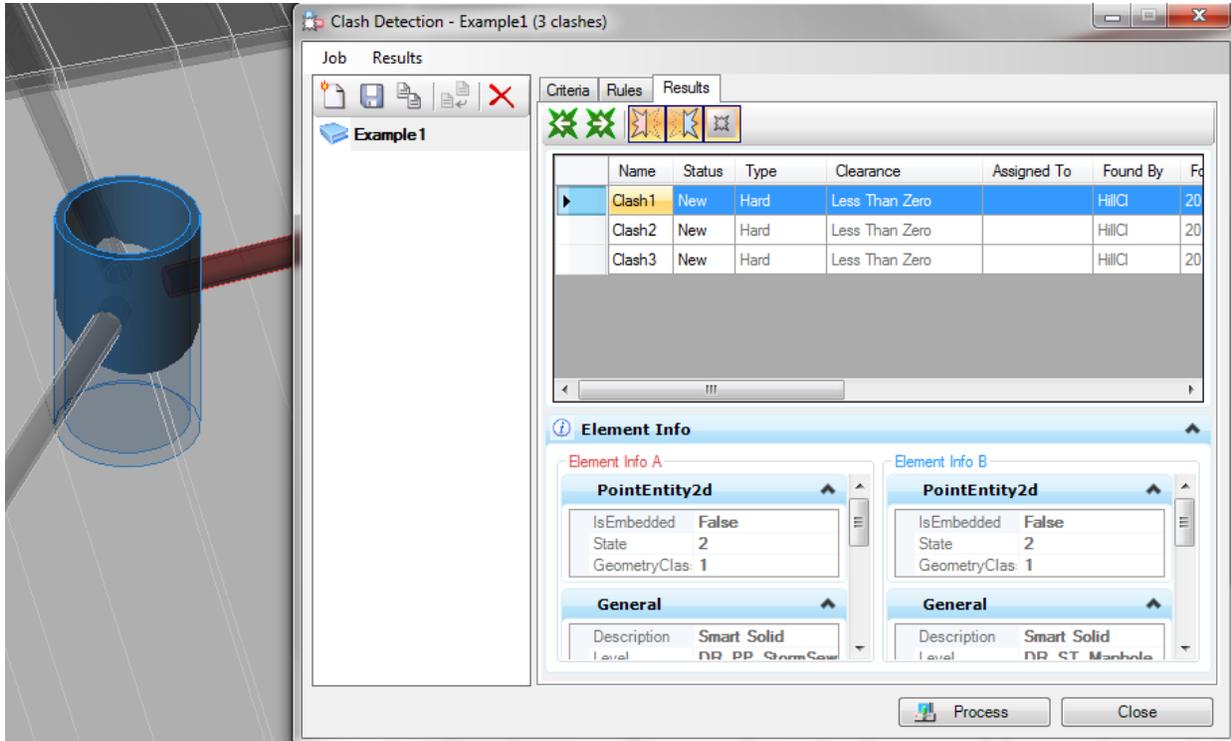
In the *Rules* tab, additional suppression rules may be created and applied. The default is to detect clashes on all selected elements in each set per above. Starting globally and suppressing specific detections can be very handy. For example, you may want to detect clashes for all drainage elements (including pipes to pipes) and surface levels but suppress clashes between pipes and structures.

12. Click **Process**.

This initiates the clash detection function.

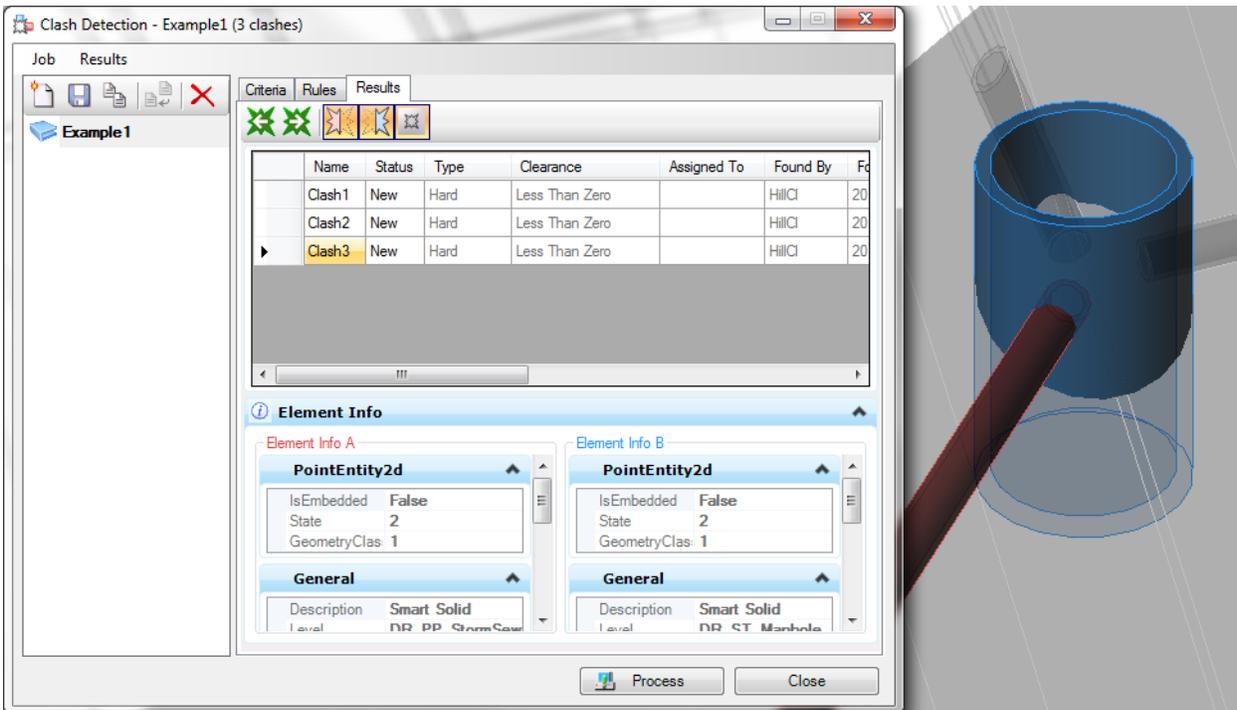
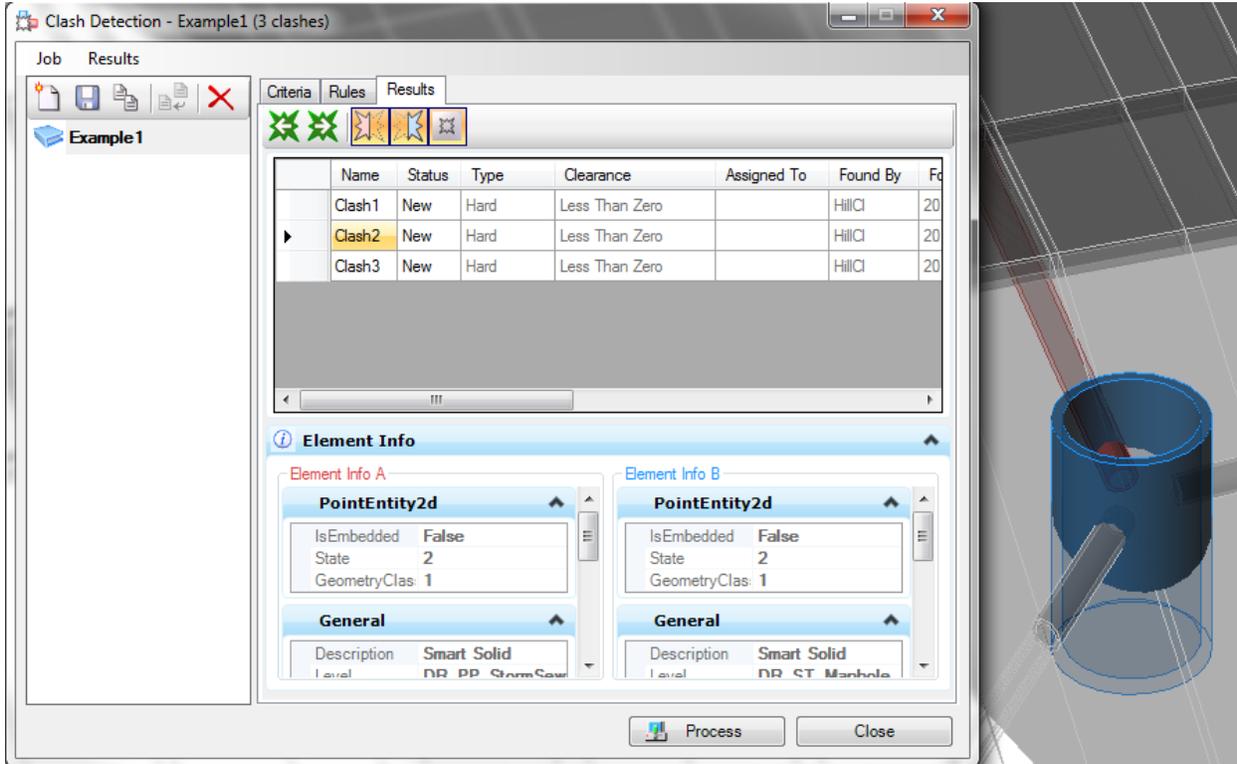
Review the Results

The results tab includes navigation options between detected clashes, display options for clashes, a tabulated list of clashes, and element info for the clashing elements in each set.



13. Cycle through the tabulated list or use the previous/next buttons to see each conflict.

Note that the display zooms to the extents of the clashing elements.



Save the job

Before closing the Clash Detection dialog, save the job, retaining the criteria and suppression rules. The job is saved in the DGN file.

14. Click the **Save** icon.

For questions or comments on this tech note, contact your regional CAE Support Coordinator or the WSDOT CAE Help Desk at (360) 709-**8013**.