

Okaloosa Gas LRS—Using Network Trace to Build an Axis

Overview

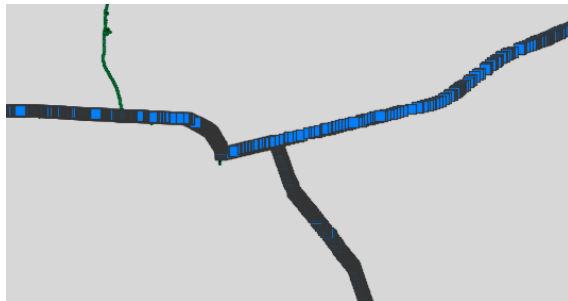
This document outlines the steps to install and configure LRS Plug-in for Okaloosa Gas. The LRS Plug-In is available from Brockwell IT for a nominal fee and we prefer to work with customers to review its use and deploy it. Typically this can be done in a few days depending on the size and complexity of the network, the complexity of the asset-axis relationships and the data quality of the network. Currently, the plug-in works on the Gas Industry Model in AutoCAD Map 3D 2015.

Installation

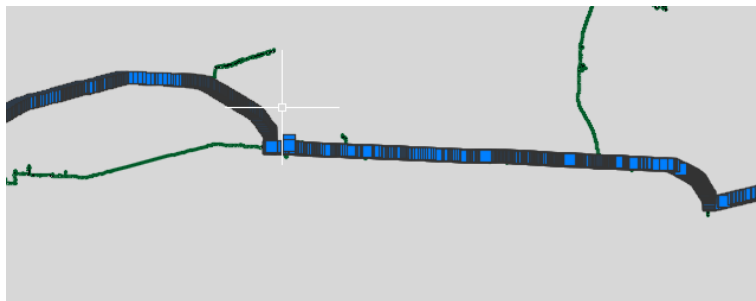
To install run the included setup.exe program and it will install into your Map3D 2014 bin directory: ie) C:\Program Files\Autodesk\Autodesk AutoCAD Map 3D 2014\bin.

Limitations

A single LRS axis cannot be split as a single entity. Having a split network results in unpredictable results when calculating asset and segment distances.



This is a bad LRS Axis since it traced both sides of a valve. One of the outbound segments was mistakenly designated as 10”.



This part of the axis is fine because it has no split.

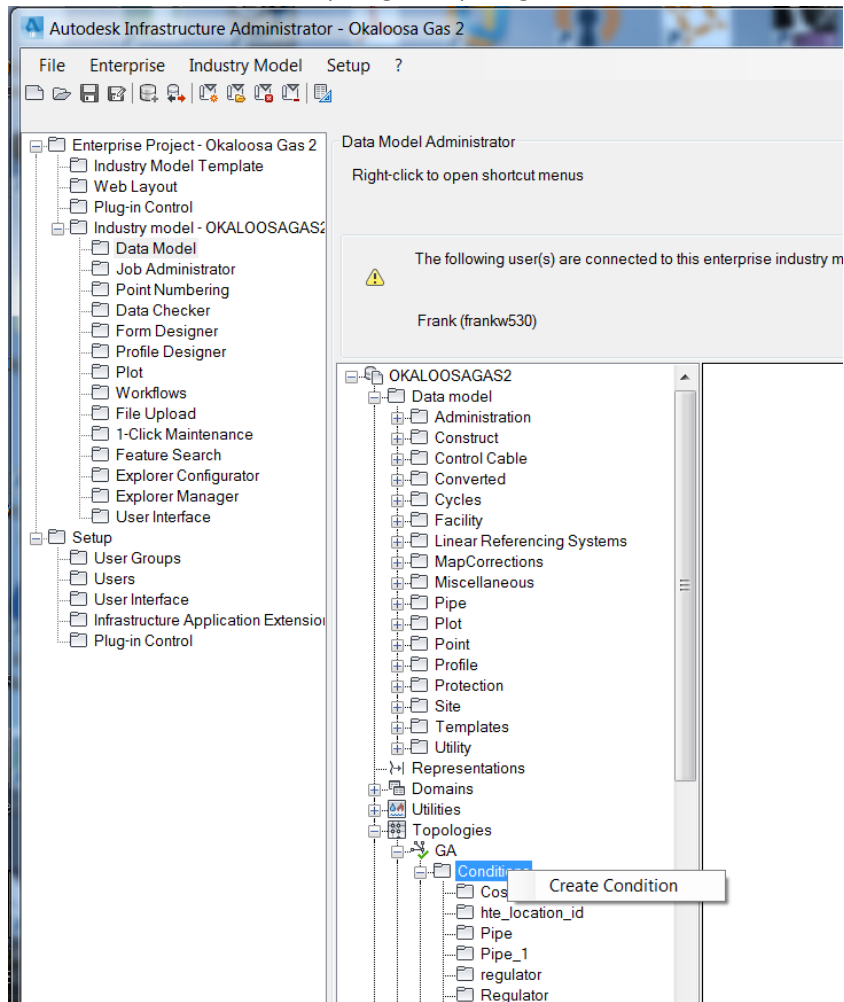
Configuration

Create Trace Template

The LRS function relies on a trace template and stop condition to trace the transmission pipes.

GS5409 Building Better Reports and Maps with Linear Referencing

1. Start the Infrastructure Administrator and open your project.
2. Under the Data model->Topologies topic right click on Condition and select "Create Condition"



Create the condition like shown below and then click OK to save it:

Tracing Condition

Create or edit a tracing condition with an SQL statement

Tracing condition

Name: Transmission Pipe

Condition type: Stop condition

Comment

☒ Condition is enabled

SQL statement

Select feature classes which will be used for the condition:

- ☒ Line
- ☐ Point
- ☐ Anode Log
- ☐ Anode Model
- ☐ Armature
- ☐ Blow Off Valve
- ☐ Fill

SQL statement for condition

Generate and edit SQL statement Generate

```
case when &f_class_id=45 then (
  select case when l.f_class_id_attr=54 then (
    select 1 from GA_PIPE where FID = l.fid and (ID_PIPE_TYPE <>2 or
    DIAMETER_NOMINAL not IN ('8"', '10"', '12"'))
  ) end from ga_line l where fid=&fid
) end
```

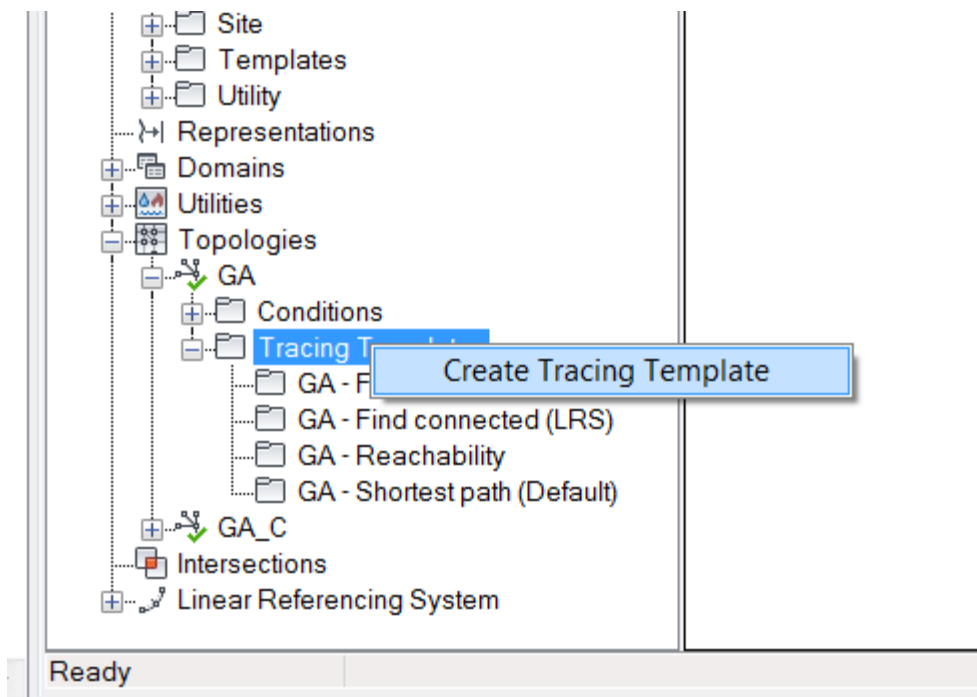
Validate Assistant

OK Cancel Help

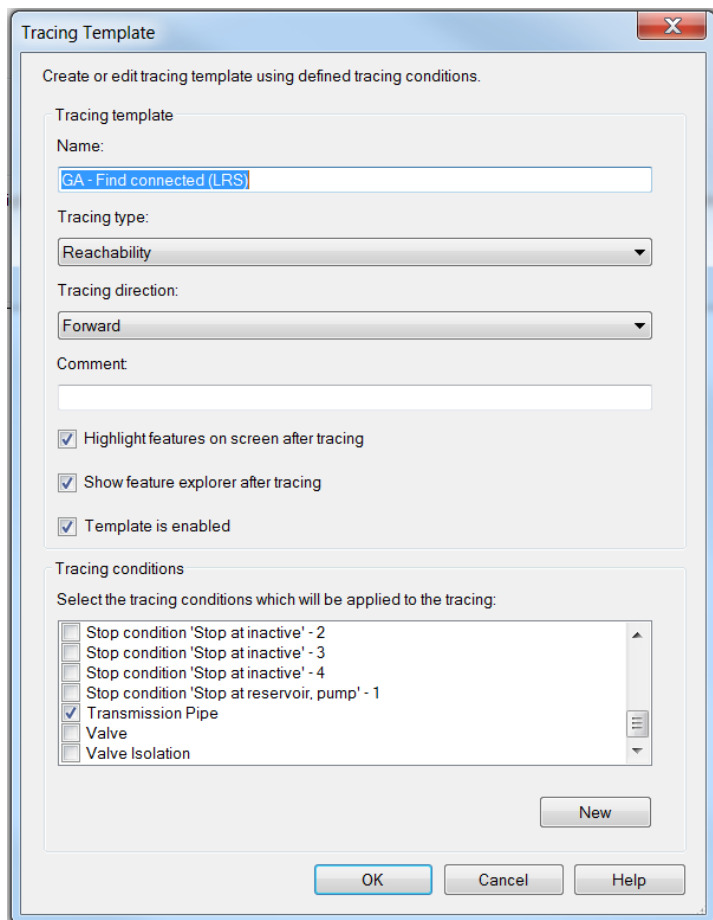
Here is the SQL condition so that you can copy and paste into the edit box:

```
case when &f_class_id=45 then (
  select case when l.f_class_id_attr=54 then (
    select 1 from GA_PIPE where FID = l.fid and (ID_PIPE_TYPE <>2 or
    DIAMETER_NOMINAL not IN ('8"', '10"', '12"'))
  ) end from ga_line l where fid=&fid
) end
```

Right click on Tracing Templates and select "Create Tracing Template"

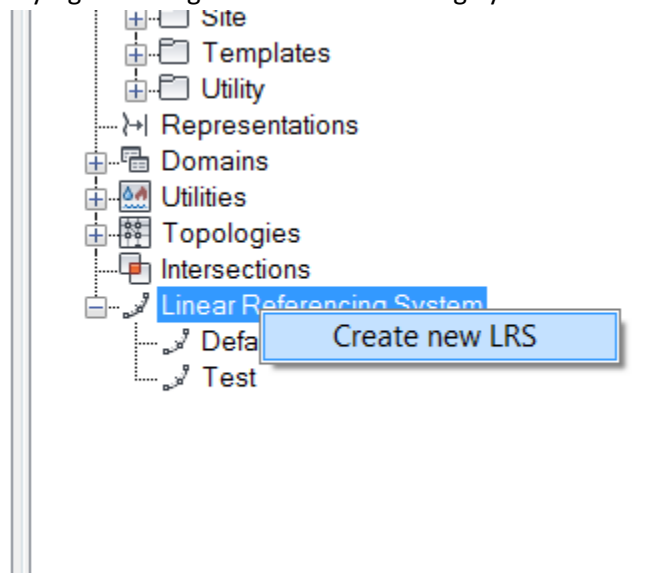


Create the template as shown, make the sure type the name exactly as “GA - Find connected (LRS)” because this template is referenced by the plug-in.

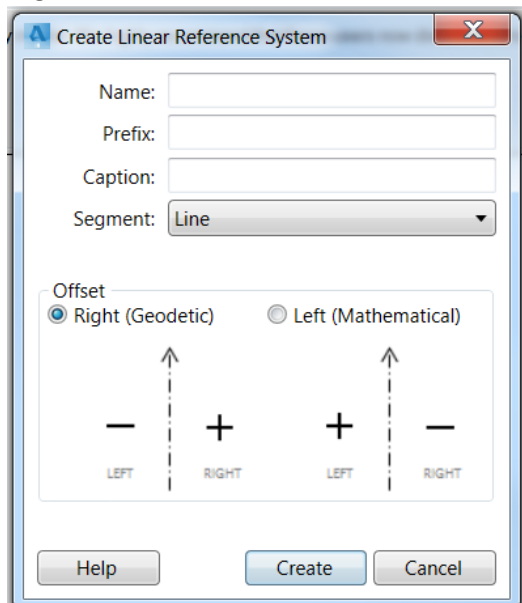


Create LRS

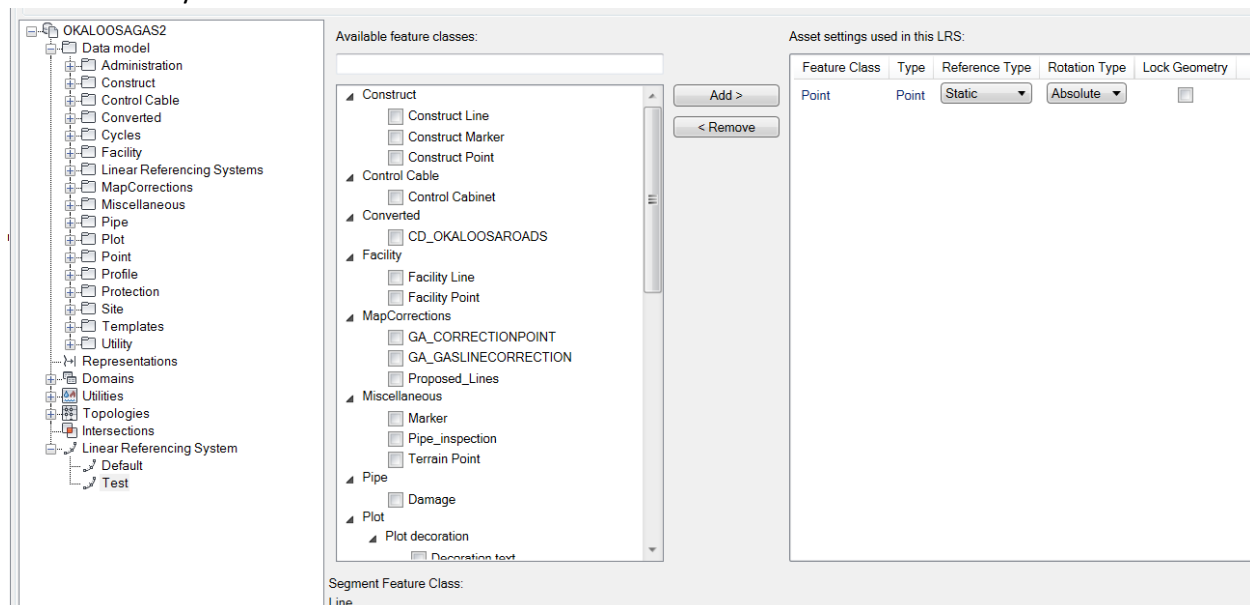
Create a new LRS by right clicking on Linear Referencing System and click "Create new LRS":



In the Create LRS dialog fill the fields (Name, etc.) as you see fit and Select the “Line” feature class as the segment:



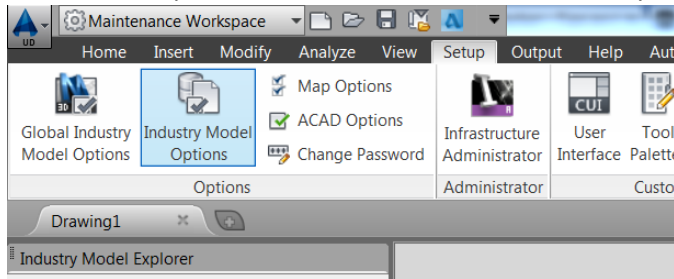
Select the LRS you created and then add the “Point” feature class as an asset:



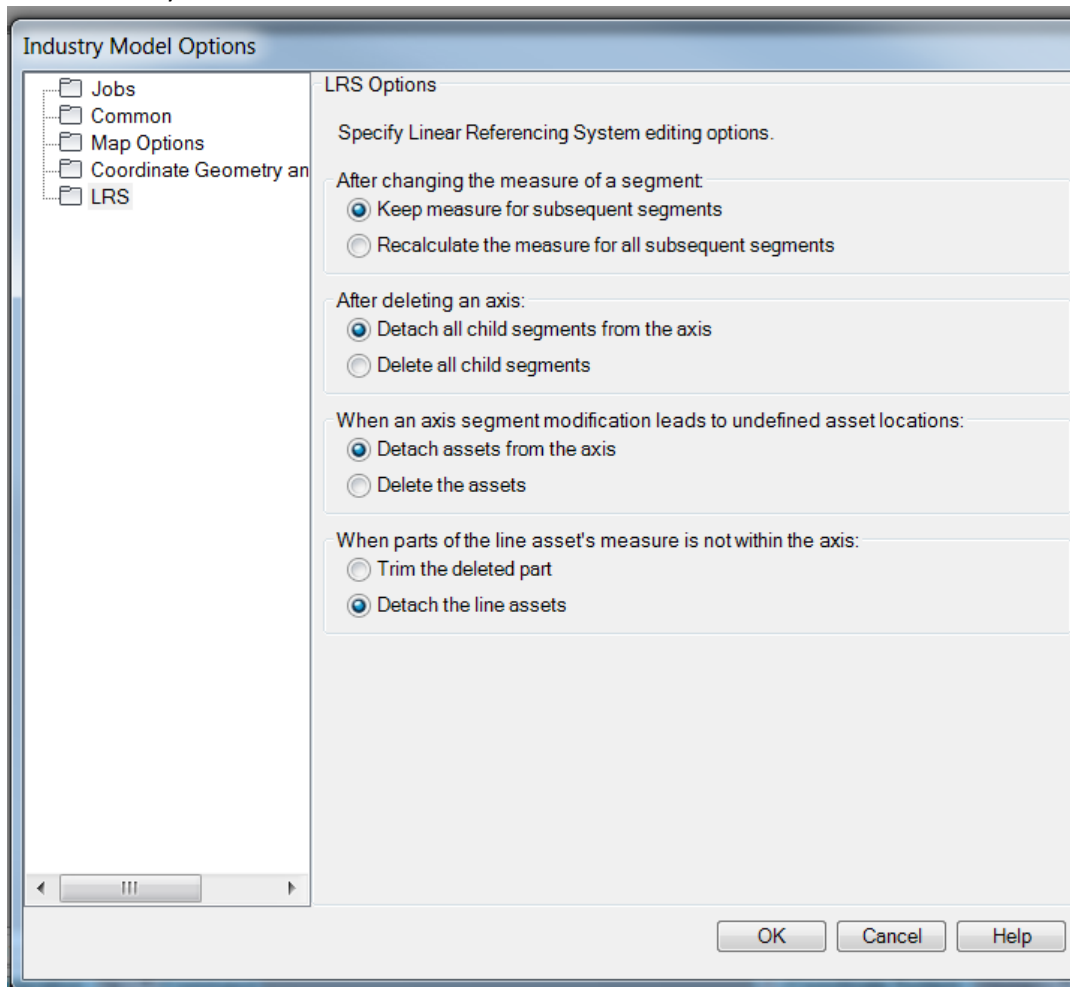
Setting Map Options

Before running the LRS plug-in for the first time perform these steps:

Goto the Setup tab on the ribbon and select “Industry Model Options” on the Options panel:

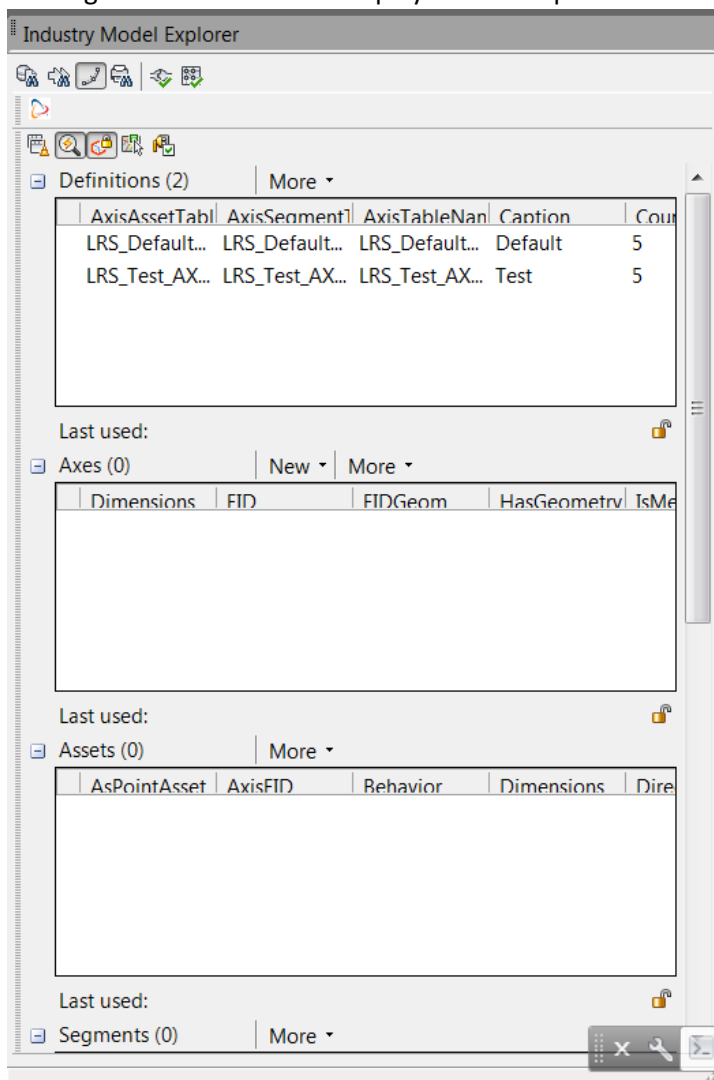


Set the options accordingly. In particular the options “After deleting an axis” and “When an axis segment modification leads ...” should be set so they do not delete the child segments/assets otherwise you can end up deleting your facility data if you delete some of your LRS features. The first and fourth options can be set at your discretion.

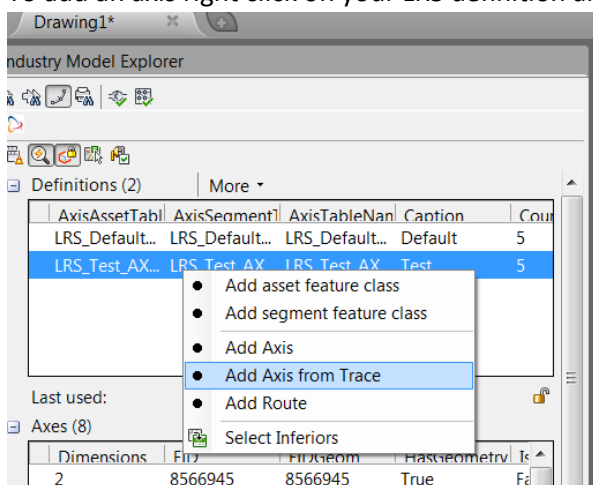


Running the Plug-In

Clicking on the LRS icon will display the LRS explorer:



To add an axis right click on your LRS definition and then select the “Add Axis from Trace” menu item:



GS5409 Building Better Reports and Maps with Linear Referencing

You will be prompted to select the start feature. This should be the start pipe/facility for the trace. A trace downstream from this point will be performed using the pipe diameter of the start pipe. Once this is finished will populate the new Axes and Segments/Assets (note if Segments/Assets containers are not populated right click on the Axis and select “Select Inferiors”)

The screenshot displays the 'Industry Model Explorer' software interface. On the left, there are three data tables: 'Axes (8)', 'Assets (74)', and 'Segments (74)'. The 'Axes' table is currently selected and shows the following data:

Dimensions	FID	FIDGeom	HasGeometry	Is
2	8566945	8566945	True	Fa
2	8567365	8567365	True	Fa
2	8567484	8567484	True	Fa
2	8567761	8567761	True	Fa
2	8567813	8567813	True	Fa
2	8567868	8567868	True	Fa

The 'Assets' table shows:

AsPointAsset	AxisFID	Behavior	Dimensions	Is
	8566945	Static	2	
	8566945	Static	2	
	8566945	Static	2	
	8566945	Static	2	
	8566945	Static	2	
	8566945	Static	2	

The 'Segments' table shows:

AxisFID	Dimensions	FID	FIDGeom	Is
8566945	2	8452860	8452858	Tr
8566945	2	8452861	8452859	Tr
8566945	2	8451828	8452083	Tr
8566945	2	8451828	8451826	Tr
8566945	2	8451829	8475336	Tr
8566945	2	8451830	8475337	Tr

On the right side of the interface is a map view showing a network of pipes. A specific pipe segment is highlighted in yellow, indicating the selected feature for the trace operation. The map includes a coordinate system with X and Y axes.