OHDOT_GeometryPoints

Description:

The OHDOT_GeometryPoints application is an OpenRoads Designer CONNECT add-in application to assist the user with common point analysis and reporting tasks.

Software Requirements:

This application was developed using .NET Framework 4.6.2 in 64bit Windows 10 and Bentley OpenRoads Designer CONNECT edition, version 10.09.00.91.

Loading the Application:

The application is in the following folder withing the OHDOT CADD Standards:

..\OHDOT\Standards\Applications\Addins\

The configuration variable ODOT_ADDINLOC is defined to specify the location of the application.

The application is run within OpenRoads Designer using the following key-in command:

mdl load OHDOT_GeometryPoints;OHDOT_GeometryPoints open

The application can also be accessed from the Ohio DOT ribbon menu within OpenRoads Designer (Ohio DOT > Apps > Survey Reports > OHDOT Geometry Points).

The dialog shown below is loaded.

Note the vertical black bar to the left of the alignments list can be used to resize the width of the lists.

Note that the horizontal black bar above the results section can be used to resize the height of the lists/results section.

When the application is loaded, the active design file and the reference attachments are scanned to generate a list of the Survey Points, Geometry Points, and Alignments contained in the files. The dialog is populated with the list of points and alignments like the example above.

Refresh Data Button   Refresh Data

In the event a point is added to the design, or deleted from the file, or the user changes to a new design file with the application is open, the **Refresh Data** button is used to read the design file and reference attachments to update both the point and alignments lists.

Window Button   Window

Select this command to window the MicroStation view display on the selected point. Only one point can be selected for this command.

Inverse   Inverse

The **Inverse** command is used to report the bearing and horizontal distance between two or more selected points. The points can be geometry points or survey points. The inverse is reported in the order the points are selected and displayed in the output field at the bottom of the dialog.

Point Name	Feature	Description	Northing	Easting	Elevation	Elev Source	
50	IPINS		520001.568	1651627.267	820.145	3D Point Elev	1
51	IPINS		519845.115	1651028.712	821.535	3D Point Elev	1
52	IPINS		519983.893	1650337.463	825.666	3D Point Elev	1
53	IPINS		519987.316	1649668.874	827.992	3D Point Elev	1
54	IPINS		519922.996	1649108.55	846.857	3D Point Elev	1
55	IPINS		519997.941	1648768.339	846.314	3D Point Elev	1
56	IPINS		519921.53	1648076.641	830.214	3D Point Elev	1

Clear

Inverse 51 to 55: Distance = 2,265.533 Direction = N86.132064°W
Inverse 55 to 53: Distance = 900.598 Direction = S89.324025°E
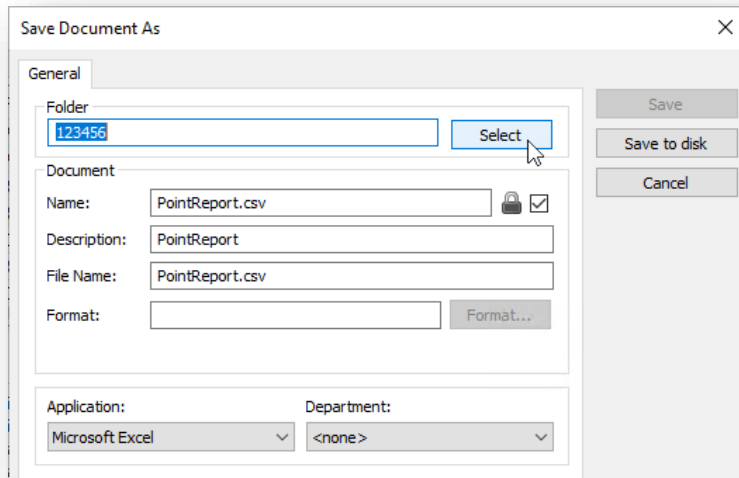
NEZ Report NEZ Report

This command is used to generate an ASCII text file in CSV format for the **selected points**. The following information is stored in the CSV file:

> Point Name, Northing, Easting, Elevation, Feature Name

When the command is selected, the Save Document As dialog is displayed. If the design file is in ProjectWise, the dialog shown below is opened:

The application defaults to the PID number folder for the WorkSet. Use the **Select** button to browse to the folder where you wish to save the file.

Change the **Name**, **Description**, and **File Name** as desired.

Select **Save to disc** to save the file in the selected location.

Geotech Report Geotech Report

This command is used to generate an ASCII text file in CSV format for the **selected points**. You must select one alignment and at least one point for this report to be created. The following information is stored in the CSV file:

> Point Name, Station, Offset, Direction, Elevation, Northing, Easting, Latitude, Longitude, Description, Feature Code, Chain, GCSName

Note that if the point does not have a description then the name is also used as the description.

The GCSName is the name of the geographic coordinate system set on the model the point resides in. if this is blank and the Latitude, Longitude columns are blank then a GCS is not defined on that model.

When the command is selected, the Save Document As dialog is displayed. If the design file is in ProjectWise, the dialog shown below is opened:
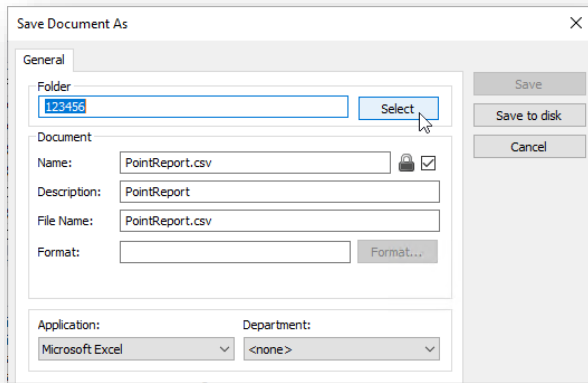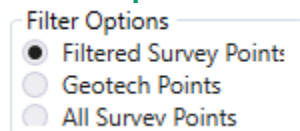
The application defaults to the PID number folder for the WorkSet. Use the **Select** button to browse to the folder where you wish to save the file.

Change the **Name**, **Description**, and **File Name** as desired.

Select **Save to disc** to save the file in the selected location.

Filter Options

Filtered Survey Points

By default, the application only lists the survey points that are defined as control or monument points. A CSV file is used to define the list of Feature Definitions that are considered control or monument points. The configuration variable **ODOT_ADDINLOC** is used to define the location of the CSV file. The CSV file must be named **SurveyControlPointFeatureList.csv**.

Geometry Points

Selecting this option will only list points with a code of SOIL, SOILINST, SOILTARG, WELLM or feature definition of GT_P_Soil Boring Instrumented, GT_P_Soil Boring Project, GT_P_Soil Boring Target, GT_X_Soil Boring Historic.

Show All Survey Points

Selecting this option will update the list to include all the survey points regardless of the feature definition.

Elevation Source
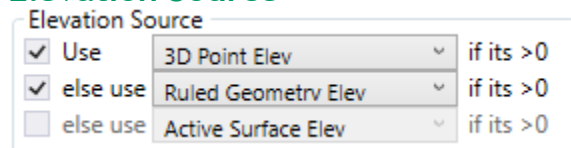
This section provides the logic for which source should be used as the points elevation. There are three elevation sources listed/explained below. This section will determine which elevation source should be used from the top to the bottom. If a row is not checked on, then it is grayed out and not considered. If the elevation source has a value that is not zero then it is set as the elevation for the point, if not then if checks the next line. If all sources have an elevation of zero (or no rows are checked on) then the points elevation source is set to none and the elevation is set to zero.

The Elevation source for each row can be changed via the drop down to change the order/priority that the elevation sources are checked against.

3D Point Elev

This would be the z value of a point in a 3D. typically survey points.

Rules Geometry Elev

Geometry Points		
X	1648948.969'	
Y	519888.806'	
Elevation	828.023'	
Rotation	N90.000000°E	
Rotation Reference	None	
Absolute Angle	True	

This would be the elevation rule that gets assigned to a point placed with geometry tools. Typically, this is a 2D point in a 2D design model so there is no 3D Point Elevation.

Active Surface Elev

This is the elevation of a point if it was draped to the active surface. If there is no active surface then this value is 0.

Sta-Off

The **Sta-Off** report is used to compute the station and offset value for selected from the selected alignment like the example below.

Station and offset values for points outside the limits of the alignment are reported along an extension of the alignment (see point IPS2 below)
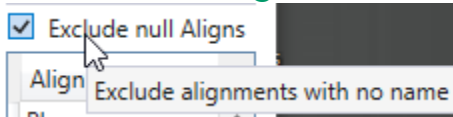

Exclude null Aligns

This check box will filter out all alignments that do not have a name. It is on by default.

Clear

Select the **Clear** command to clear the output window content.

Cut and Paste Operations

Standard windows cut and paste operations (ctrl-c, ctrl-v) can be used to copy data from the application window into other applications.

Updates

Version 1.0.0.0

Original Release

Version 1.0.1.0

- Added Filter Options section with three options (Filtered Survey Points, Geotech Points, Al Survey Points) this replaces the Show All Survey Points Checkbox.
- Added Geotech Report Button
- Added Elevation Source section with options/logic for what source to get the points elevation should be used (3D Point Elevation, Rules Geometry Elevation, or Active Surface elevation)
- The Elevation column in the Points List now will show the elevation from the elevation source.
- An Elevation Source Column was added to the Points List to show where the which source was used for the elevation.
- Added filter checkbox to exclude alignments without a name from the alignments list.
- Added vertical splitter between the Points Lists and the Alignments List for dynamic resizing.
- Made the horizontal splitter between the Results section and the Points/Alignments List a black line and thicker.

Version 1.0.1.1

- Updated Geotech Report Button to include Latitude, Longitude and the name of the coordinate system used to convert northing/easting to Latitude, Longitude. If Lat./Long. Columns are blank then a GCS is not set in the model/file that point resides in.

Version 1.0.1.2

- Fixed bug introduced with ORD 10.12 what was displaying incorrect northing, easting, and elevation values for geometry points
- Fixed bug that was display the same points and/or alignments multiple times in dialog.

Contacts

For any questions, suggestions, or problems with this application please contact the ODOT Office of CADD and Mapping Services by use of the following form on the ODOT website:

https://odot.formstack.com/forms/cadd_servicerequest