# Site Leveller 2012 - Quick Start Tutorial

This tutorial has been created to give users a quick overview of the fundamental features of Site Leveller. The tutorial project currently contains a Civil3D Surface and some Civil3D Parcels. In this tutorial, the Parcels will be converted to Bays , the software will balance/grade these Bays and also output labels/bay arrows.

Topics covered in this tutorial:

1. Converting Civil3D Parcels into Bays.
2. Outputting labels and bay arrows.
3. Editing a bay.
4. Outputting a table.
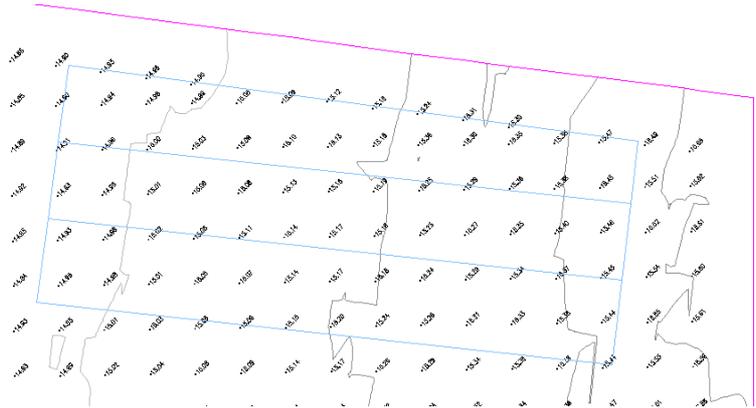
STEP 1 - From the Site Leveller toolbar, run the **Open Tutorial Folder** command and open the **Tutorial-Fundamentals.dwg** file into Civil3D.

STEP 2 - From the Site Leveller toolbar, run the **Parcel to Bay** command.

The dialog box below will display...

When the Parcel to Bay dialog is displayed, a list of all the Parcels in the specified Site are listed. Before creating the Bays, the user has the opportunity to...

* Name the Bays
* Set the Label Style and Bay Arrow Style applied
* Set whether annotation will be applied on the Bay
* Set whether the Bay will be created with a best fit
* Remove Parcels from the lists. These won't be converted to Bays.

To edit a Bay from the list, select the bay (or multiple Bays) and select the Override Entry (s) button

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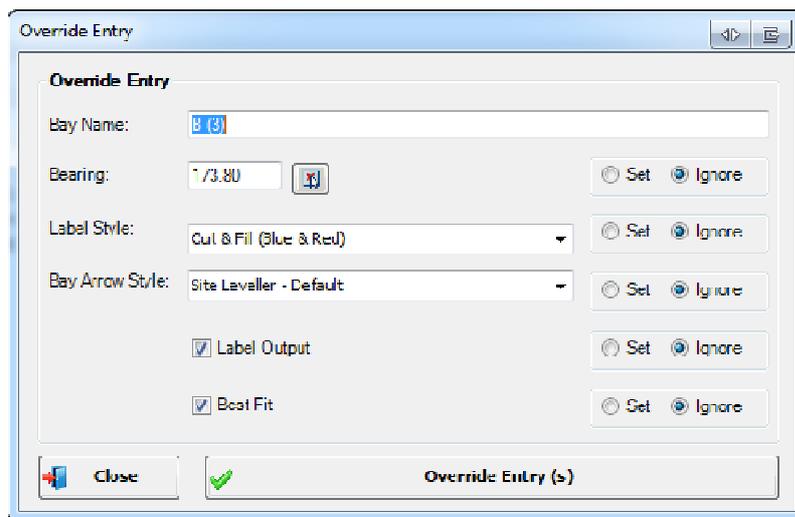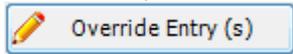
From the **Calculation Settings** command (bottom right of the dialog) , the user can setup values used by the software when calculating a Bay. These include grid spacing for label output, topsoil depths and triggers, and also the cut/fill ratio.
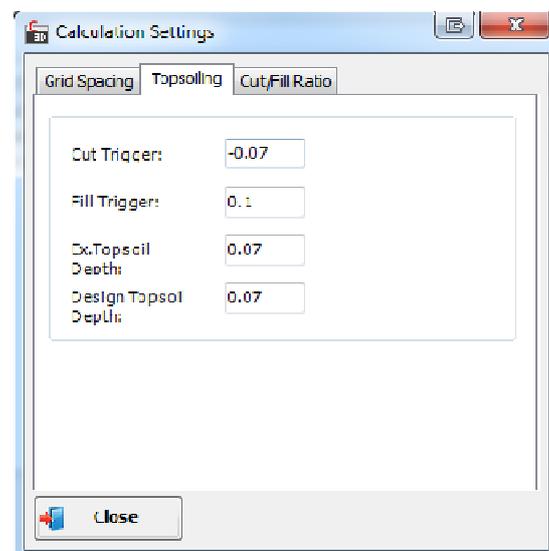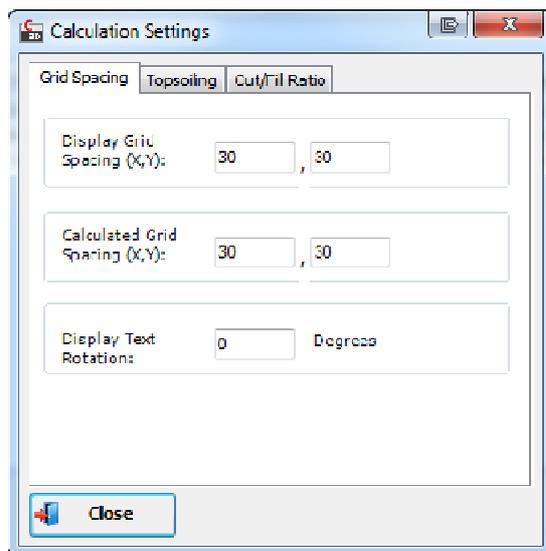
STEP 3- Create the Bays using the **Convert Parcel To Bay** button ![Convert Parcel To Bay] .

The software will now convert all the Civil3D Parcels into Bays As part of this process, the software will do a best fit for each Bay if specified by the user.
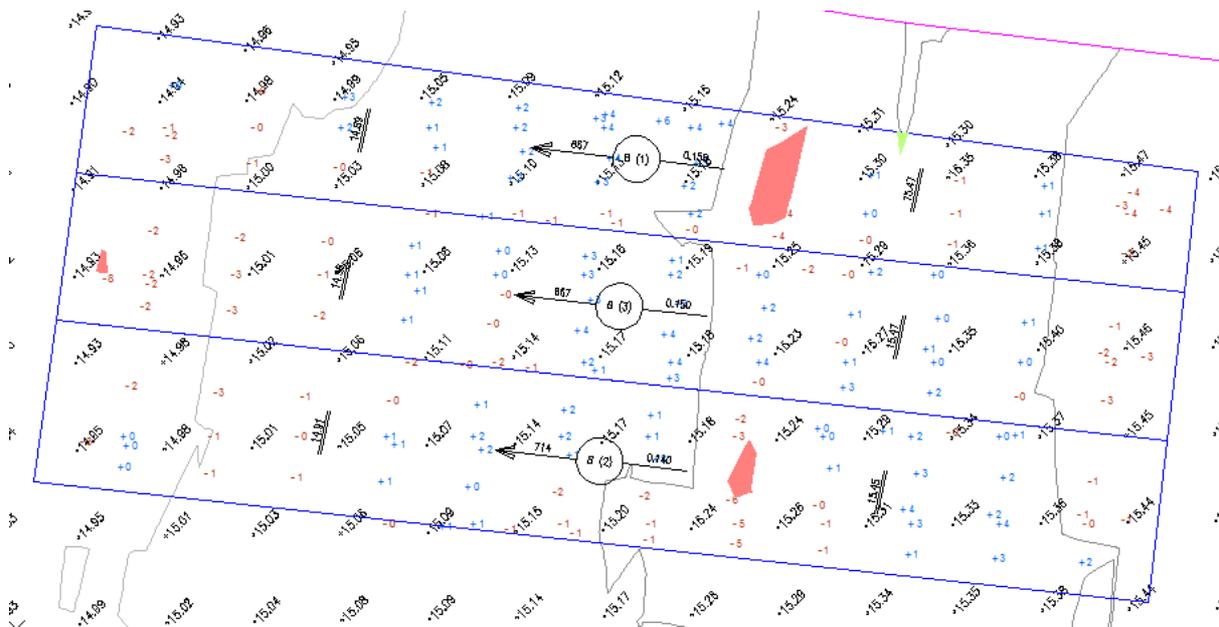
Once the software has performed the calculations, select the **Close** button ![Close] .

STEP 4- To output Labels & Bay Arrows on each Bay, run the Output Labelling command.

When the Bays were created, a Label Style and Bay Arrow Style was assigned to each Bay. The software will use the styles on creation.

All Bays will now be labelled. The software by default will output the following...

* **Cut/Fill Labels** - These labels can be placed either on a fixed grid, which is specified in the Calculation Settings or at the location of Civil3D Points existing in a Point Group.

* **Extra Labels -** If the distance from the grid point to the edge of the Bay is too far, the software will automatically place an extra cut/fill label. These extra labels can be setup under the Outputs tab in the **Site Leveller Settings** ![icon] command.

* **Max/Min Elevations -** On each Bay, the software will output 2 labels, which show the maximum and minimum elevations on the Bay. These labels are inserted as an AutoCAD Block, which can be

created/edited by the user. The user can also setup how these labels are placed in the **Site Leveller Settings** command.

* **Shaded Areas -** The software will also create a Civil3D Volume Comparison Surface. This is so areas of cut/fill (outside trigger depths) can be represented on the Bay. To display the shaded areas, **Volume Comparison Surface** must be ticked on under the **Outputs** tab in the **Site Leveller Settings** command. The user can specify what Surface Style is displayed on this Surface (usually a style with the Elevations component turned on) and also set the ranges to display areas of cut/fill. These settings are controlled in the **Civil3D Output** tab of the **Site Leveller Settings** command .

NOTE: Bay Arrows and Max/Min Labels can be moved graphically in the drawing. When changes are made to the Bay, they will automatically update. In the **Outputs** command , the user can insert manual cut/fill labels onto a Bay, these labels can be copied/moved and will update when changes to the Bay are made.

STEP 5- Select the **Bay Volumes** command.
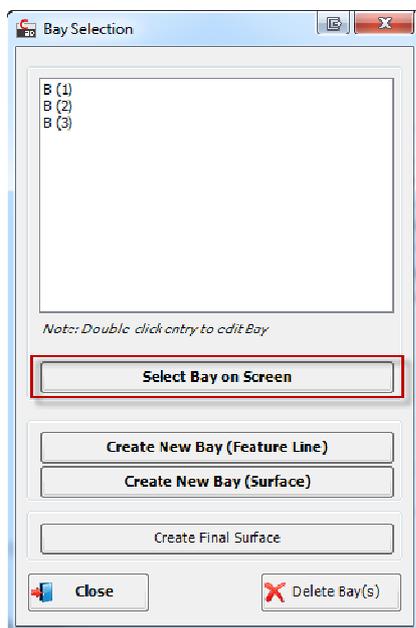
The **Bay Selection** dialog will display. From this dialog, you can select a Bay to open into the **Create/Edit Bay** dialog.

To open a Bay, either double-click the Bay from the selection list or select the **Select Bay On Screen** button to select a Bay from the drawing.

From this dialog, the user can also create a new Bay from either a Civil3D Feature Line or a Civil3D Surface. The Delete Bay (s) command can be used to remove Bays from the project.

After selecting a Bay to edit, the Create/Edit Bay dialog box will display. Within this dialog, the user can change the height of the Bay, the grade of the bay, the grade angle of the bay, and also apply best fitting options by locking certain parameters. The user can also import/export material from the Bay.

As calculations are made, all relevant volume information is displayed and outputs such as labels and bay arrows are updated in the drawing.
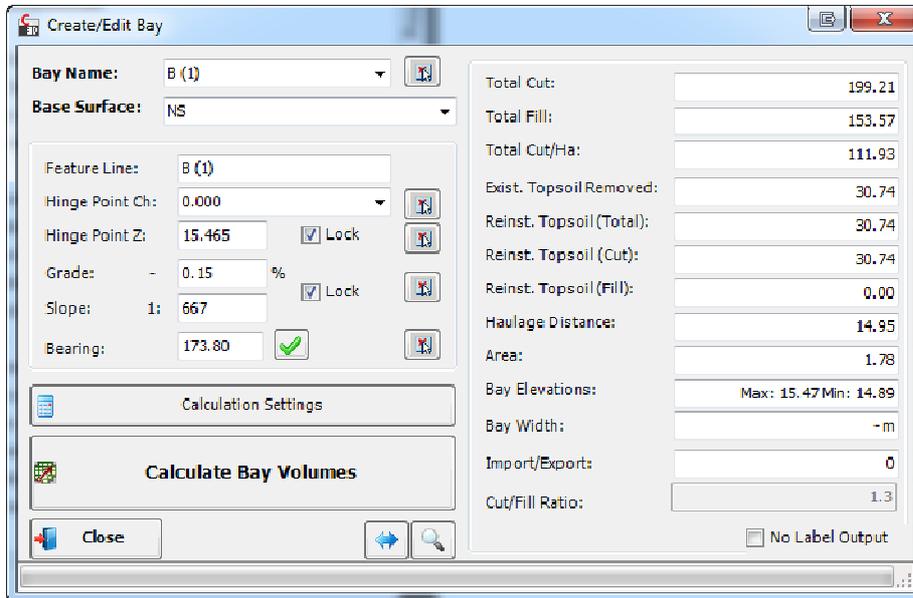
If the grade/slope is locked, the software will calculate the best height to balance earthworks to the cut/fill ratio. If the height of the Bay is locked, the software will calculate the best grade to balance the earthworks to the cut/fill ratio.

When calculating a Bay, the software will take into account the imported or exported material that has been specified in the **Import/Export** field.

Create/Edit Bay Volume dialog

Command	Function
Bay Name: B (1)	This is the name of the current Bay being edited. The user can select another Bay to edit from the drop-down box or use the picker to pick a Bay from the drawing.
Base Surface: NS	This is the Civil3D Surface that the software will compute volumes against. A Base Surface will contain an N- in its Description Field.
Hinge Point Ch: 0.000	The Hinge Point Chainage refers to the point on the Civil3D Feature at which the Bay is graded from. This will generally be the maximum elevation on the Bay and will control the starting position of the grade angle.
Hinge Point Ch: 0.000	The Hinge Point Elevation sets the maximum elevation on the Bay.

|	
Grade: - 0.15 % ☑ Lock [icon] Slope: 1: 667	This is the grade/slope that is applied on the Bay.
Bearing: 173.80 [✓] [icon]	This is the grade angle on the Bay. The user can either specify a bearing and select the green tick to apply or use the picker button to graphically assign a grade angle.
[icon] **Calculate Bay Volumes**	This button will calculate the Bay based on the current parameters set. Outputs will also be applied on the Bay. What items get outputted on the Bay can be assigned in the **Site Leveller Settings dialog** [icon] **> Outputs > Calculate Bay Volumes Command**
[↔ icon]	This command allows the user to set the starting reference point for the display grid of labels.
[🔍 icon]	This command will zoom to the centroid of the current Bay.
Import/Export: 0	Enter the amount of imported or exported material on the Bay.
☐ No Label Output	If **No Label Output** is selected, this Bay will be treated as an "existing bay". Cut/fill labels will not be displayed and limited data will be shown on the Bay Arrow and in the Table outputted.

STEP 6- Select the **Close** button [Close button icon] to exit the Create/Edit Bay dialog.

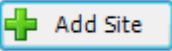**STEP 7-** Select the **Outputs** to open the Outputs dialog.

[toolbar icons]

The last part of this tutorial involves outputting a table, which will list all Bays created and there information. The Outputs dialog is also used to setup label styles, bay arrows styles, and run batch reports. This functionality is covered in the **Site Leveller Setup** tutorial.

When the dialog is displayed, select the **Tables** tab. The following will be displayed....
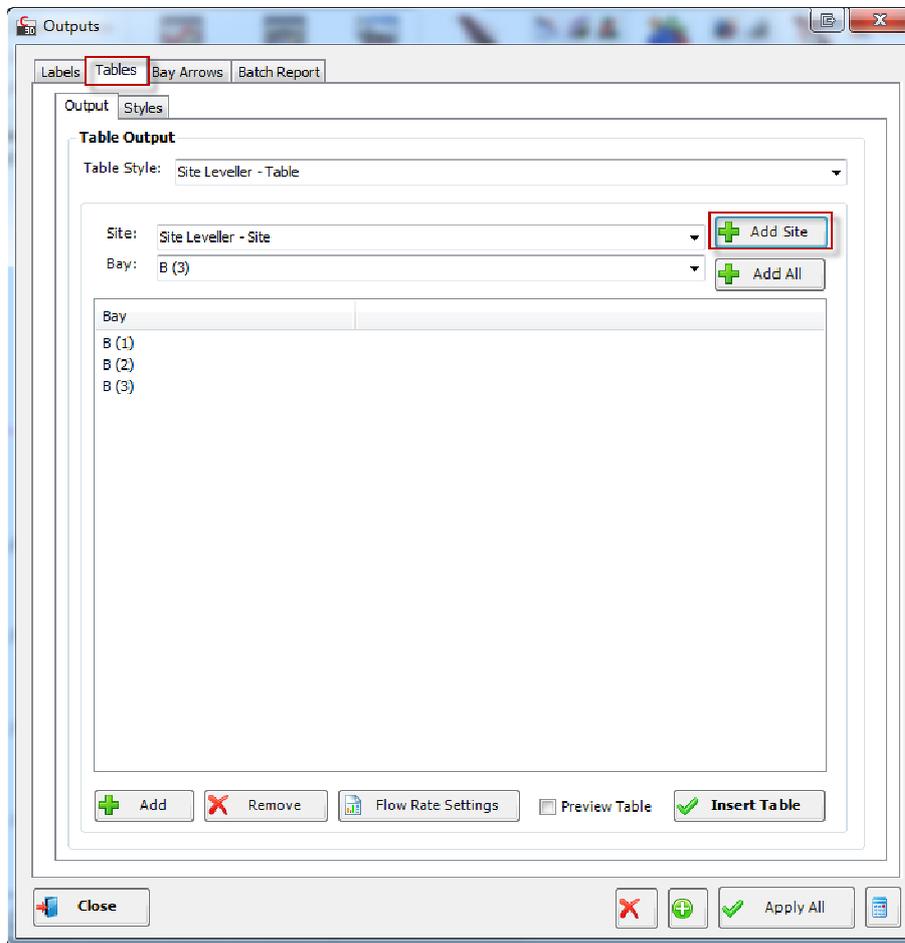
As part of this tutorial, the **Site Leveller - Table** style will be used. Users can setup their own style to control what data is outputted in the table an what AutoCAD Table style is used to control the display of the table.

STEP 8- Select the **Add Site** button to add all Bays in the current Site to the table list.

STEP 9- Select the **Insert Table** button to add the table to the drawing. The software will prompt the user to specify a location for the table.

On output of the table, the software will re-calculate each Bay to ensure all data is up to date.

					Site Leveller					
Bay Name	Total Ha	Maximum Elevation	Minimum Elevation	Grade %	Haulage Distance	Total Cut (VOL)	Total Fill (VOL)	Total Cut/HA (VOL)	Existing Topsoil Removed (VOL)	Import Export
B (1)	1.78 Ha	15.47	14.89	-0.15 %	14.95 m	199.21 m³	153.57 m³	111.93 m³	30.74 m³	30.74 m³
B (2)	2.16 Ha	15.45	14.91	-0.14 %	48.54 m	187.56 m³	144.31 m³	86.67 m³	1.92 m³	1.92 m³
B (3)	1.96 Ha	15.47	14.90	-0.15 %	54.38 m	198.29 m³	156.10 m³	101.00 m³	0.01 m³	0.01 m³
	1.97 Ha				39.29 m	585.07 m³	453.98 m³	99.87 m³	10.89 m³	

This tutorial is now completed. For more tutorials, select the **Help** button from the Site Leveller toolbar to view available tutorials and other resources.