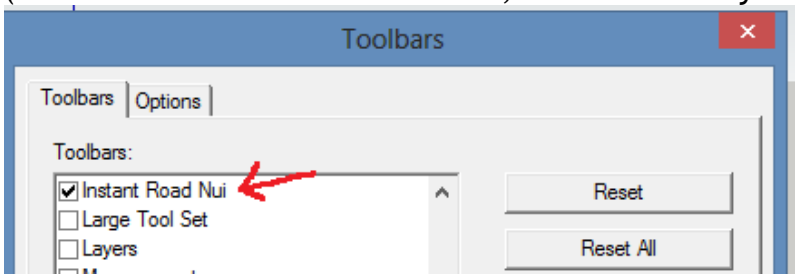
Instant Road Nui Quick Start

** UNDO can sometimes Sketchup will crash after making a road.*

To use the toolbar, open the Toobars dialog and check "Instant Road Nui"
(*This tutorial uses architectural units, but metric or any other Sketchup units may be used*))

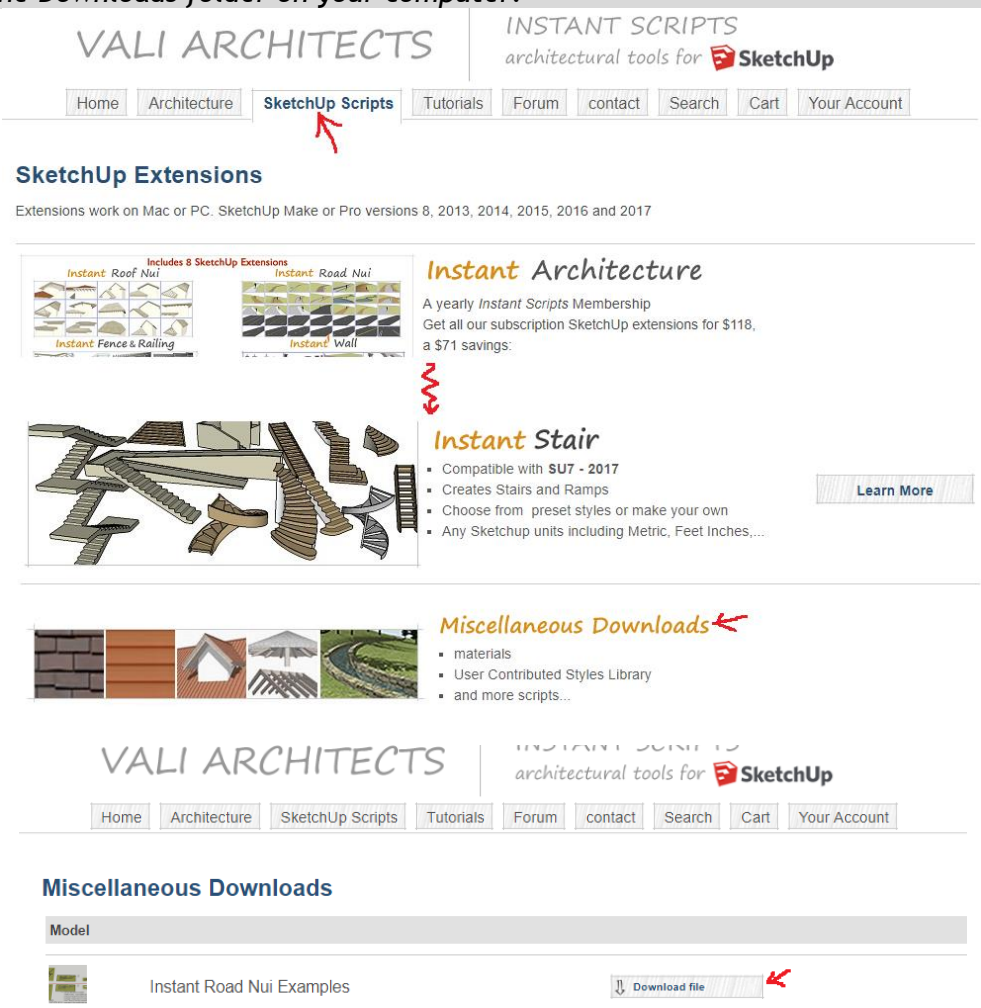


The Instant Road Nui tool bar:

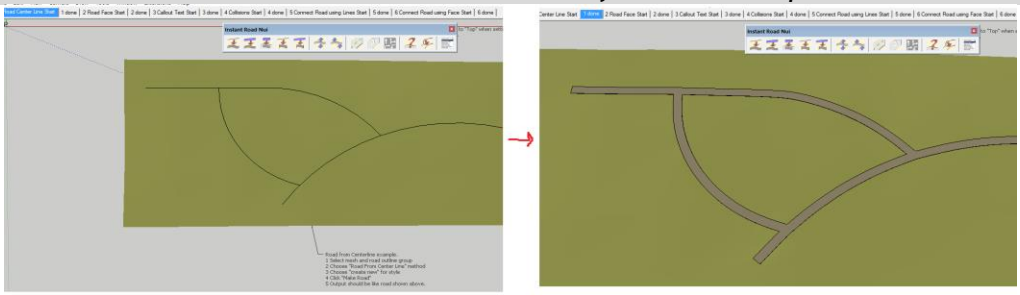
Lesson 0. Example Road Nui Model

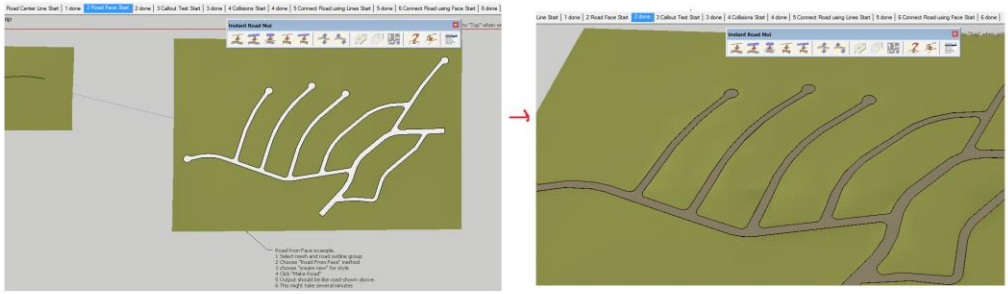
You may start with lesson 1, but It may be helpful to see how it works by trying the examples from my website first as shown here in Lesson 0.

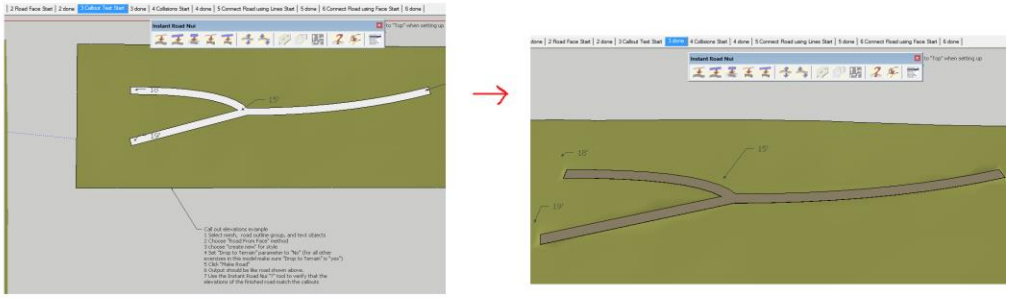
0.1 Download the example file from valiarchitects.com. *Navigate to Sketchup Scripts and click Miscellaneous Downloads. Then click "Download File" next to Instant Road Nui Examples. The example file will be downloaded to the Downloads folder on your computer.*

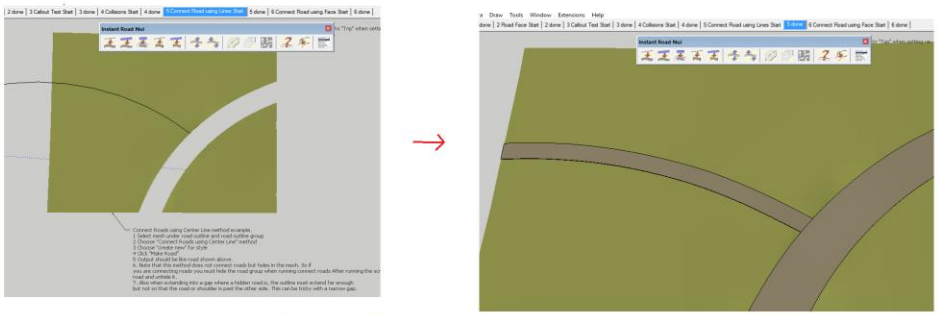


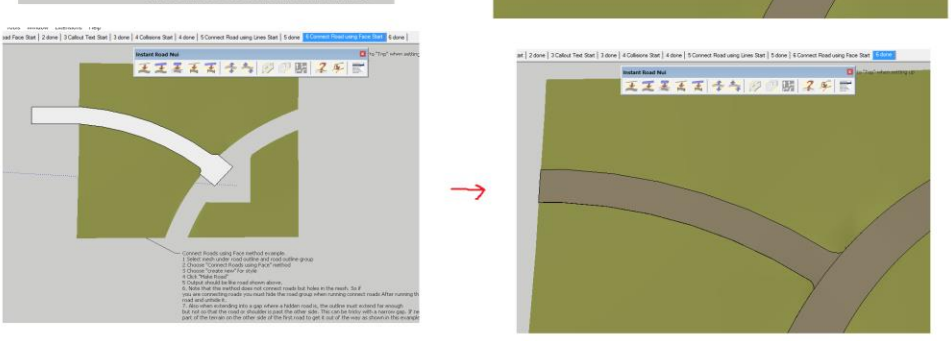
0.2 Open the model in Sketchup and click through the views to see each road example before and after. *There are text instructions in the model for each example.*

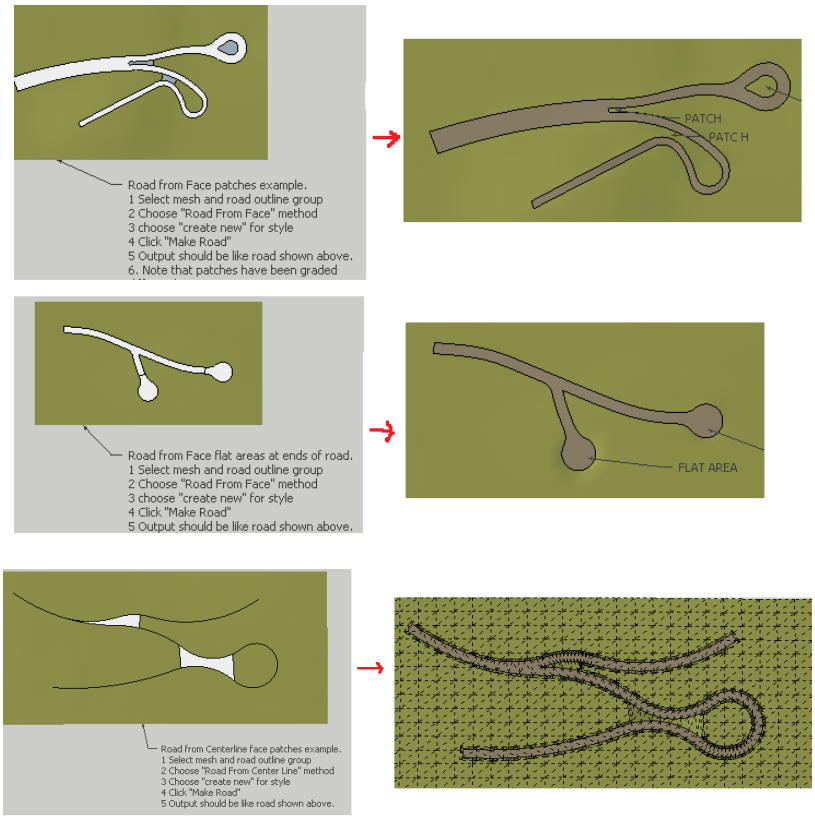




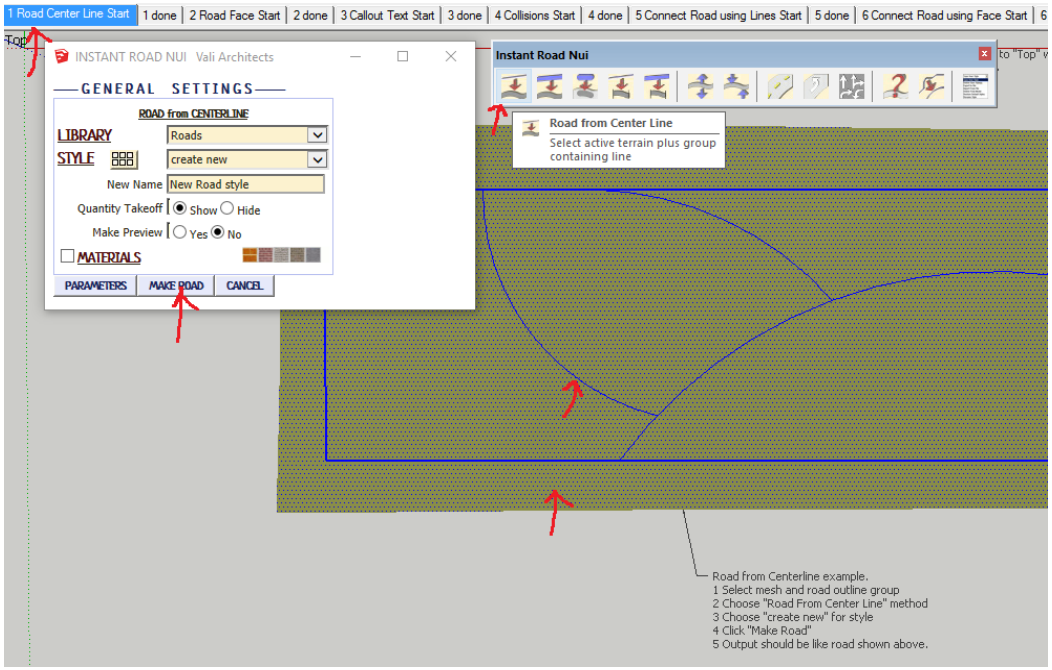




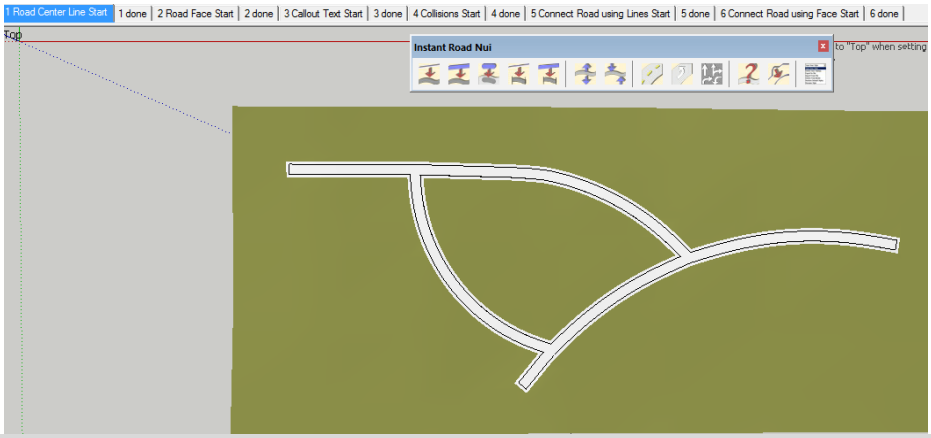




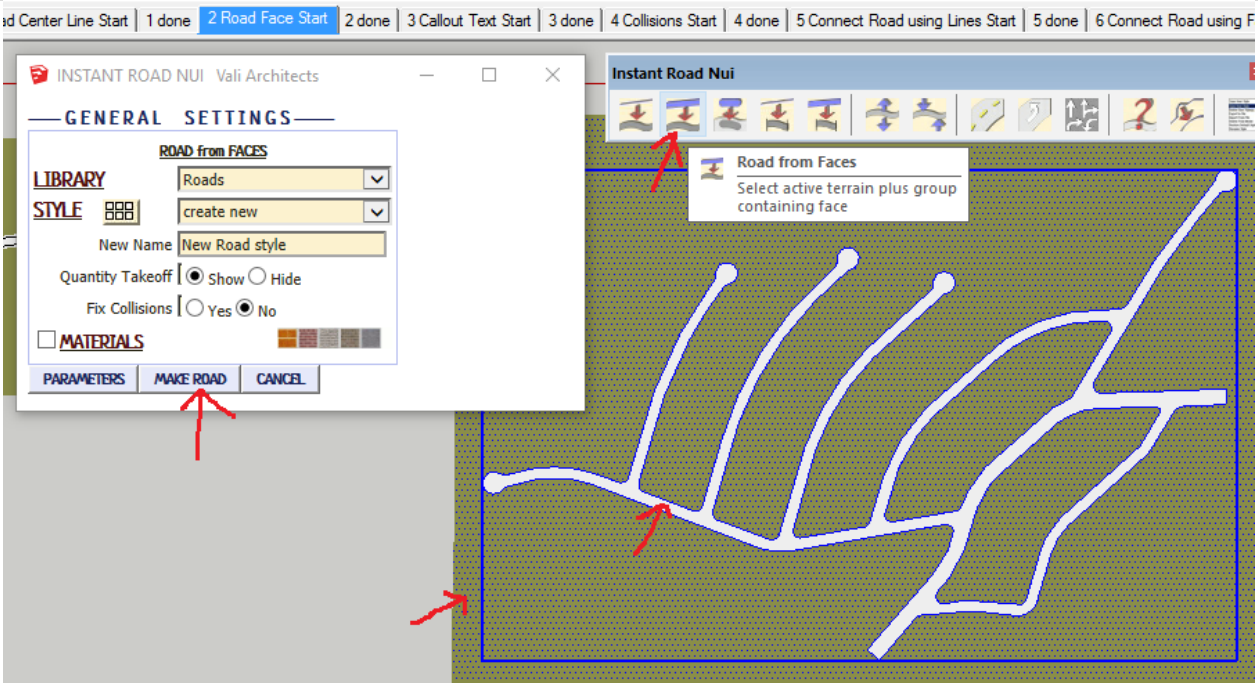
0.3 Example 1, Road from Centerline. *Click the first view, "1 Road Center Line Start", select the terrain mesh and road outline group, click the Road from Center Line icon, and click Make Road.*



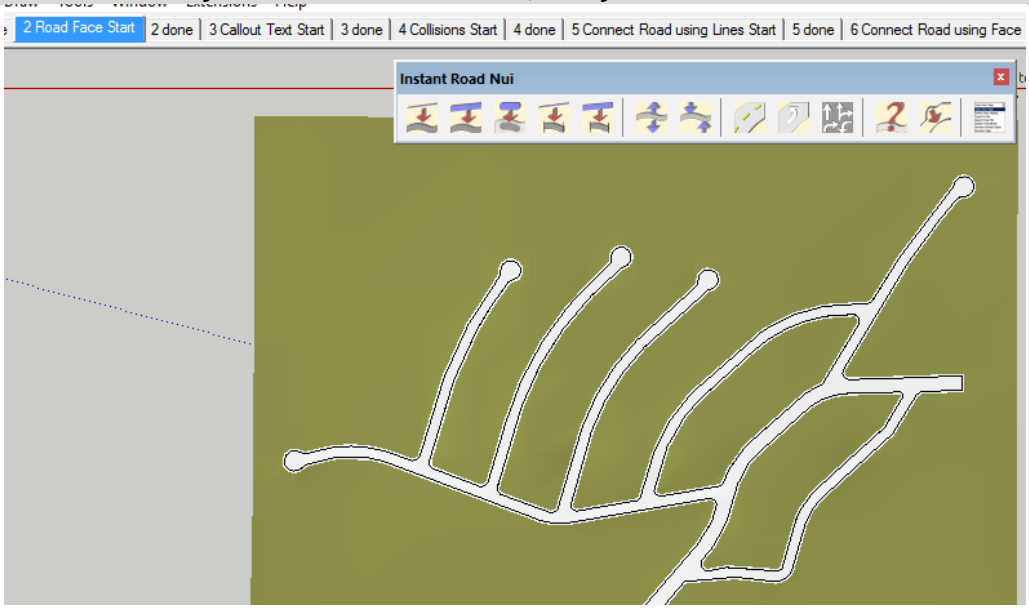
0.4 Completed Road. *It may take a couple of minutes, but your road will look like this:*



0.5 Example 2, Road from Face. *Click the second view, "2 Road Center Face Start", select the terrain mesh and road outline group, click the Road from Faces icon, and click Make Road.*



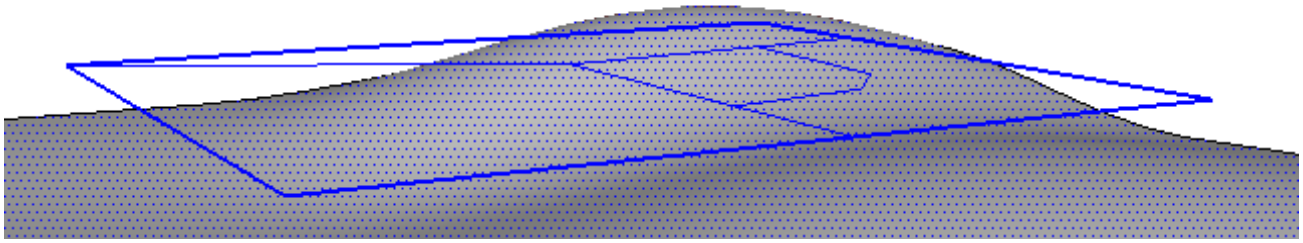
0.6 Completed Road. *It may take a several minutes, but your road will look like this:*



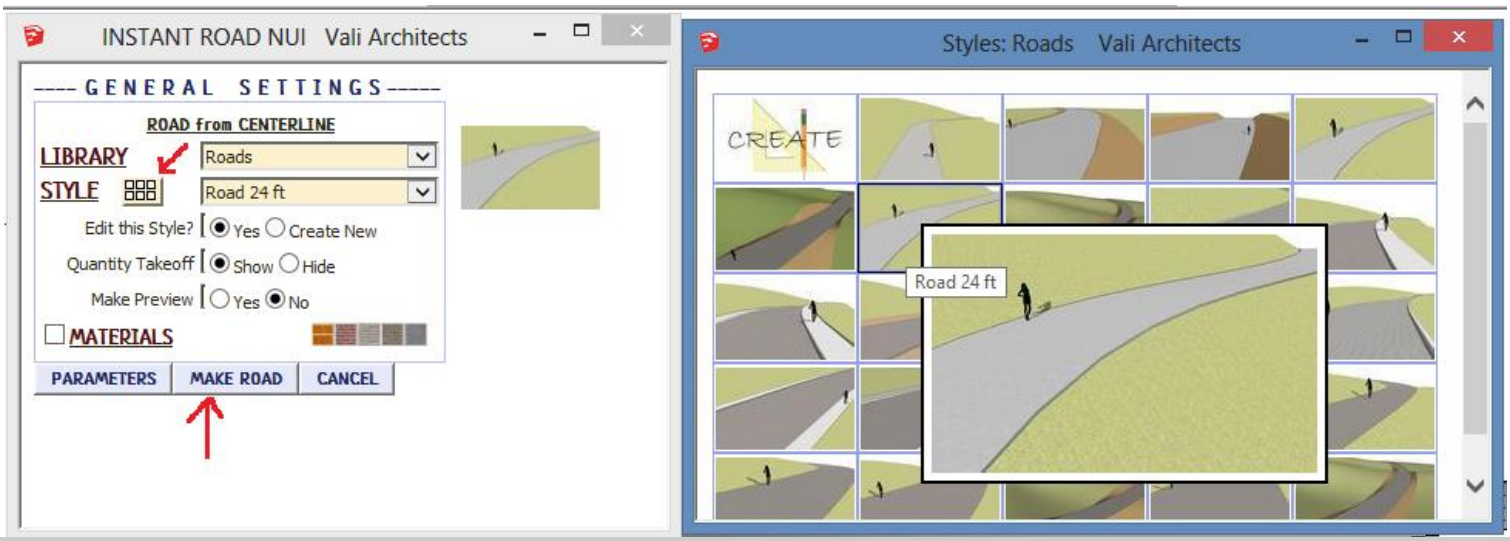
0.7 Follow the instructions in the model for the other examples.

Lesson 1. Road from Center Line

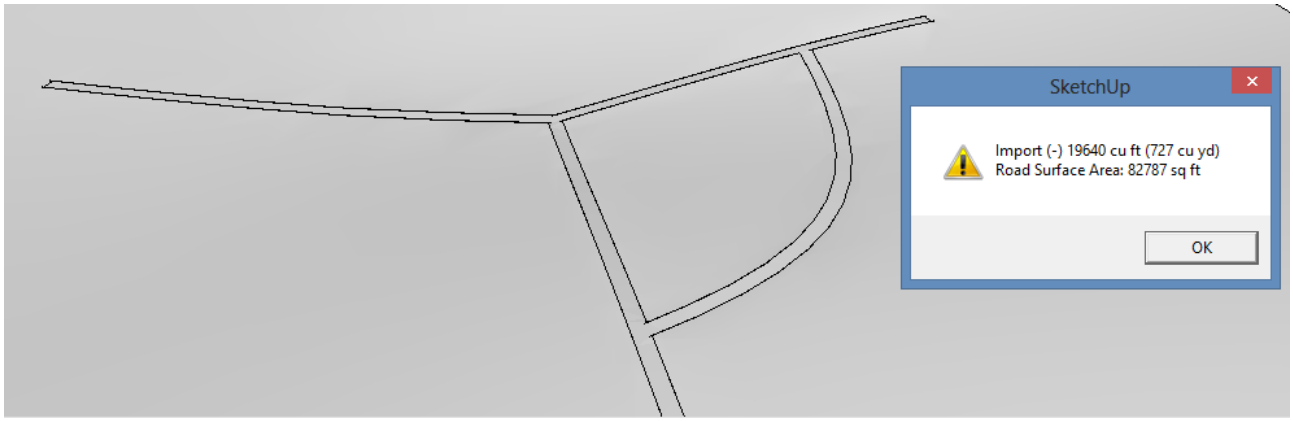
1.1 Draw a terrain using the Sandbox tool or any other method. (*Terrains are simply a face or multiple connected faces with smoothed edges. The terrain must be active. Explode it or open it for editing if it is in a group.*) Create a group and draw a line or connected lines within the group. (*Closed loops, X and T intersections are OK*) Select the terrain and the group



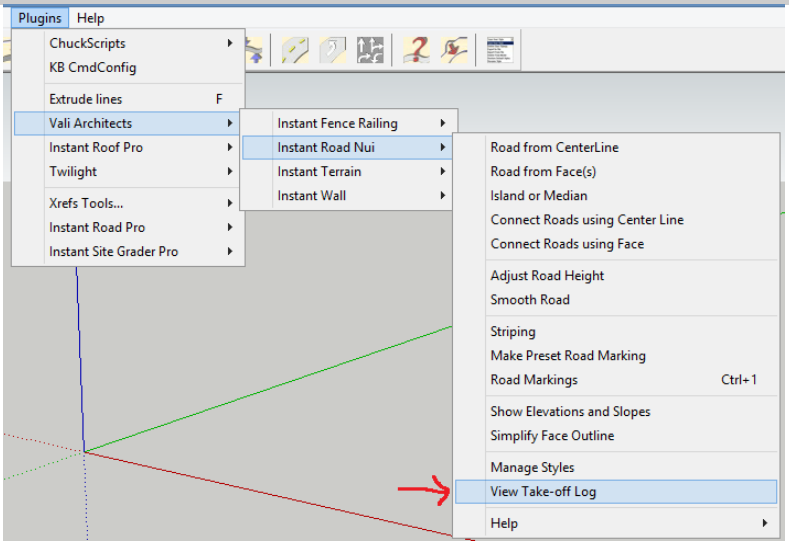
1.2 Choose "Plugins/ Vali Architects / Instant Road Nui / Road from Center Line" or on the Instant Road Nui toolbar click the symbol. Click the image menu button to display preset style images and select the "Road 24 ft" style. Click "Make Road"

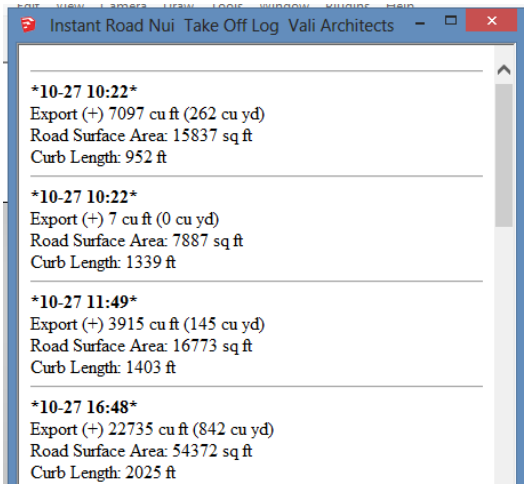


1.3 The output will be something like this and take off quantities are displayed.



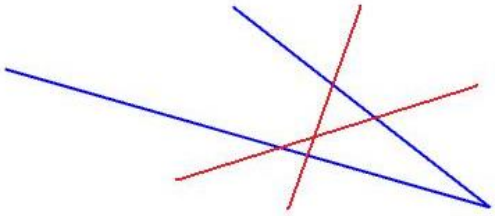
1.4 If you choose to hide the take off display, you can still view the log as shown:



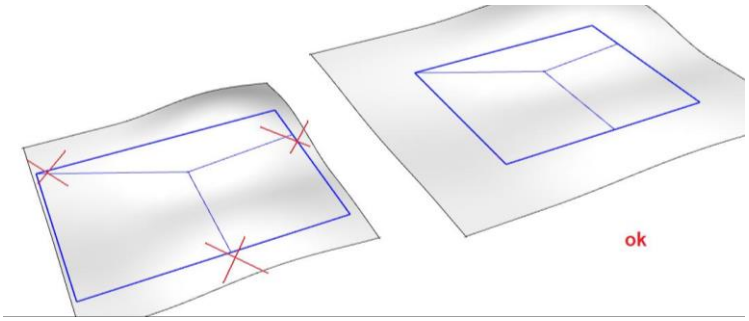


Notes:

1. Do not have sharp corners in your outline or this may stop the script.



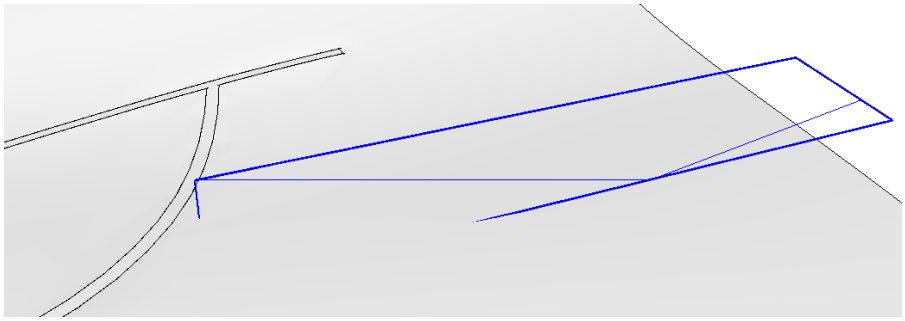
2. All of the geometry, road and shoulder must fit within the boundary of the terrain or the script will stop. If you are unsure, make your terrain larger. It may be helpful to set your camera to Parallel Projection and set your view to Top so you can make sure your road outline has extra room.



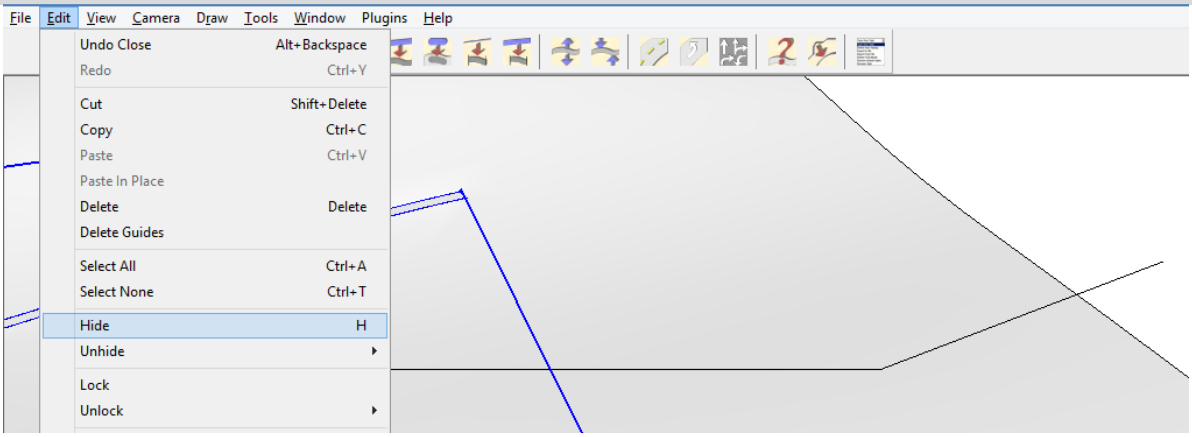
3. Input groups for all Instant Road Nui methods must be created in place and must not be copied, rotated, scaled,etc. Explode and regroup before running the script if unsure.

Lesson 2. Connect Roads using Center Line

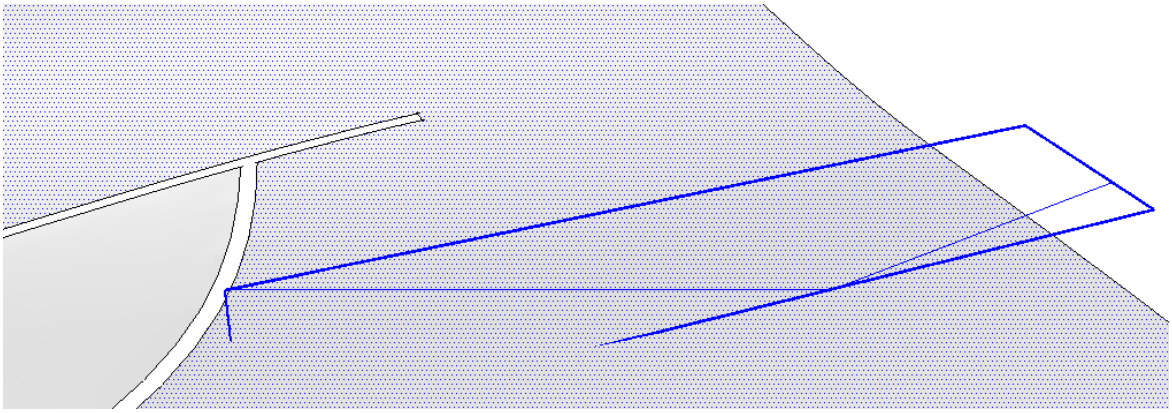
2.1 Using the road made in Lesson 1, create a group containing a line or curve above the terrain that extends slightly into the road and either extends past the end of the terrain. *(The Connect road methods actually connect "holes" in the terrain)*



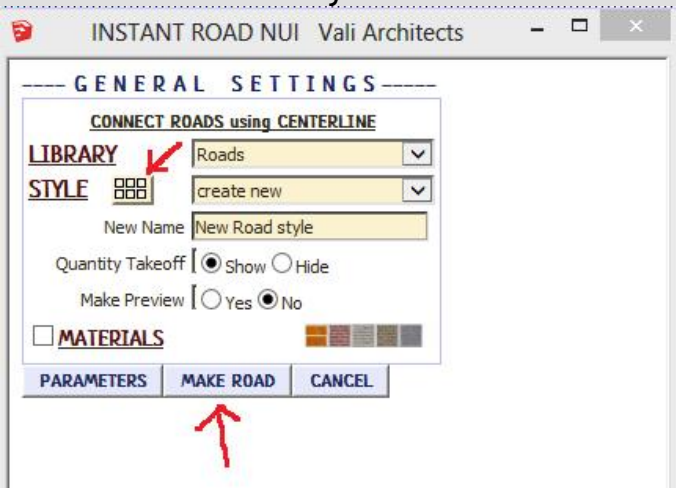
2.2 Hide the road group made in Lesson 1. *(The only objects must be the line group and the active terrain)*

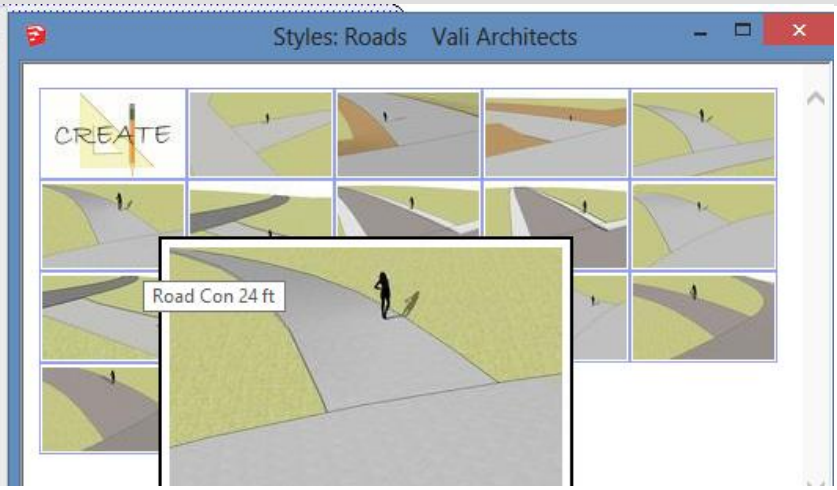


2.3 Select the terrain and line group and or on the Instant Road Nui toolbar and choose "Plugins/ Vali Architects / Instant Road Nui / Connect Roads using Center Line" click the symbol.

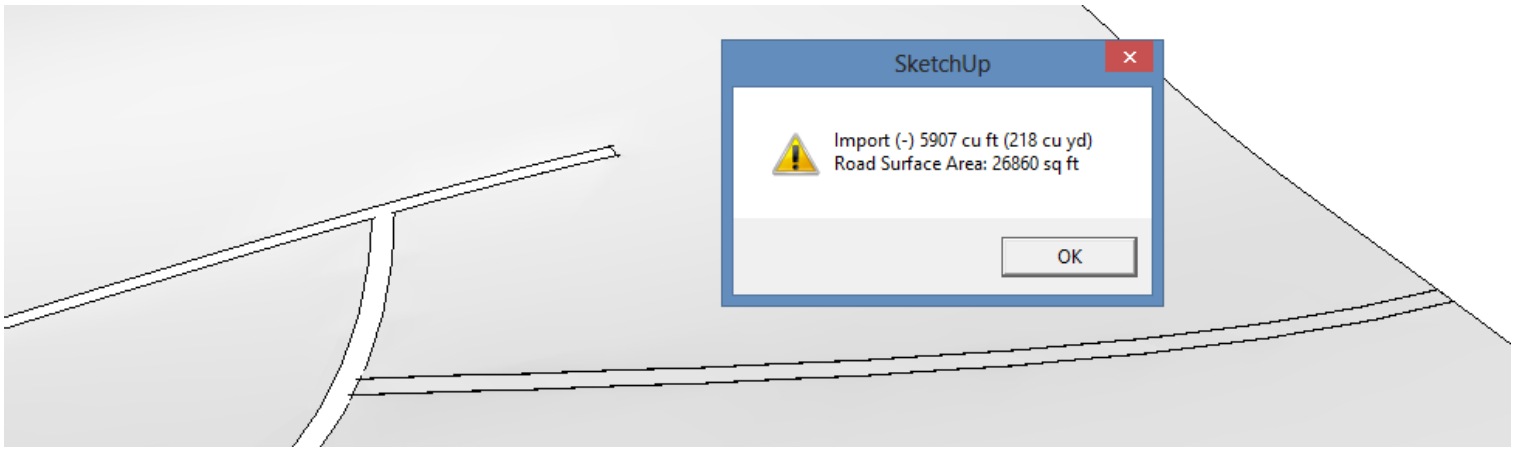


2.4 Click the image menu button to display preset style images and select the “Road Con 24 ft” style. Click “Make Road”

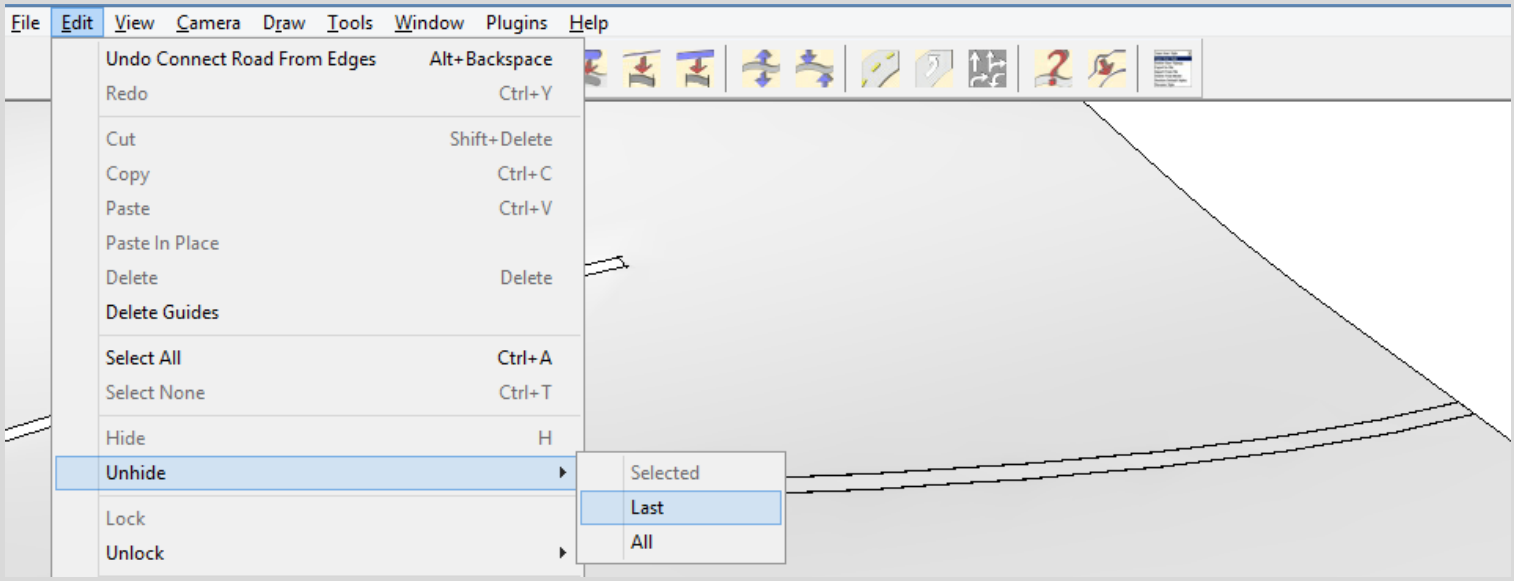




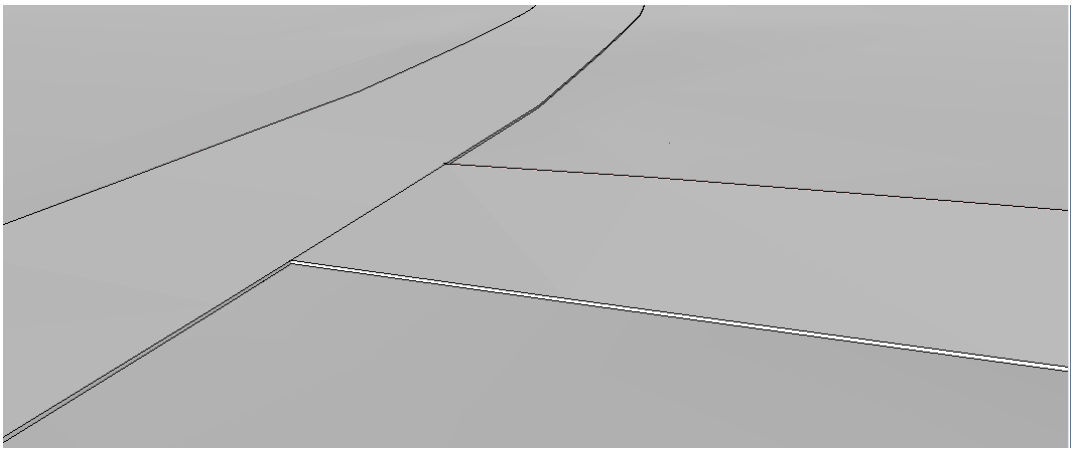
2.5 A road connecting the “hole” for the old road and the edge of the terrain will be drawn.



2.6 Unhide the road made in Lesson 1."

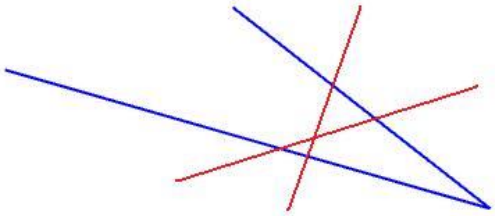


2.7 Here is an image of the intersection created.

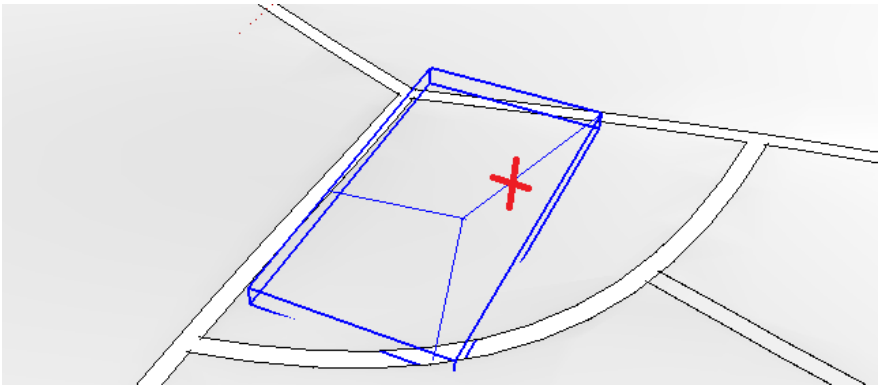


Notes:

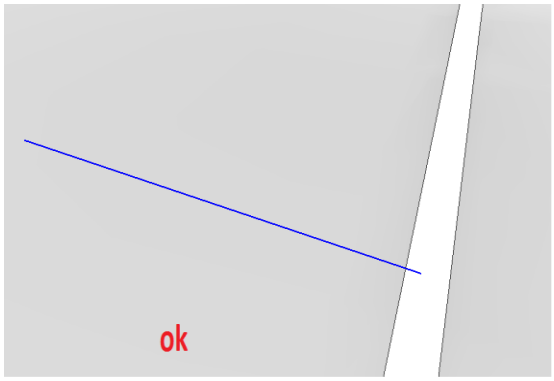
1. Do not have sharp corners in your outline or this may stop the script.

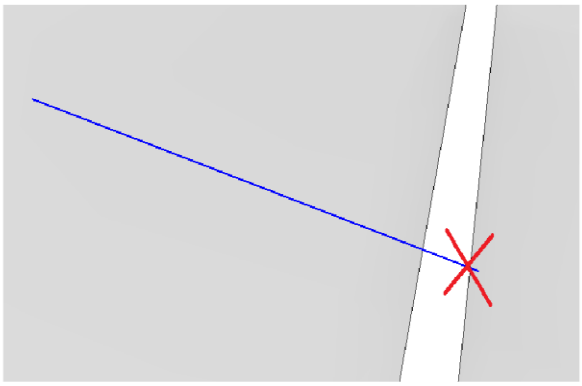


2. Road must be single continuous connected lines or curves and can connect at 1 end or both ends but may not have branches.

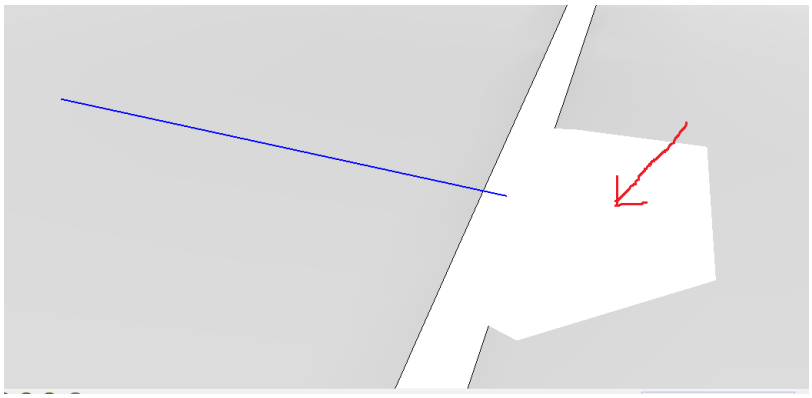


3. Line must extend into “hole” where hidden road is, but not across.

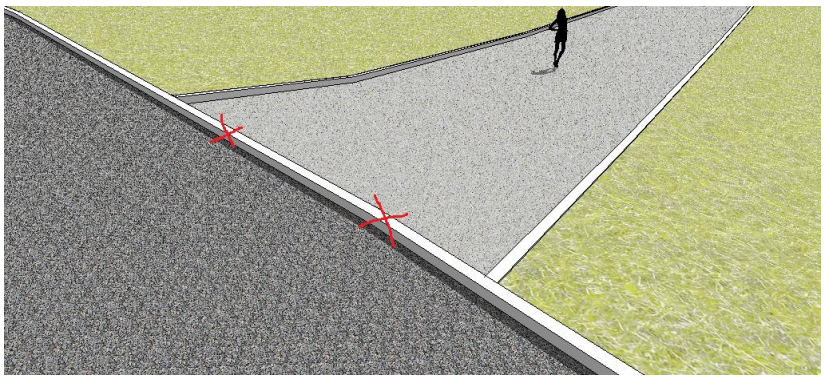




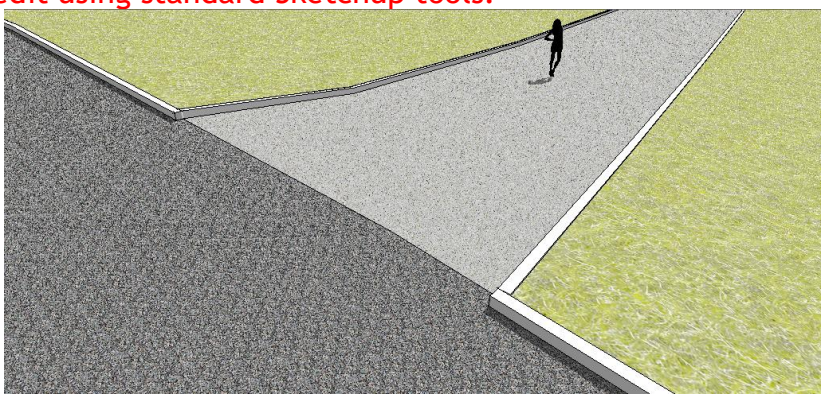
4. If connecting road is wider than road being connected to or has a wide shoulder, temporarily hide part of the terrain on the other side of the road to get it out of the way.



5. Only roads and connecting roads with matching positive or zero thickness will require no post editing. Recessed roads or roads with curbs or sidewalks will need manual editing at the intersection.

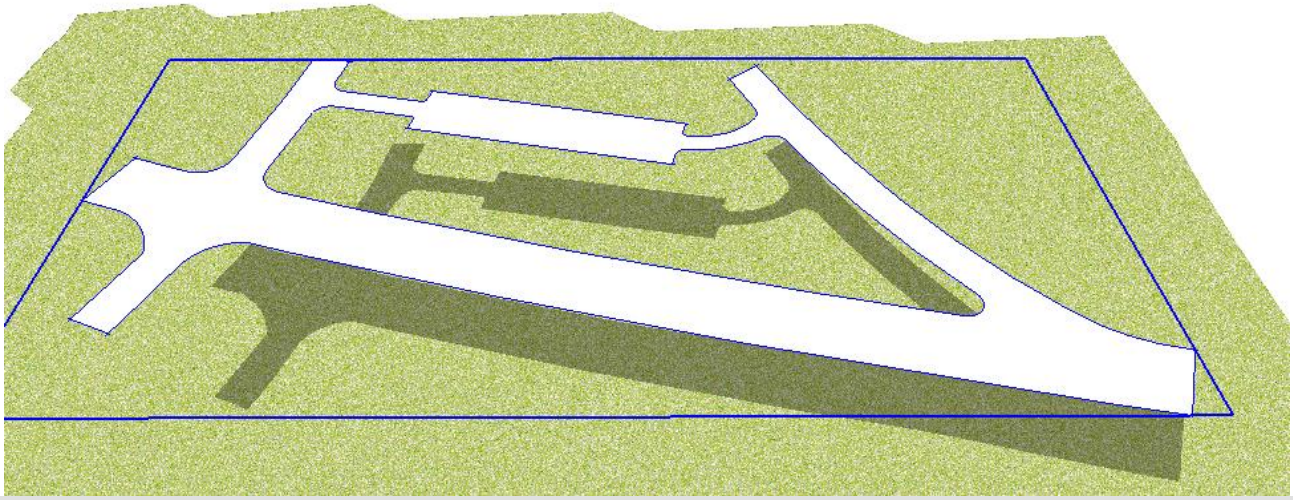


After manual post edit using standard Sketchup tools:

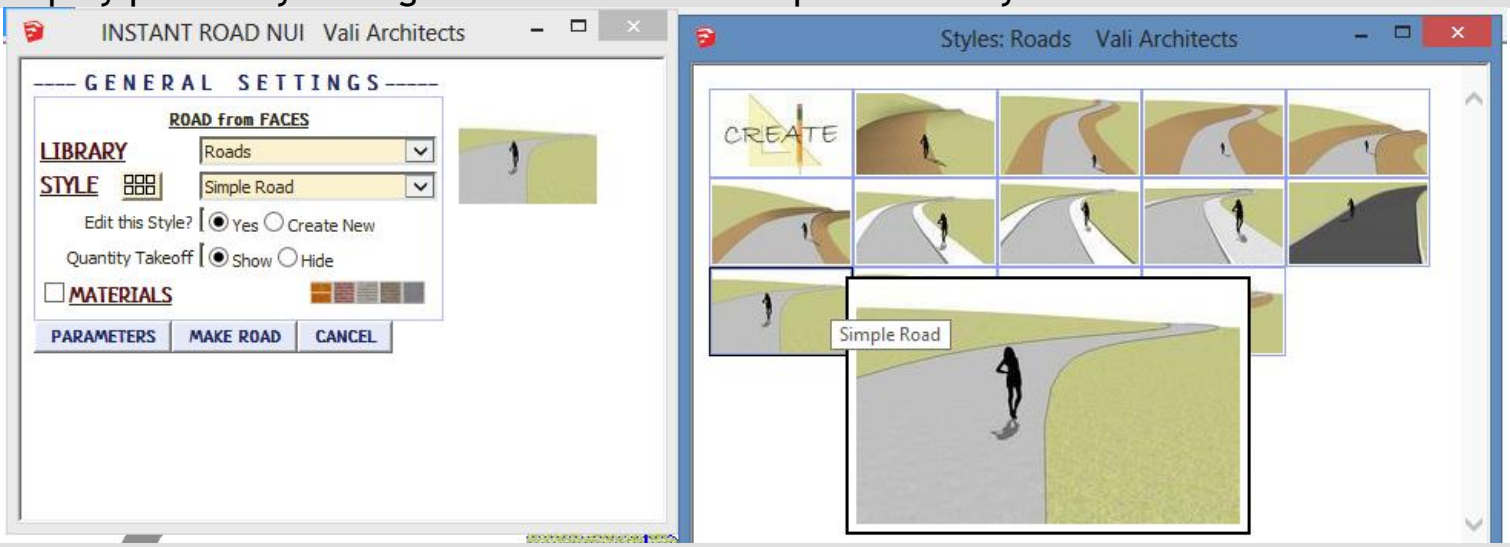


Lesson 3. Road from Faces

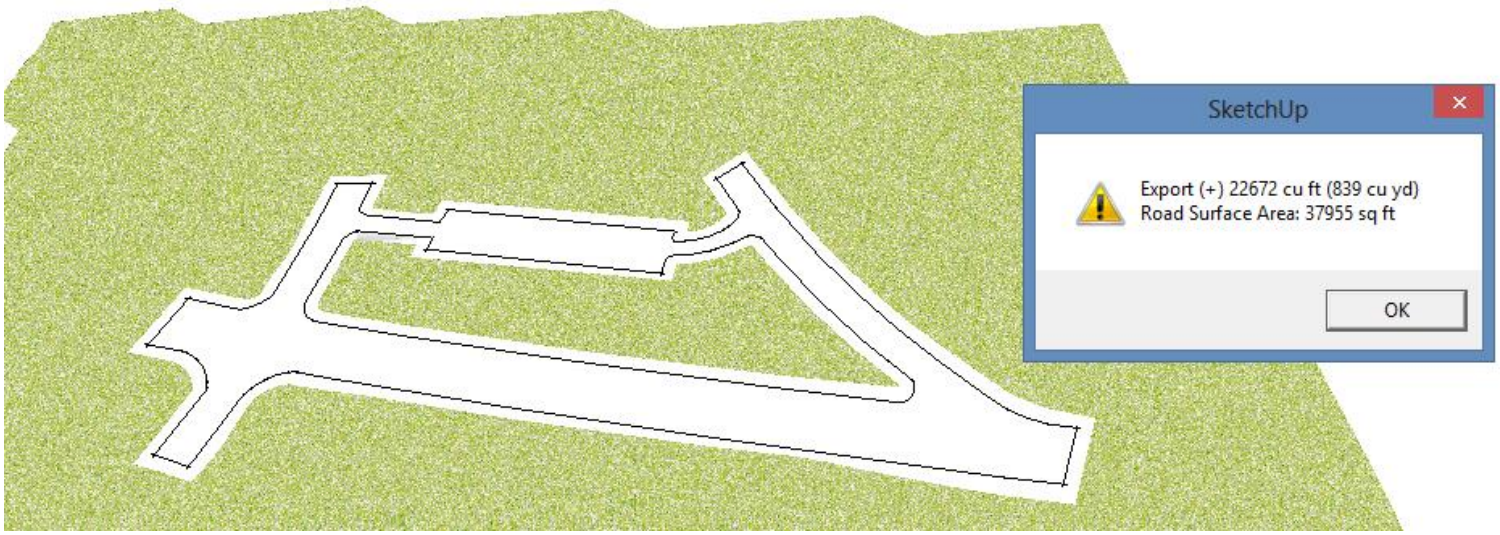
3.1 Create a terrain. *(The terrain must be active.)* Create a group containing a horizontal road outline face above the terrain. Select both terrain and group.



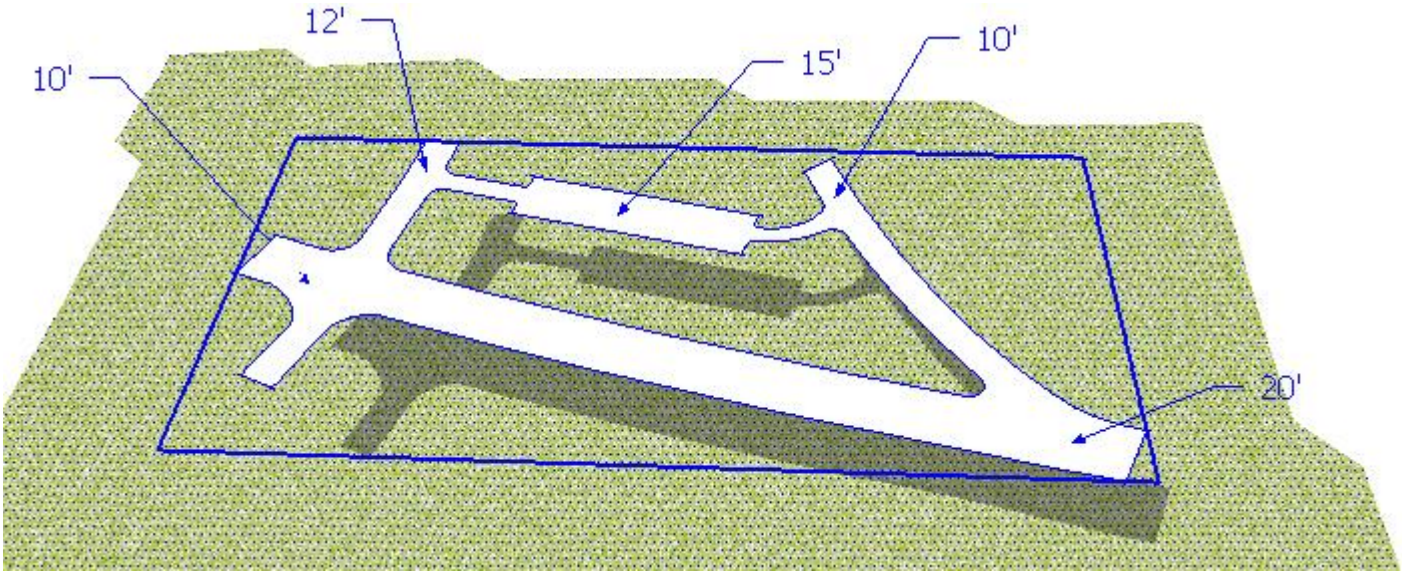
3.2 Choose “Plugins/ Vali Architects / Instant Road Nui / Road from Face(s)” or on the Instant Road Nui toolbar click the symbol. Click the image menu button to display preset style images and select the “Simple Road” style. Click “Make Road”



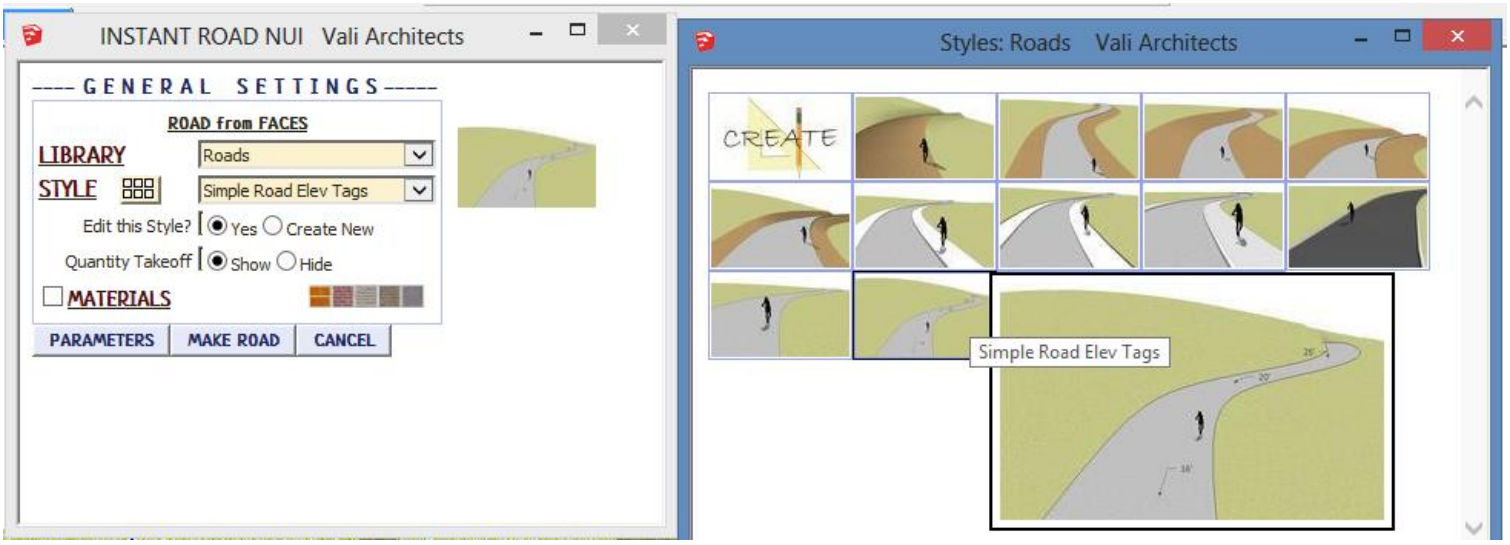
3.3 A road will be created that follows the terrain.



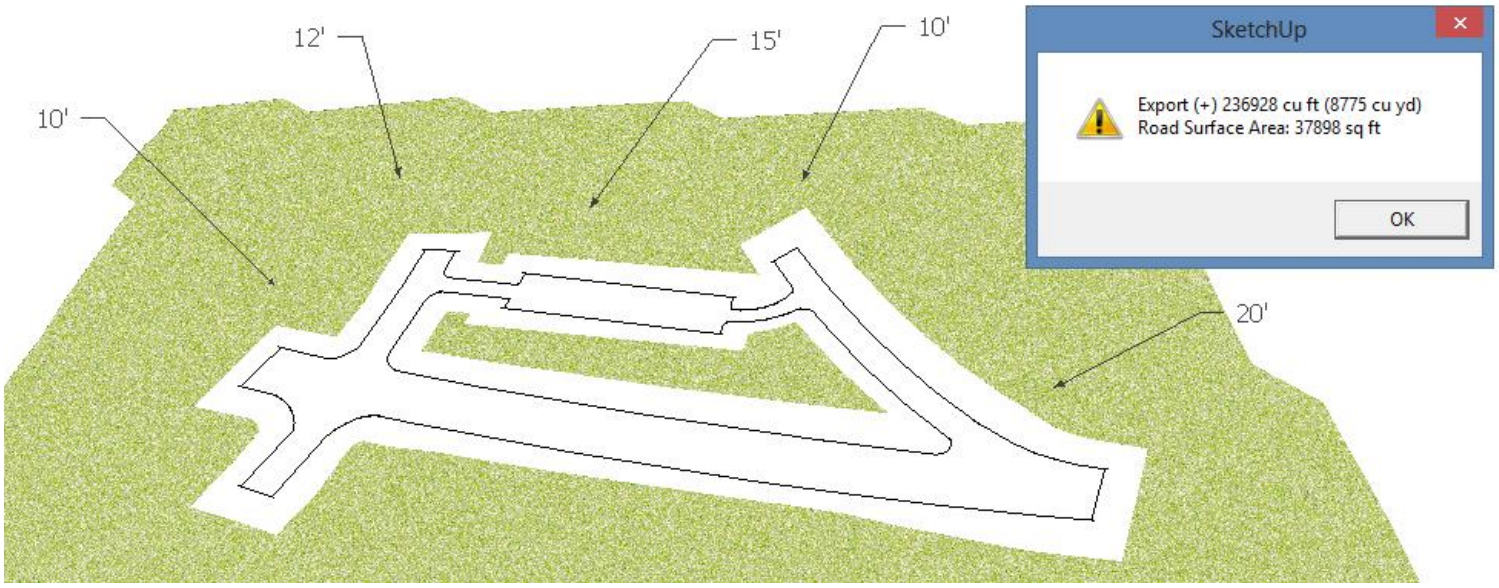
3.4 For an alternate technique that uses call-out elevations, undo the last operation. Using the Sketchup text tool, point to parts of the outline face and enter desired elevation. Select the terrain, group, and all of the text.



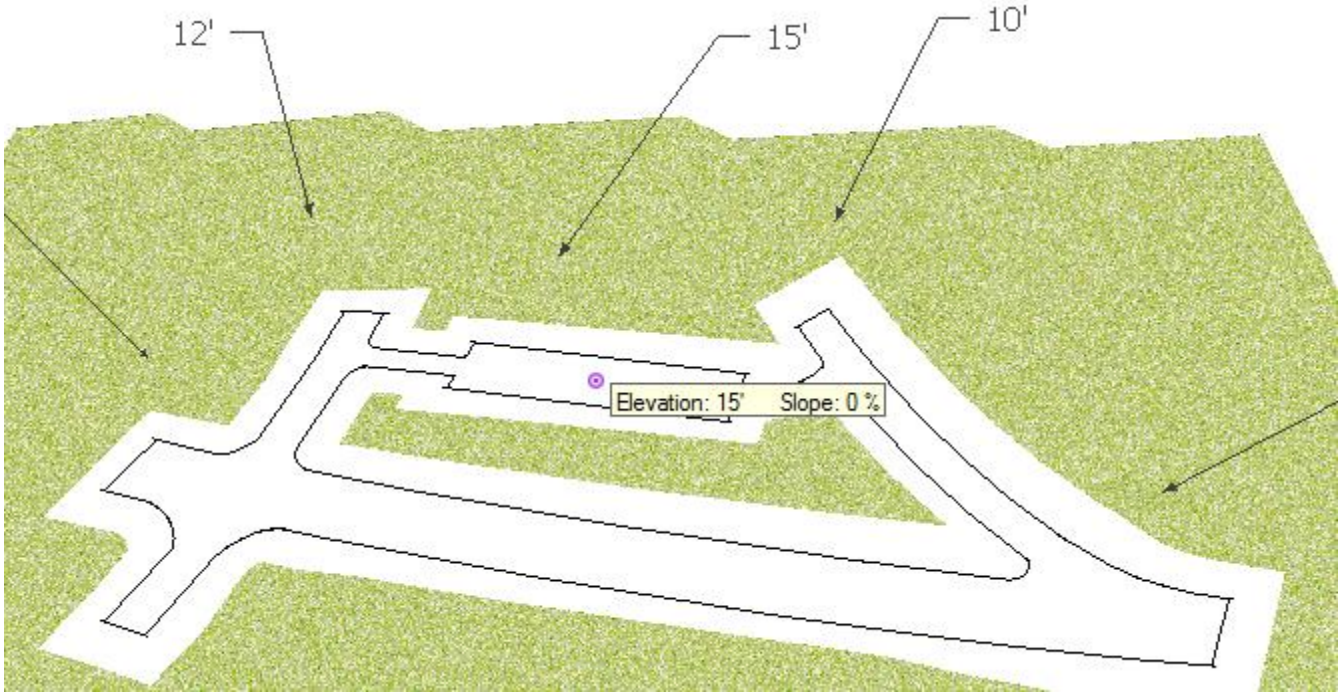
3.5 Choose “Plugins/ Vali Architects / Instant Road Nui / Road from Face(s)” or on the Instant Road Nui toolbar click the symbol. Click the image menu button to display preset style images and select the “Simple Road Elev Tags” style. Click “Make Road”



3.6 The road has been created using the text elevations.

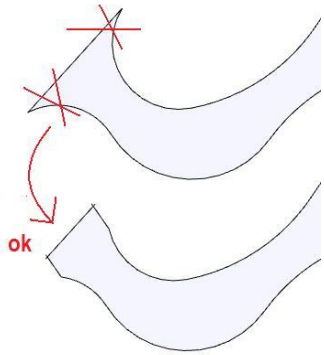


To check, click the tool and point to some of the road surfaces. *(Although in this case it matches the callout elevation, because of smoothing, some of the elevations may vary slightly)*

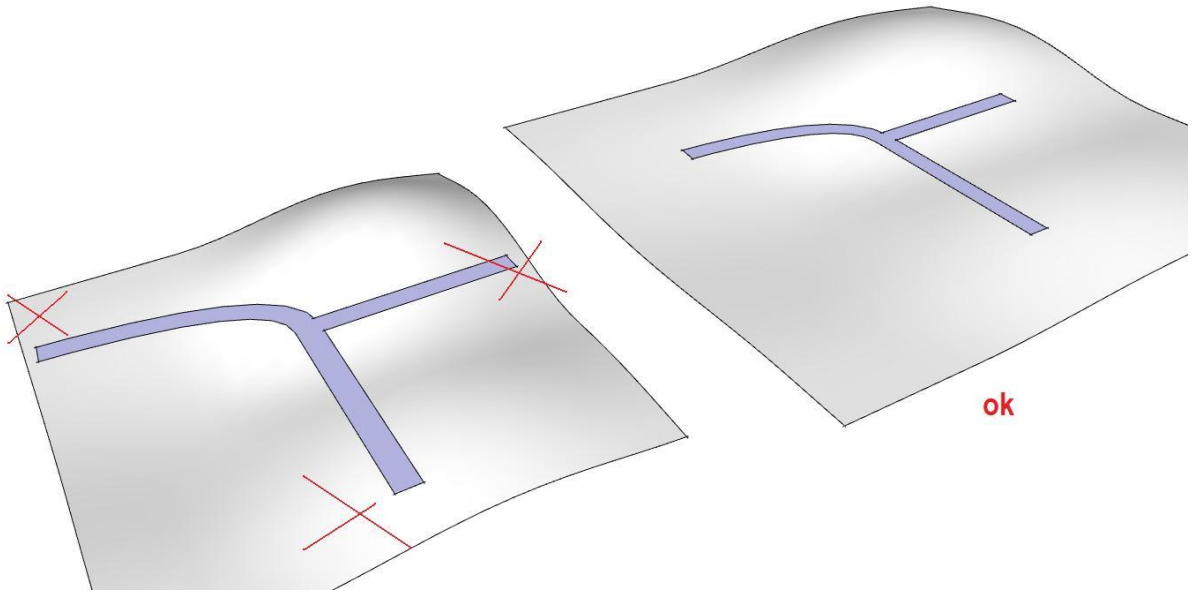


Notes:

1. Do not have sharp corners in your outline or this may stop the script.



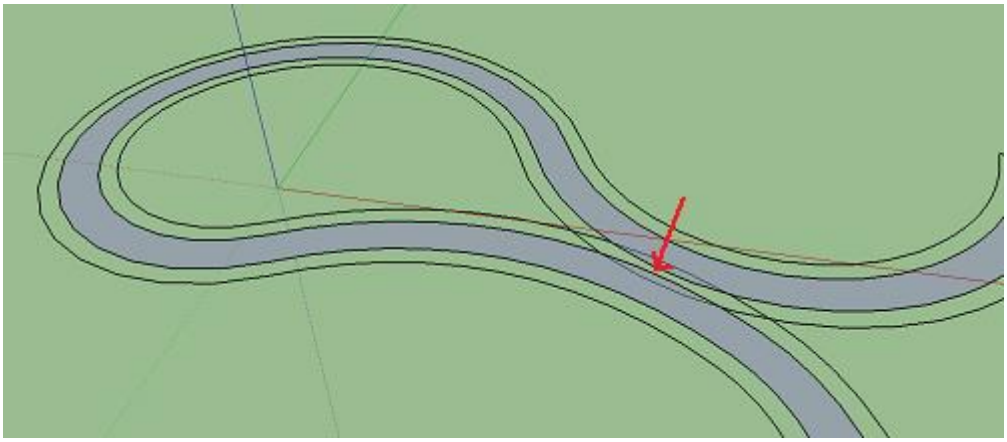
2. All of the geometry, road and shoulder must fit within the boundary of the terrain or the script will stop. If you are unsure, make your terrain larger:



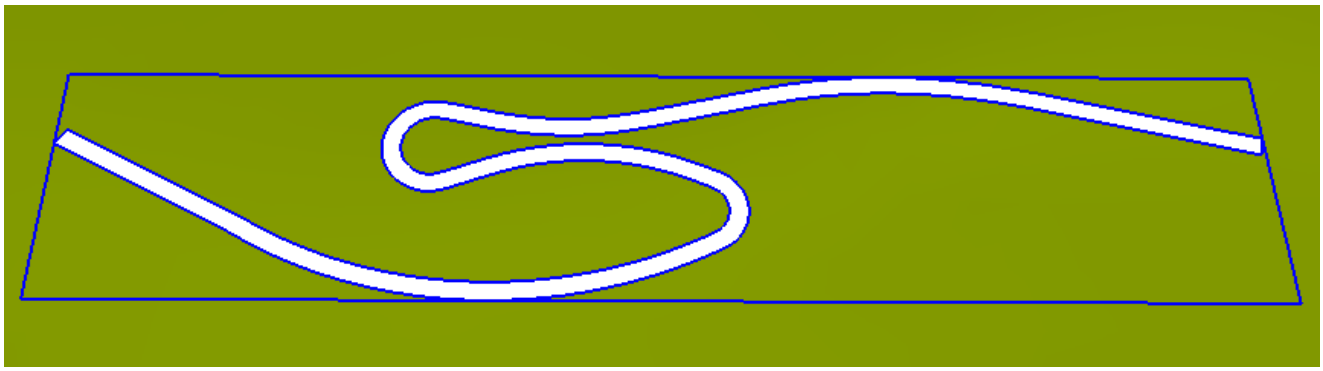
3.7 Shoulder Width

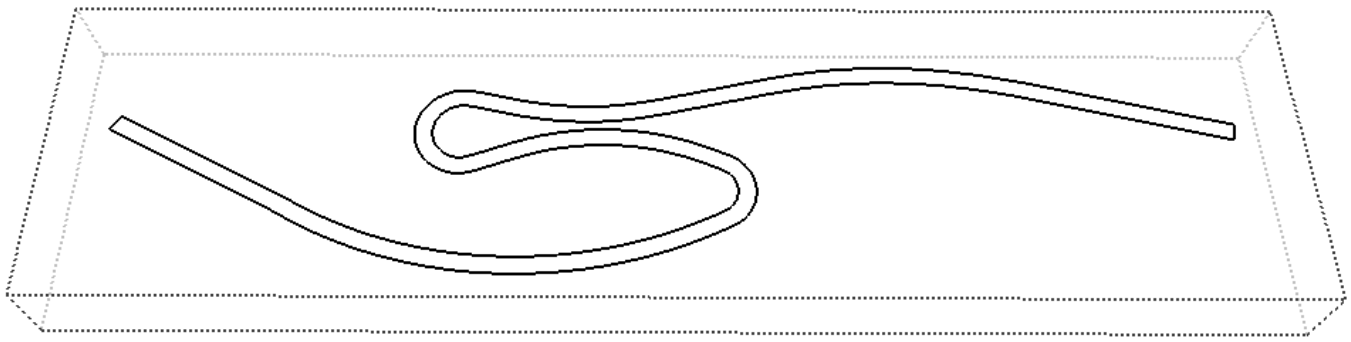
In general, the shoulder should be small enough so that it does not intersect an adjacent

road section. You can use the Sketchup offset tool on your outline face with intended shoulder width to locate any problem areas as shown here. Then follow the instructions below to patch these areas separately.

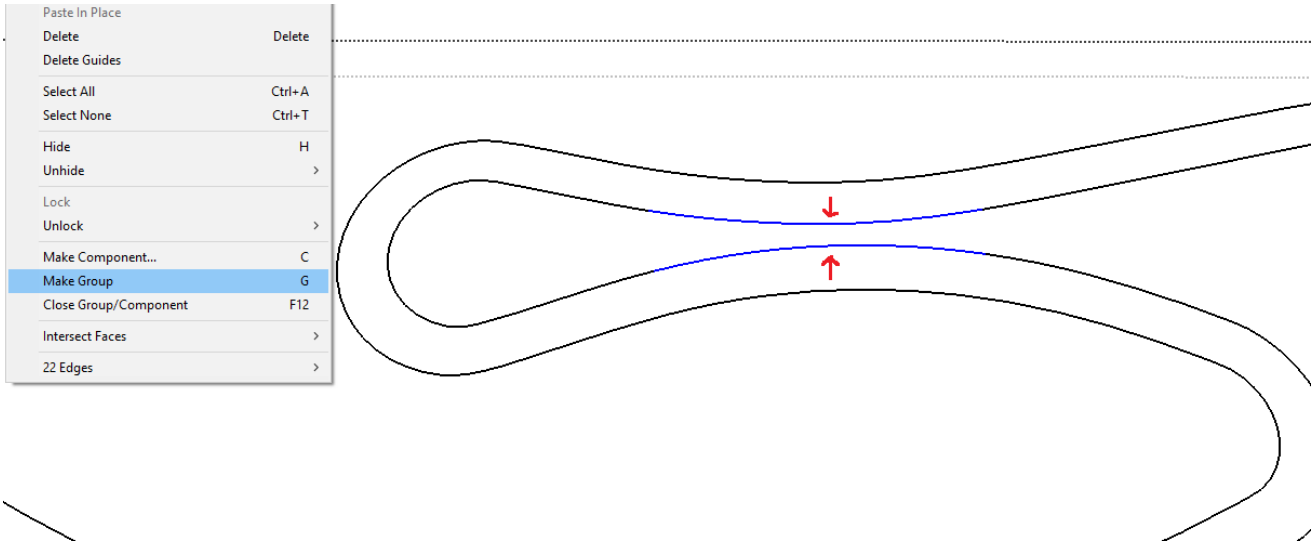


3.8 After locating narrow areas between adjacent road sections, double click your input road outline group to open it for editing. The first examples will be for Road from Faces (v3.6 and later) followed by Road from Centerline (v3.63 and later).

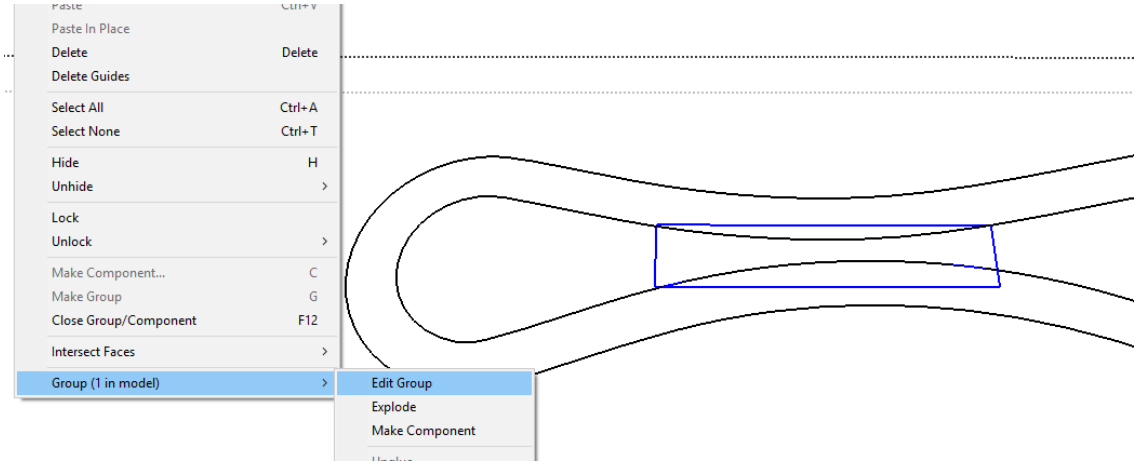


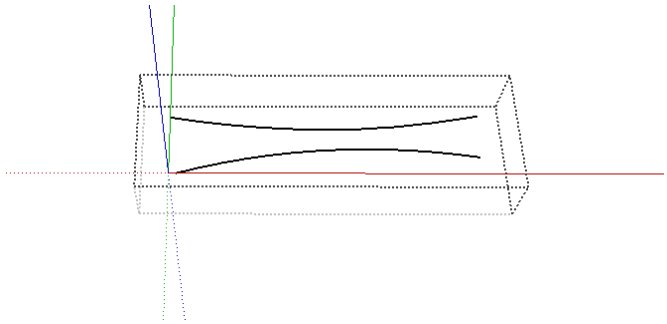


3.9 Select adjacent edges in the tight area and click Edit/Make Group.

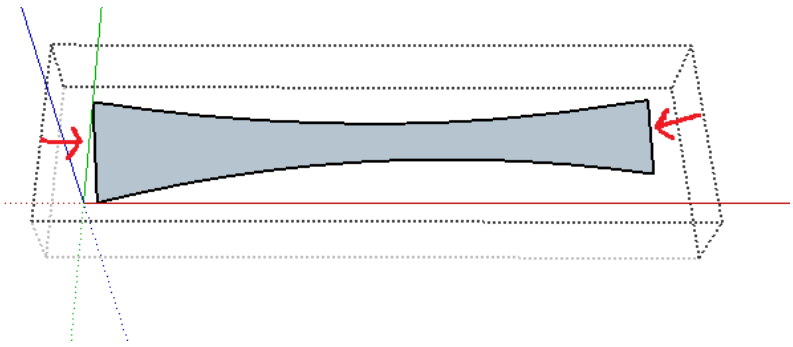


3.10 While the group is still selected, click Edit / Group / Edit Group.

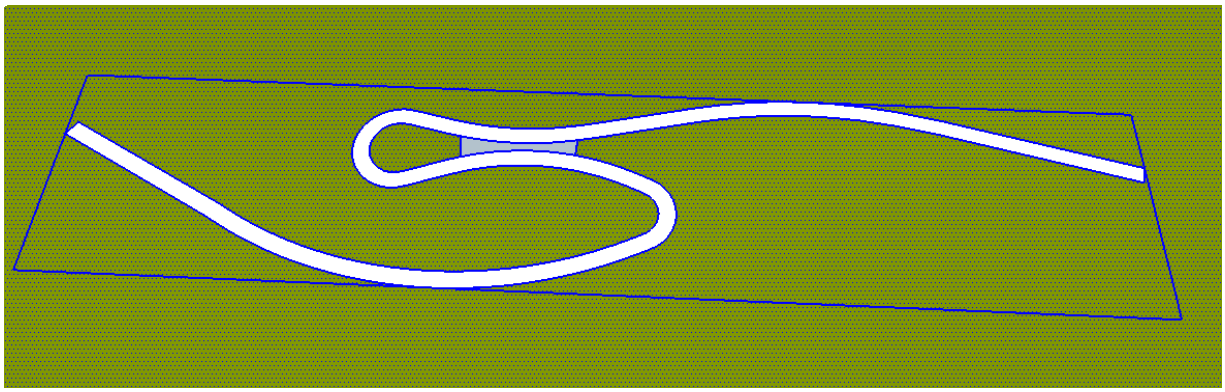




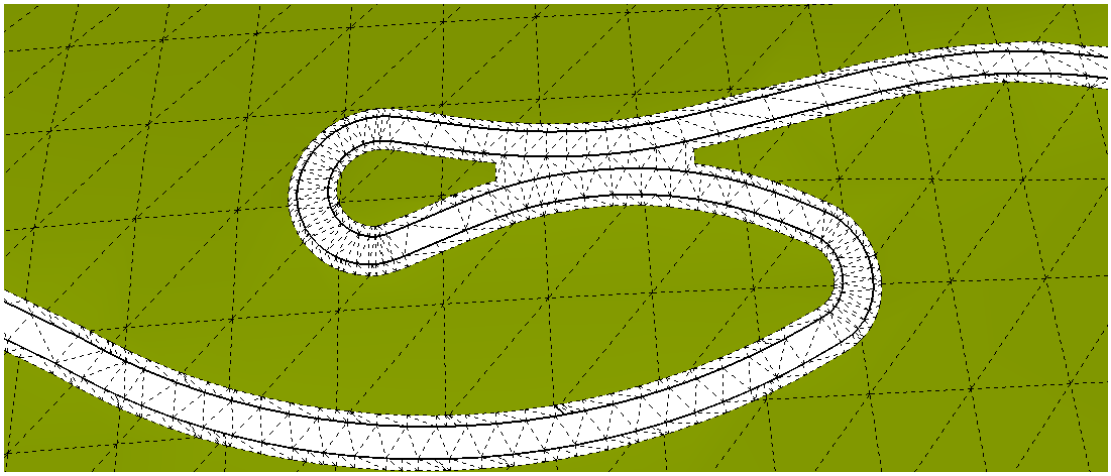
3.11 Draw 2 lines to join the end points and make a face.



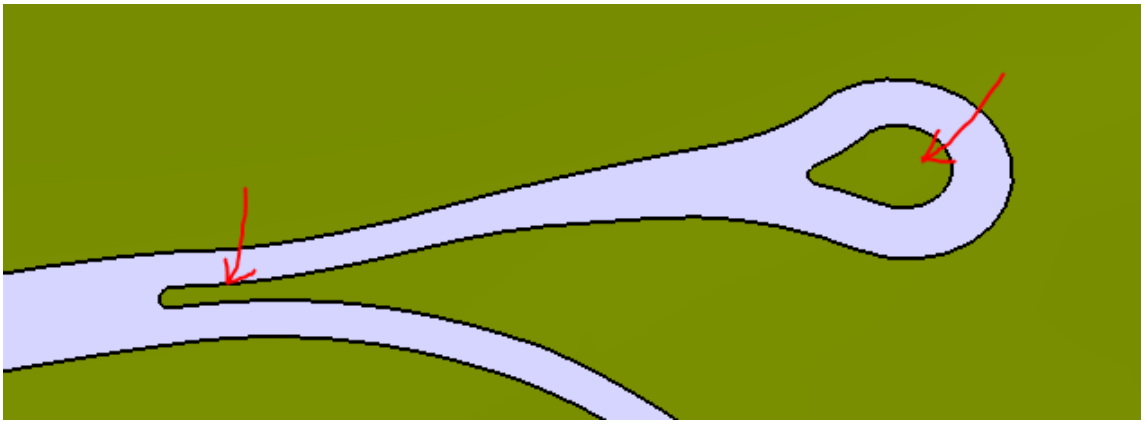
3.12 Close the group, close the group containing the road outline. Then make the road in the standard way by selecting the group and terrain mesh and clicking the road from faces icon.



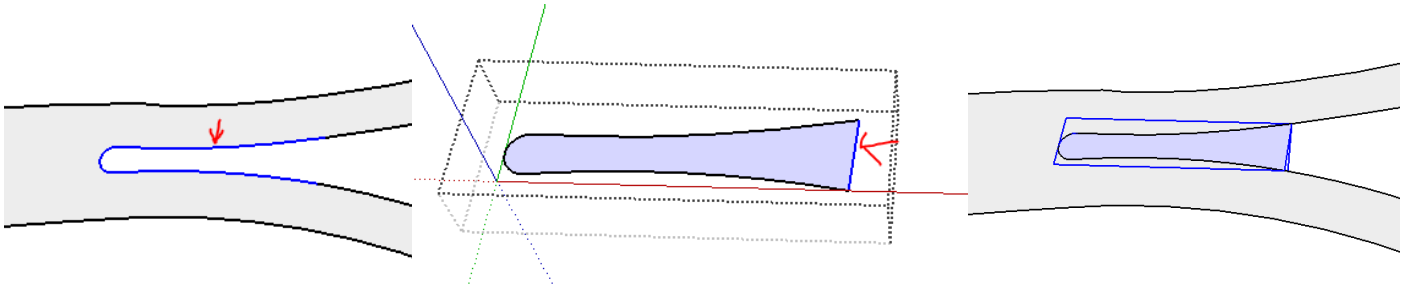
3.13 The result is that the terrain mesh has been patched in the narrow area.

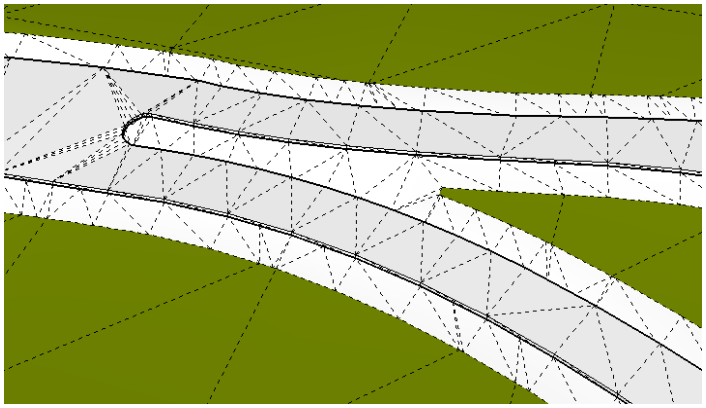


3.14 Patches with zero or 1 added edge can also be made:

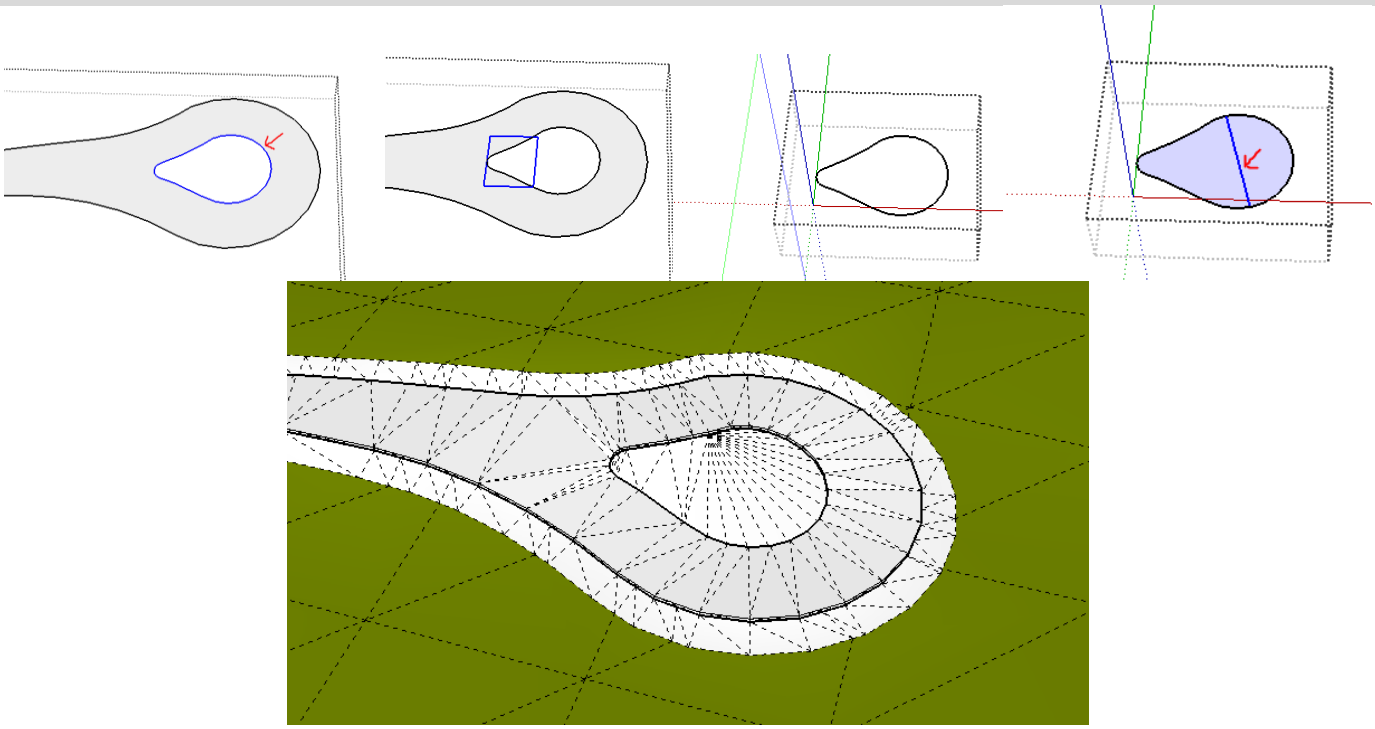


3.15 Here I draw a single line to make the face.

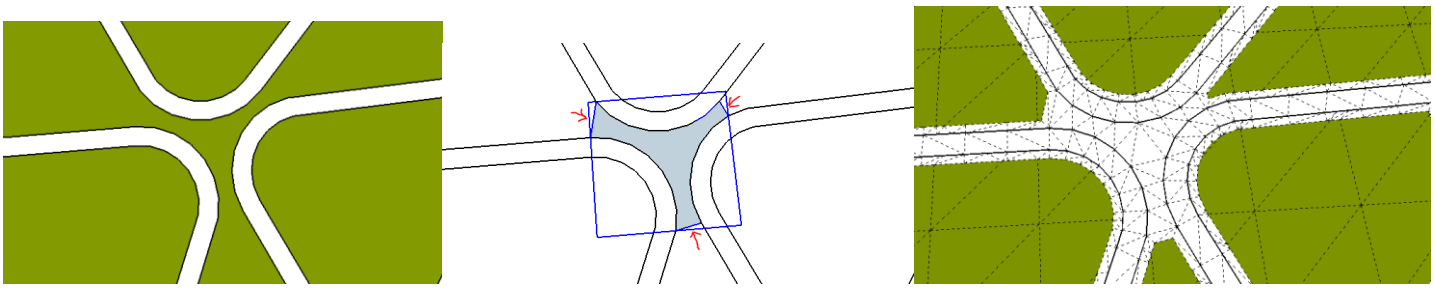




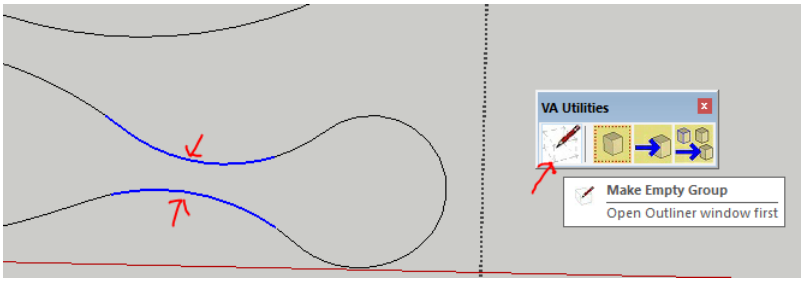
3.16 With an island, you must be careful because if you simply select the edges and make a group, Sketchup will fill in the island hole. So I edit/ copy the outline of the hole, then make a group using just some of the edges, open the group and paste in place. Then draw a line to make the face and erase the line.



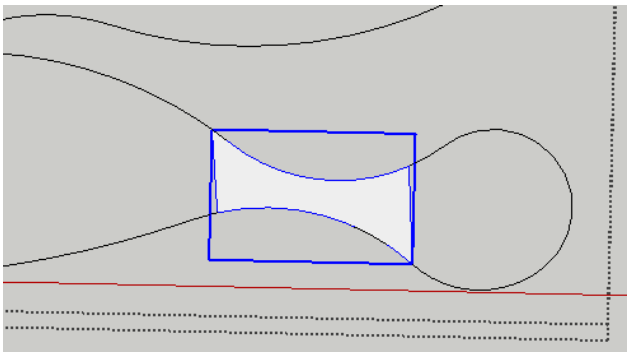
3.17 Under some conditions it may be possible to make a patch with 3 added edges as shown below, however I have not fully tested this option.



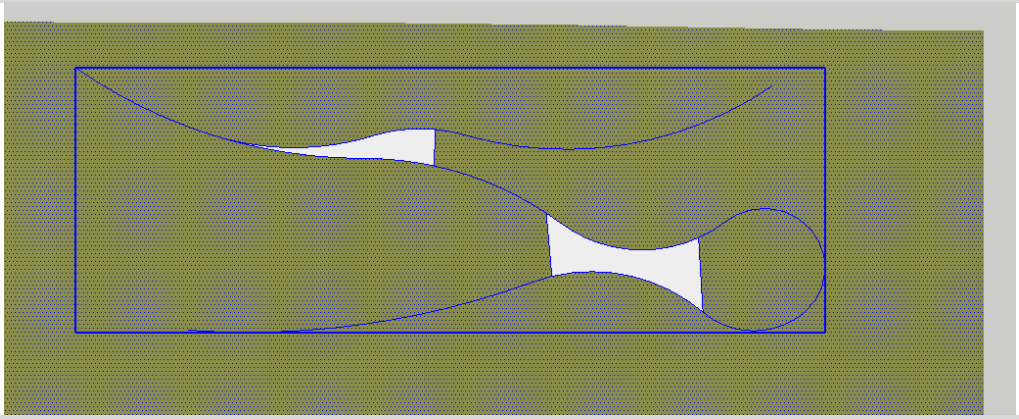
3.18 Similarly for the Road from Centerline method (v3.63 and later), after locating narrow areas, create a group with a face for each area. An easy way is to open the group containing the centerline, select the surrounding edges, edit/copy, and click “Make Empty Group” from the VA utilities toolbar, then open that group and “paste in place”.



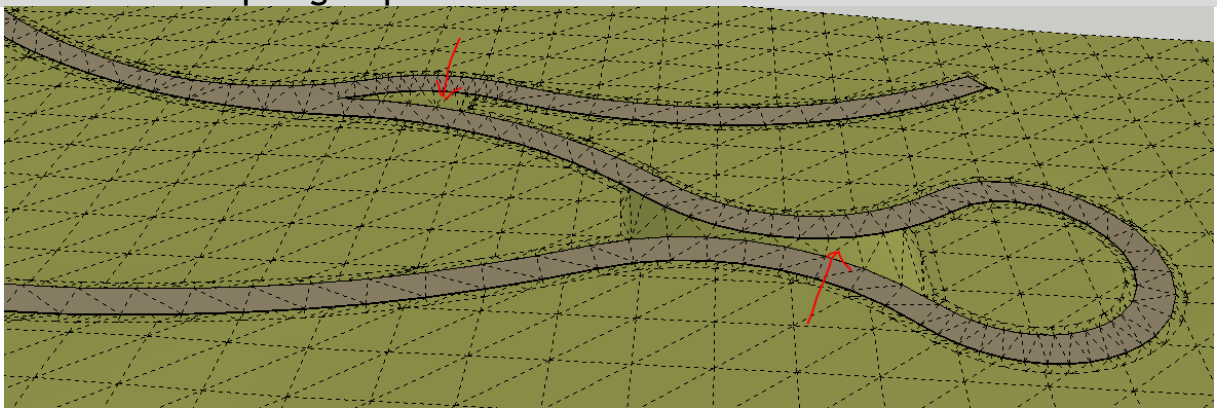
3.19 Then draw a line or lines across the open shape to create a face in the group.



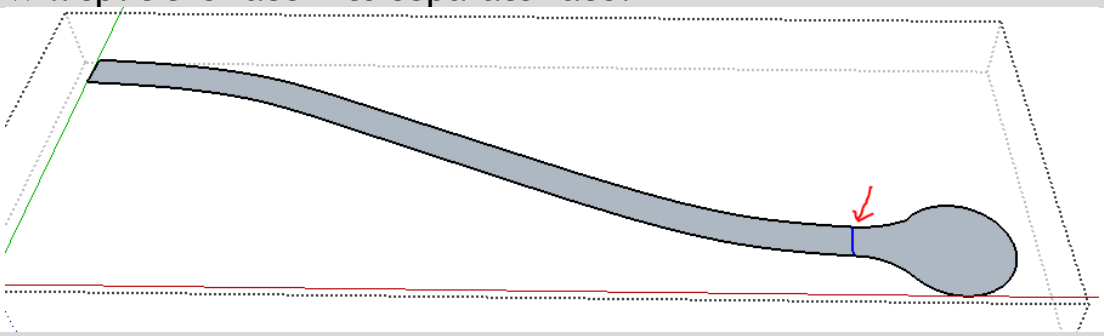
3.20 Do the same for any other narrow areas. The faces may have either one or 2 open sides.



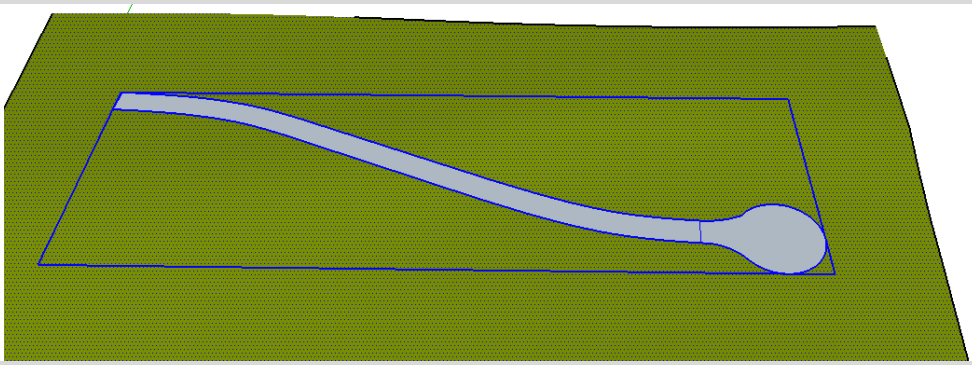
3.21 Then select the input group and terrain and run Road from Centerline as usual.



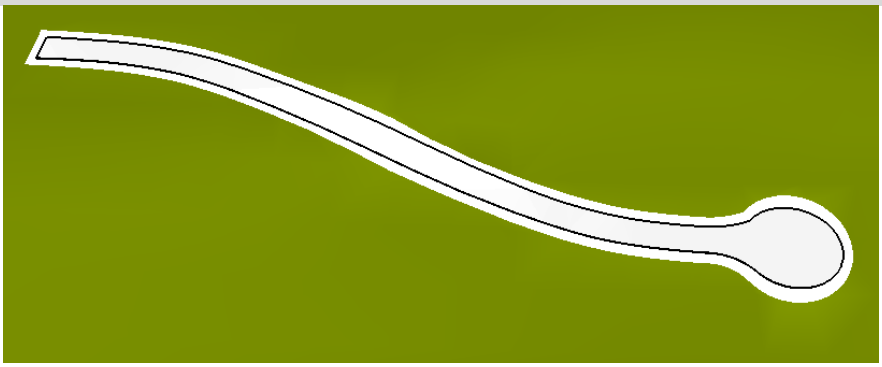
3.21 To make level areas at the end or ends of roads such as for culdesacs when using the drop to terrain option, draw a single line to connect opposite road edges at these areas which will split the face into separate face.

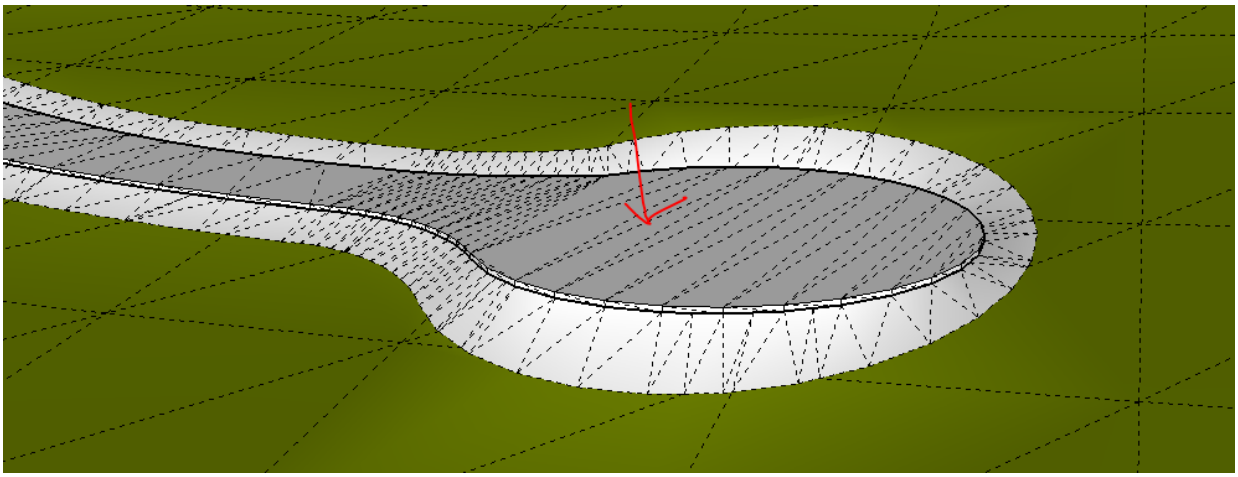


3.22 Then run Road from Faces as usual.



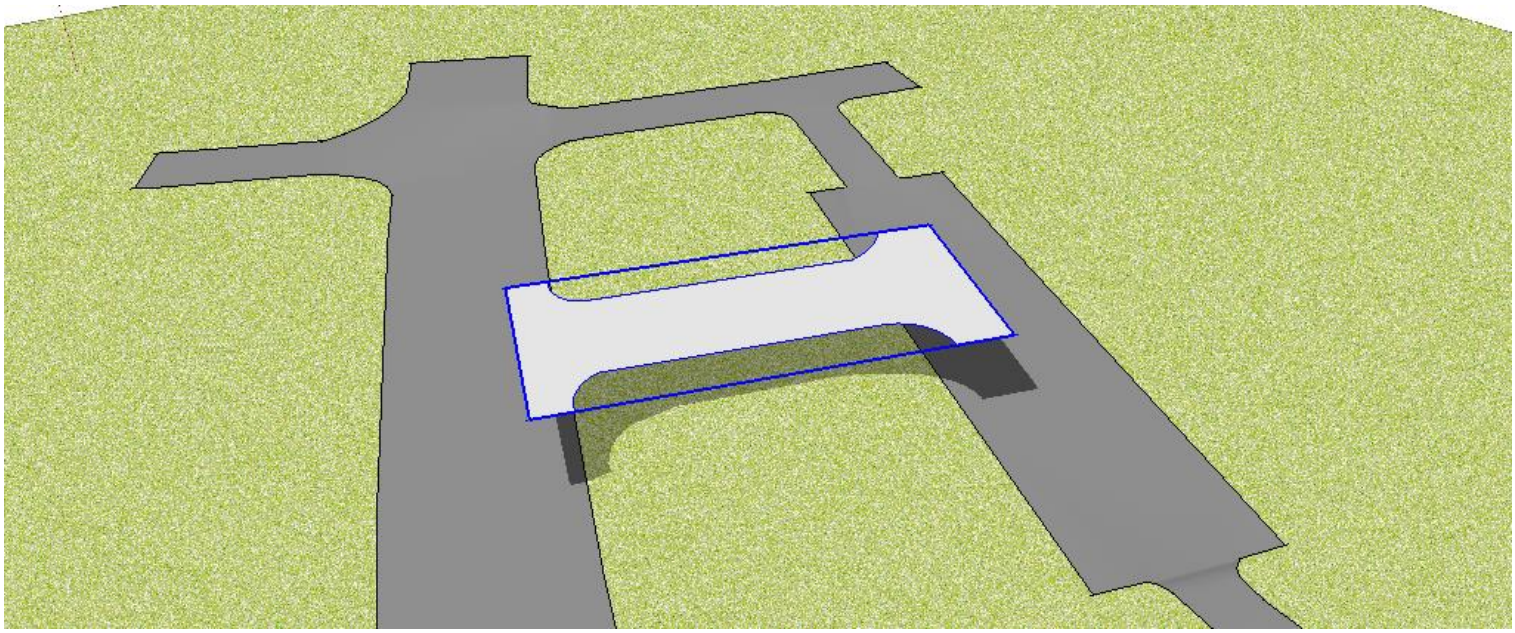
3.23 The result will be that the end portion is made level regardless of the slope of the terrain mesh in that area.



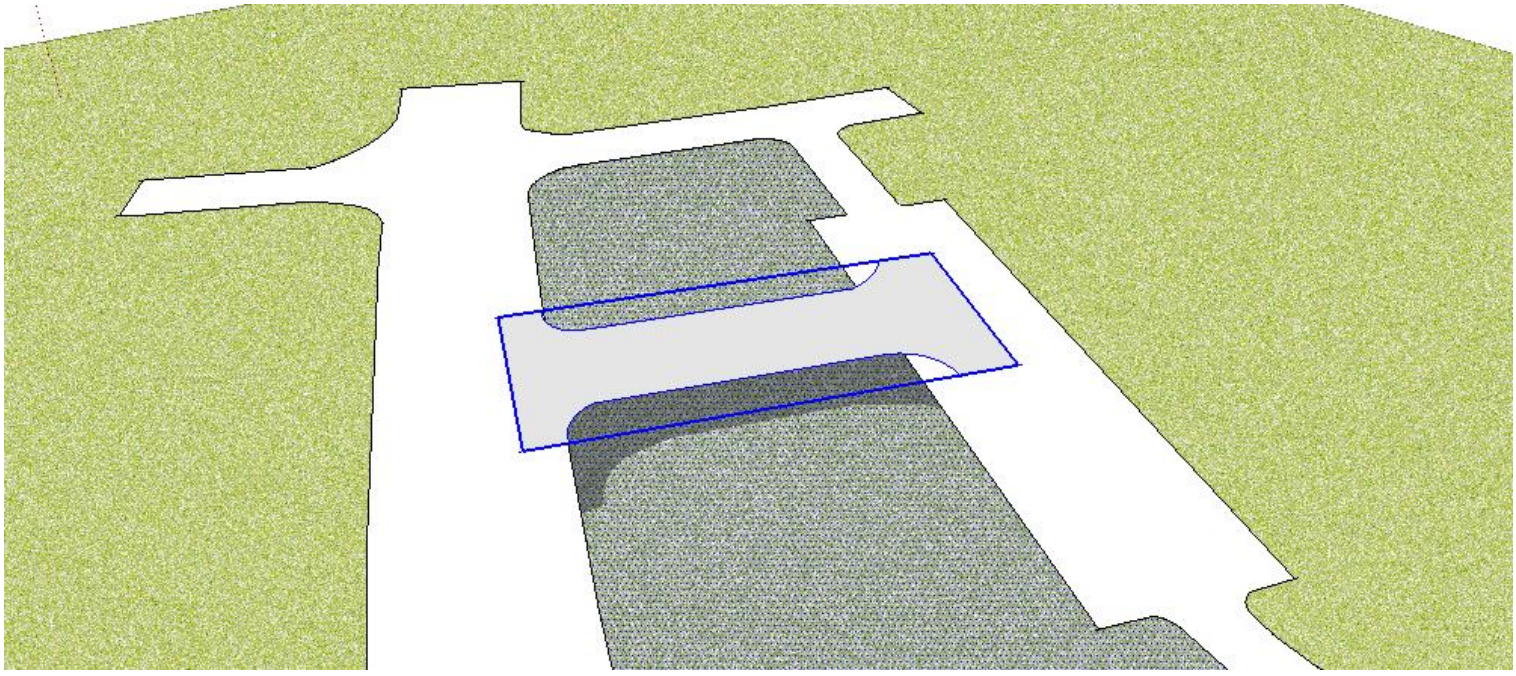


Lesson 4. Connect Roads using Face

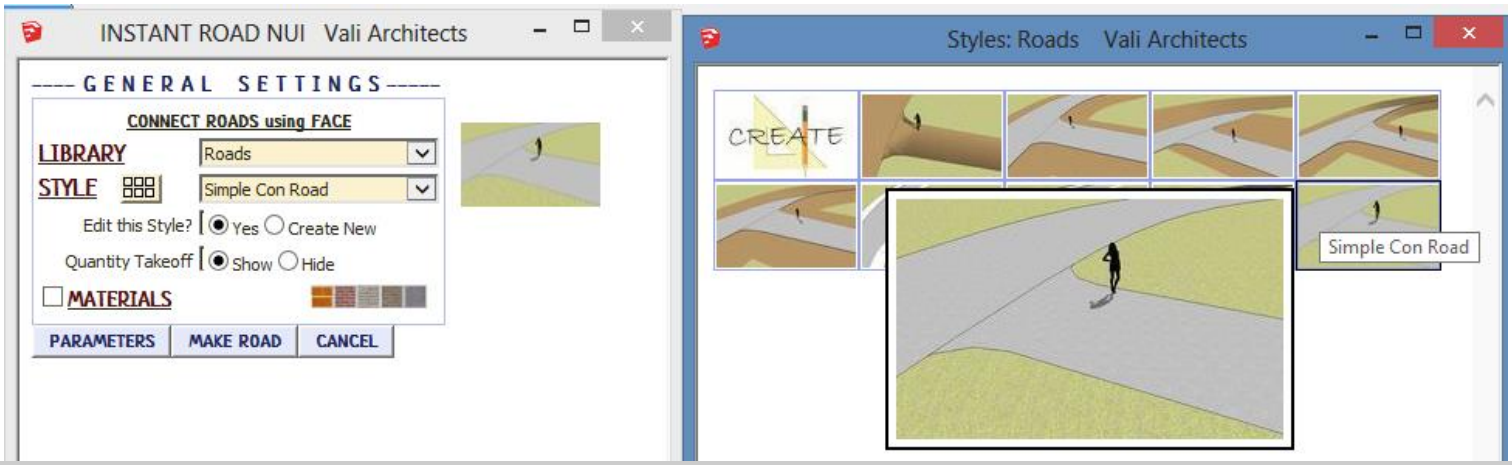
4.1 Using the road created in lesson 3, draw a group containing a horizontal face over the road that extends into the road width.



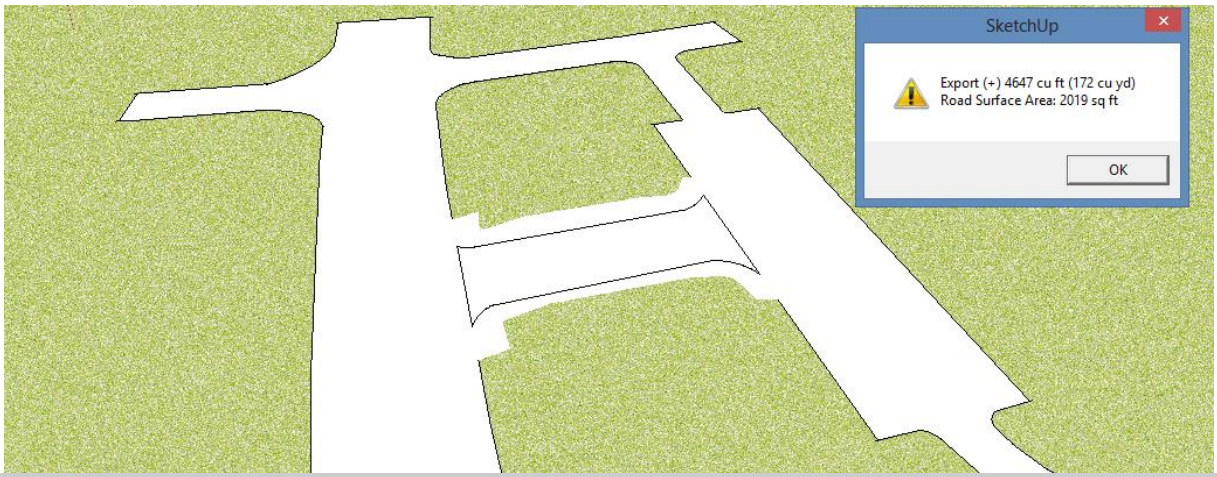
4.2 Hide the road group. Select the terrain and connecting road outline. *Only the terrain that will be merged with the connecting road need be selected.*



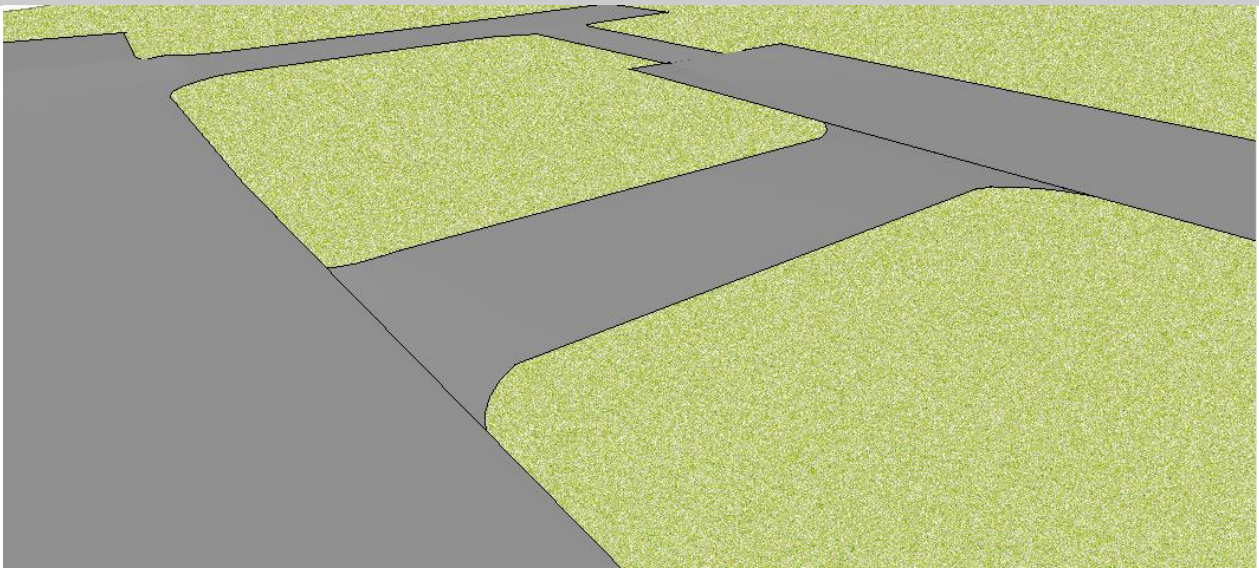
4.2 Choose “Plugins/ Vali Architects / Instant Road Nui / Connect Roads using Face” or on the Instant Road Nui toolbar click the symbol. Click the image menu button to display preset style images and select the “Simple Con Road” style. Click “Make Road”.



3.6 The connecting road should look something like below.

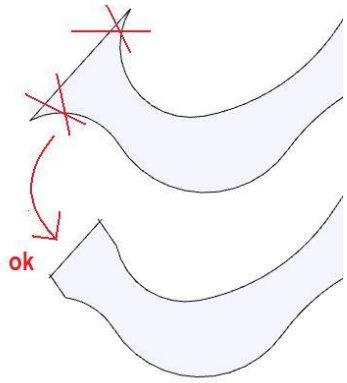


3.6 Finish by un-hiding the road group that was hidden in step 4 and applying materials.



Notes:

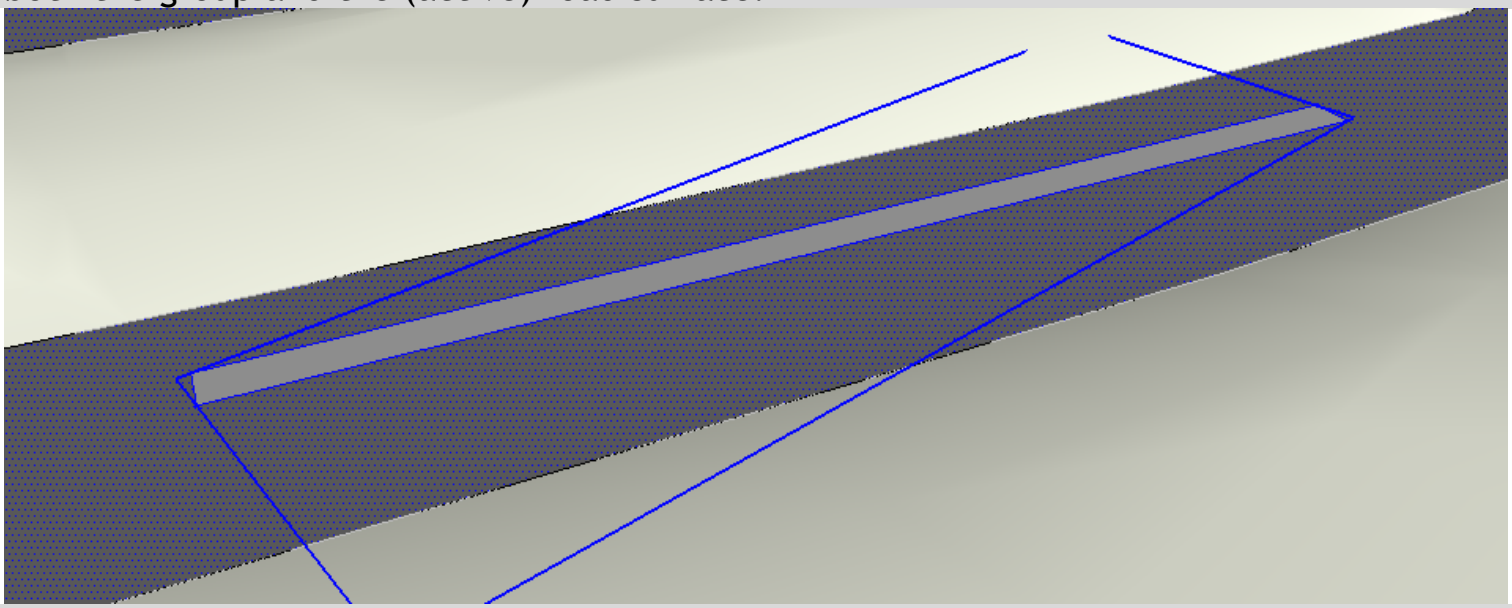
1. Do not have sharp corners in your outline or this may stop the script.



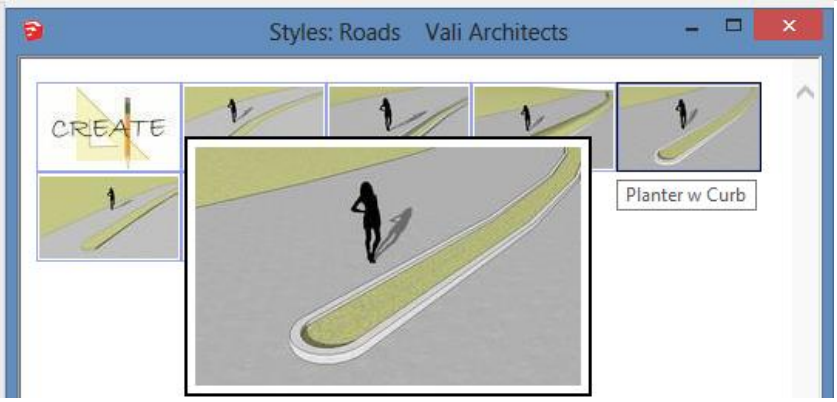
2. The outline must connect (extend over) at least one hole in the terrain and at most 2. Branches are not allowed

Lesson 5. Island or Median

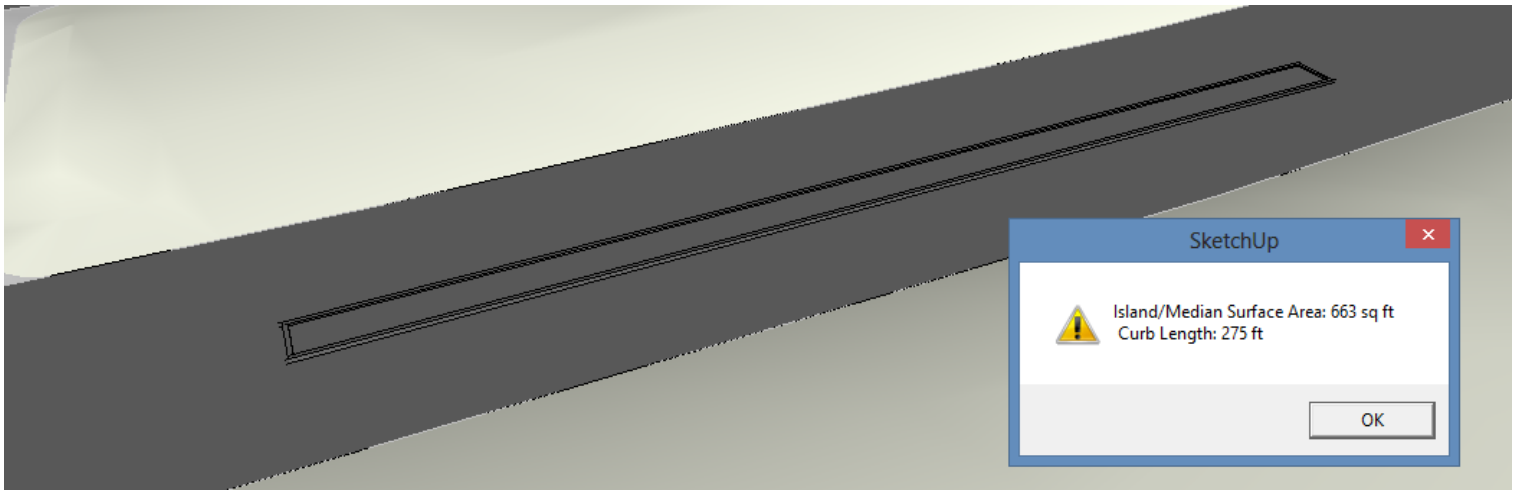
5.1 Using the road created in lesson 4, double click the road group to open it for editing and create a group containing a single face in the shape of an island or median. Select both the group and the (active) road surface.



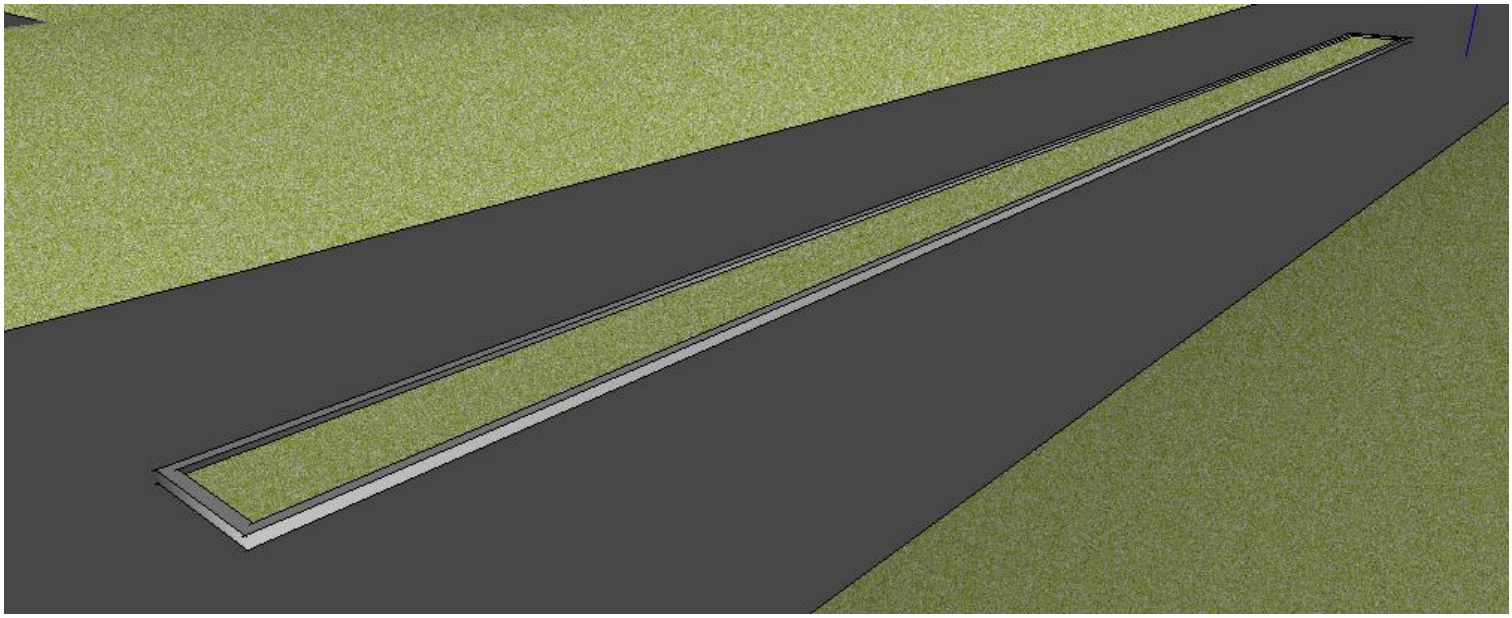
5.2 Choose “Plugins/ Vali Architects / Instant Road Nui / Island or Median” or on the Instant Road Nui toolbar click the symbol. Click the image menu button to display preset style images and select the “Planter w Curb” style. Click “Make Road”.



5.3 The result should be something like this:

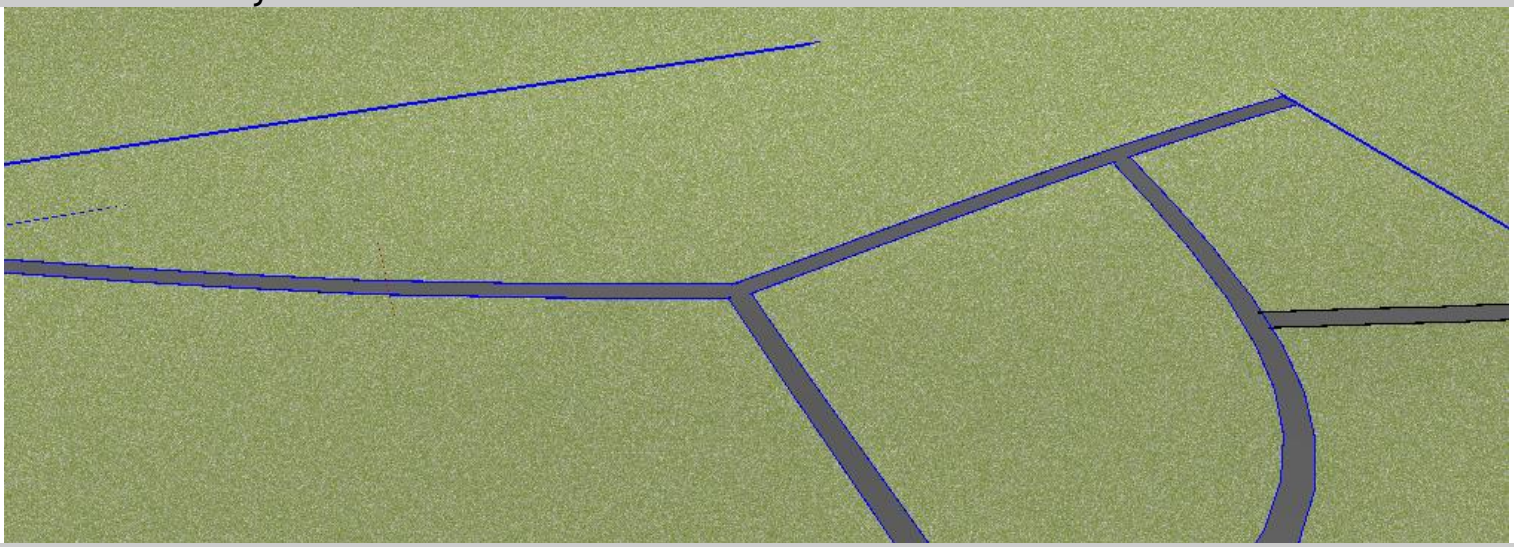


5.4 Apply materials for the final result:

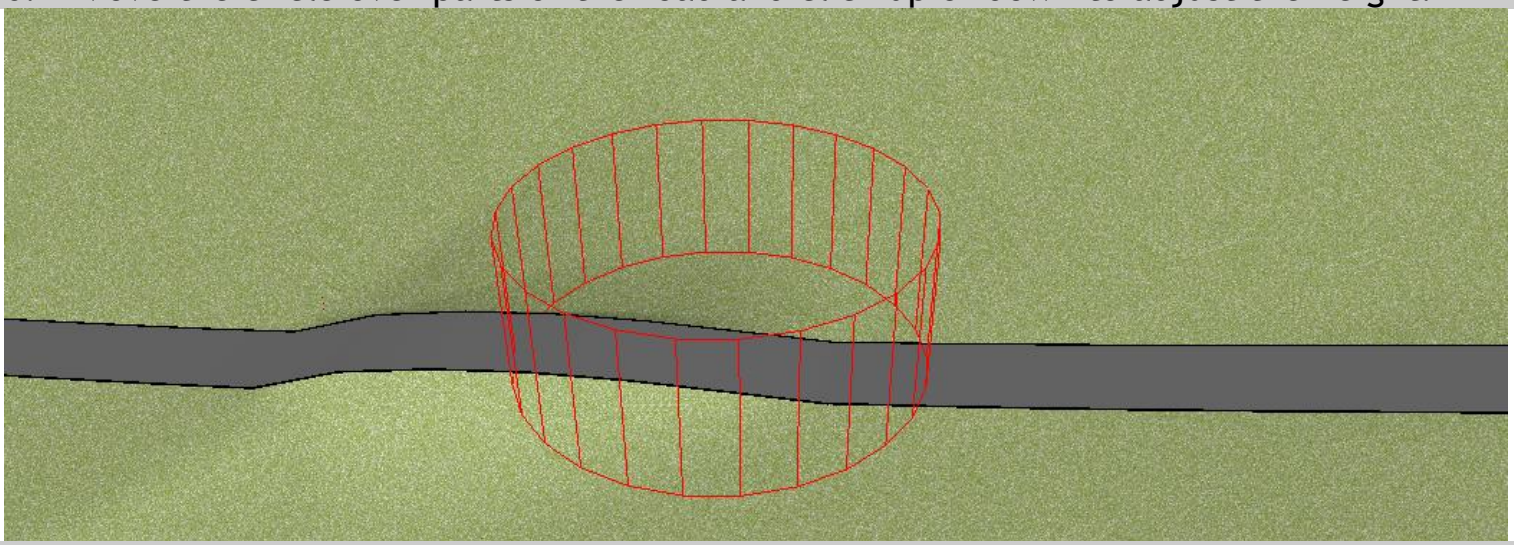


Lesson 6. Adjust Road Height

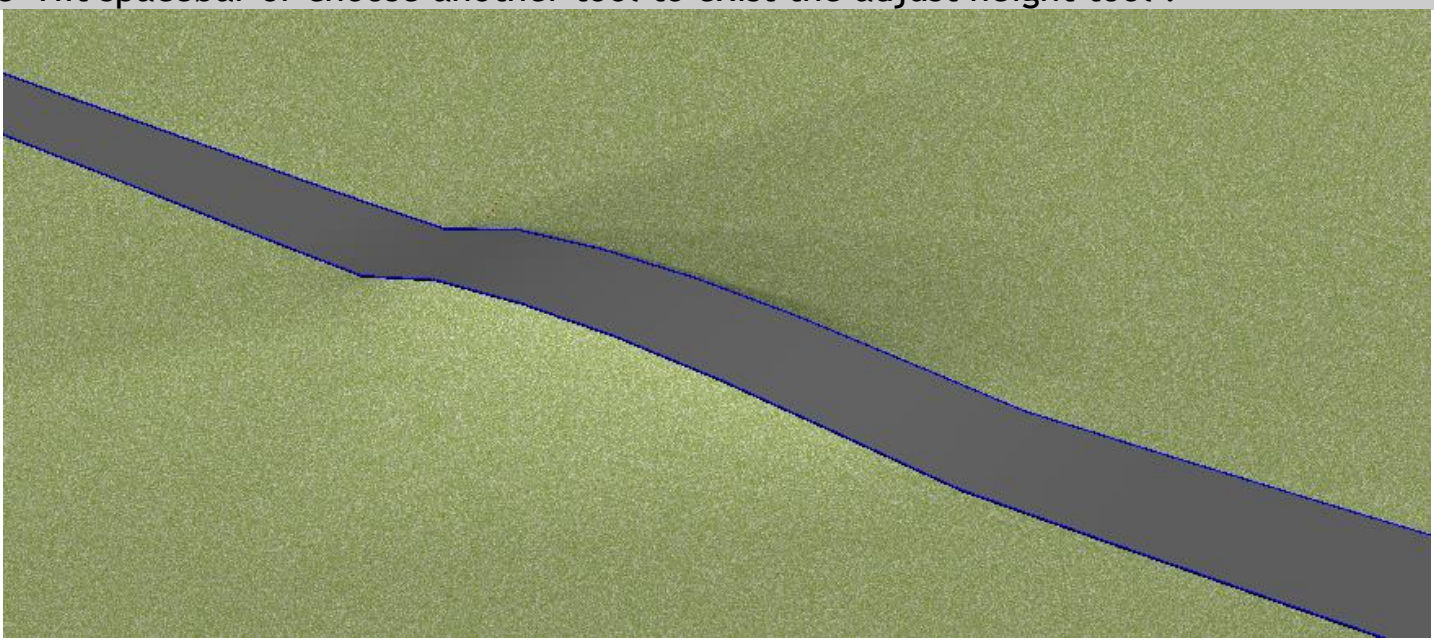
6.1 Using the road created in lesson 1, select the road group and choose “Plugins/ Vali Architects / Instant Road Nui / Adjust Road Height” or on the Instant Road Nui toolbar click the symbol..



6.2 Move the circle over parts of the road and click up or down to adjust the height.

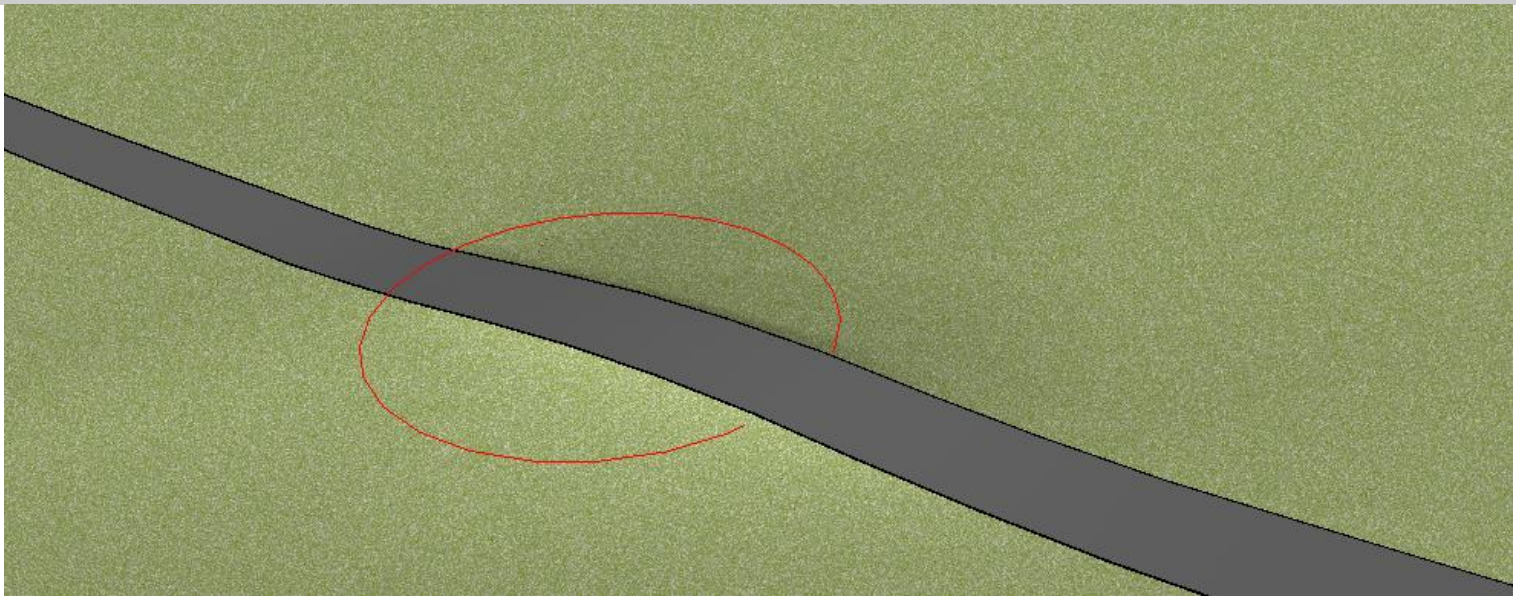


6.3 Hit spacebar or choose another tool to exist the adjust height tool .



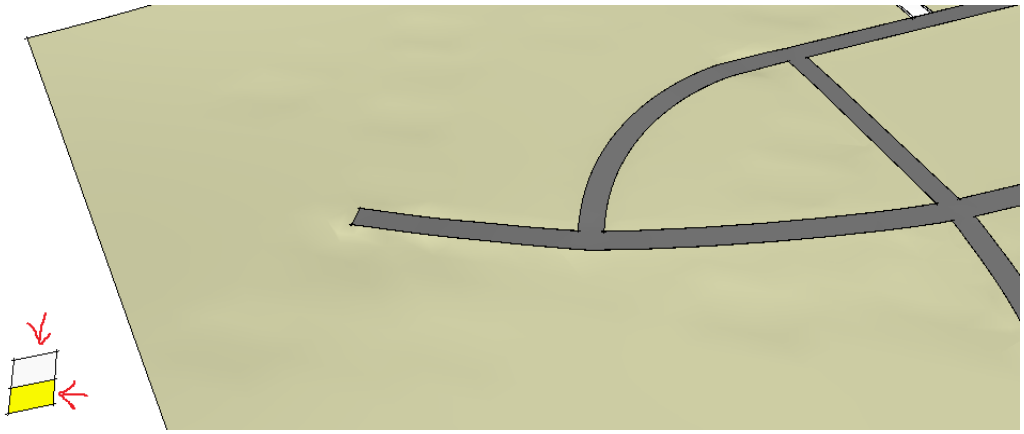
Lesson 7. Smooth Road

7.1 Using the road from lesson 6, select the road group and choose “Plugins/ Vali Architects / Instant Road Nui / Smooth Road” or on the Instant Road Nui toolbar click the symbol. Move the red circle and click on the road in areas to smooth. The road can be made as smooth as desired by repeated clicking. Hit spacebar or select another tool to exit the Smooth Road tool.

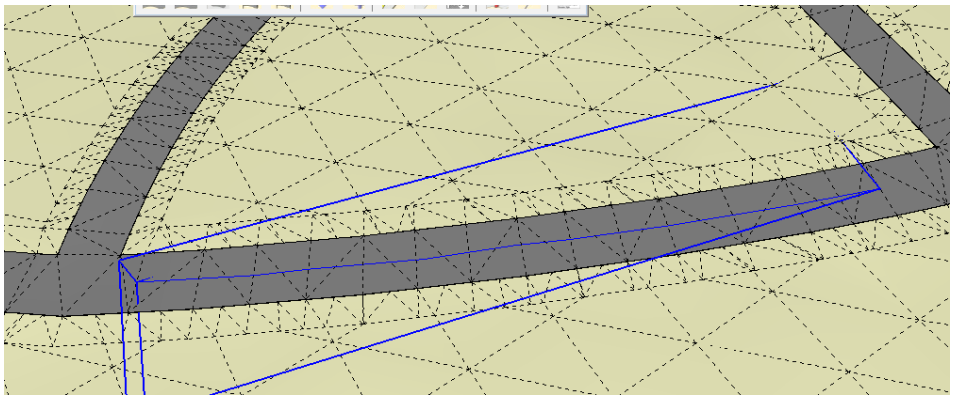


Lesson 8. Striping

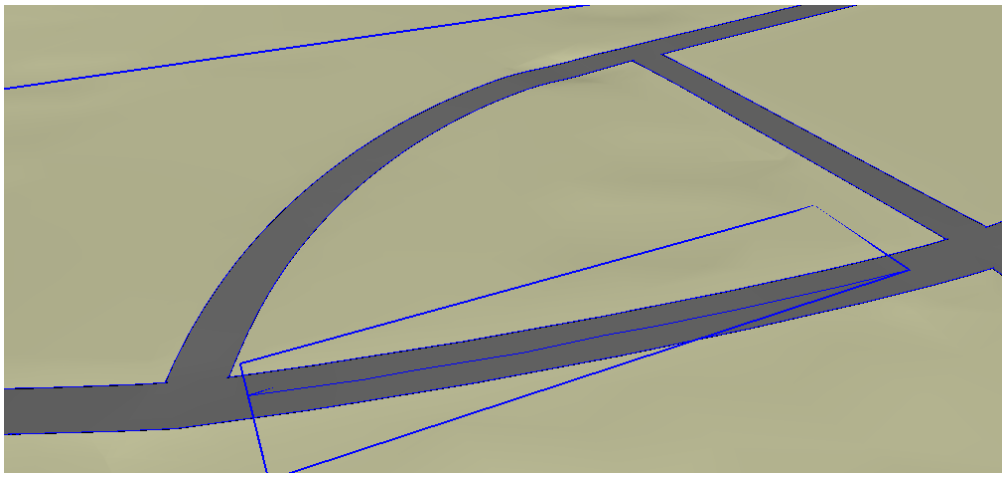
8.1 Using the road from one of the other lessons above, add a yellow color and a white color for the striping to some object in the model.



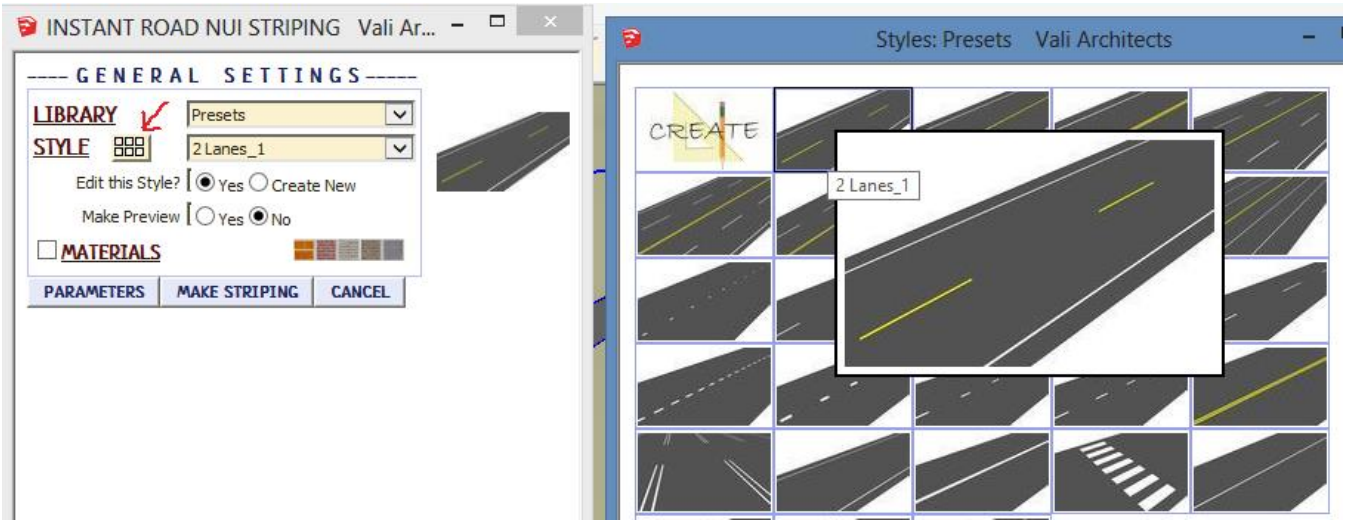
8.2 Draw a line on the road for the center line. Here I turned on hidden geometry so I can snap to the midpoints in the road. Do not open the road group for editing – draw the line outside the road group. Enclose the line in a group.



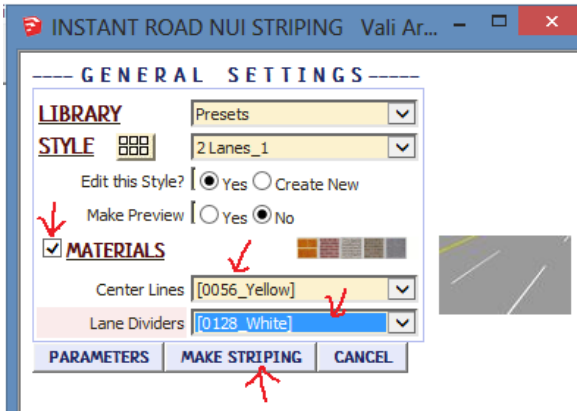
8.3 Select the road group and the group containing the center line.



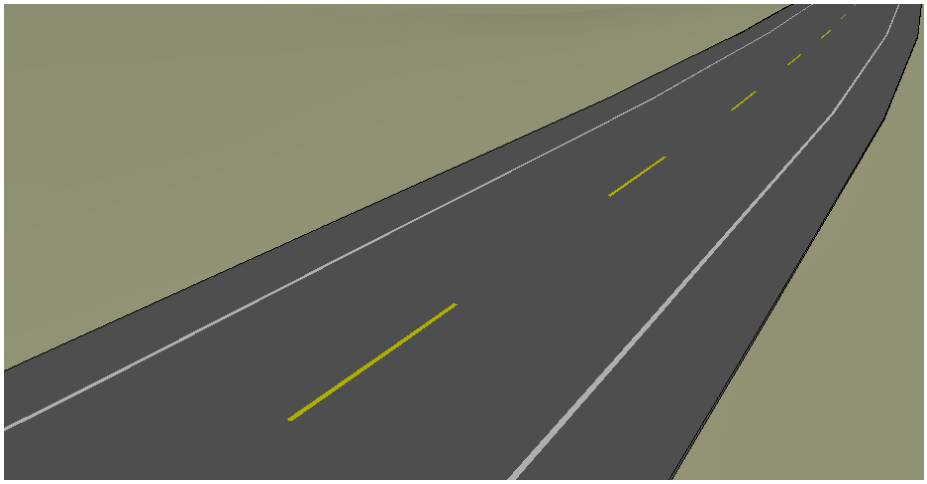
8.4 Choose “Plugins / Vali Architects / Instant Road Nui / Striping” or on the Instant Road Nui toolbar click the symbol. Click the image menu button to display preset striping style images menu and select the “2 Lanes_1” style. Click “Make Striping”.



8.5 Click the “Materials” box and choose the yellow color for the center lines. Leave the defaulhoose “Plugins / Vali Architects / Instant Road Nui / Striping” or on the Instant Road Nui toolbar click the symbol. Click the image menu button to display preset striping style images menu and select the “2 Lanes_1” style. Click “Make Striping”.

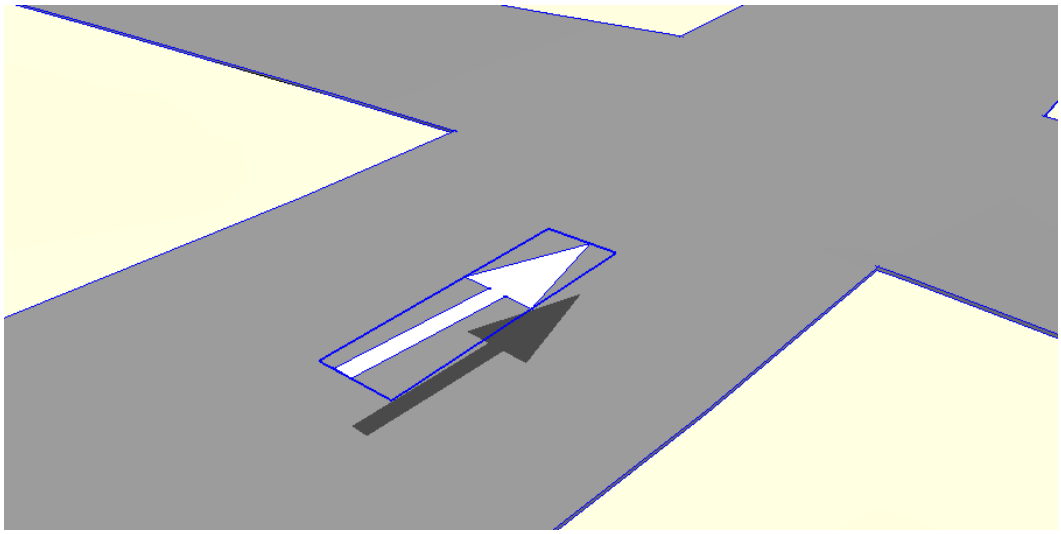


8.6 The output should be similar to below. *Notes: 1. Lines must fit on road or the script will stop. If unsure, run preview first. 2. Multi line styles must be much longer than all the lane widths or the script will stop. If having trouble, use single line styles.*

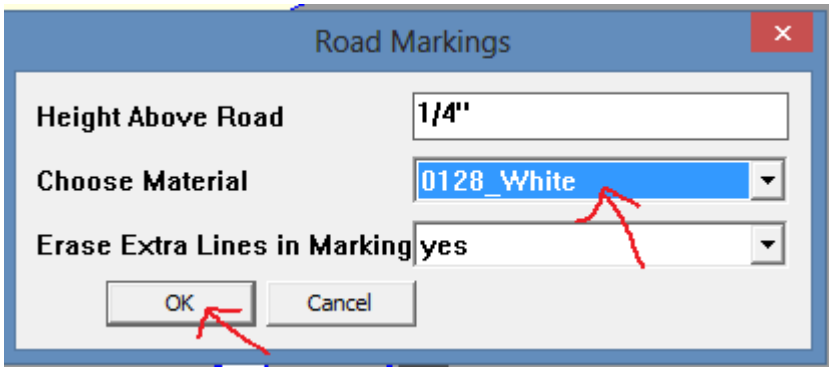


Lesson 9. Road Markings

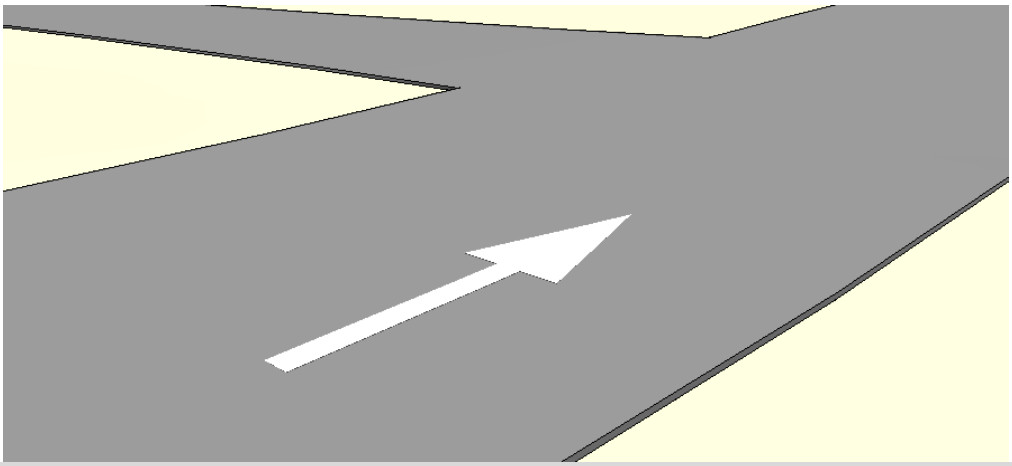
9.1 Using the road from lesson 8, draw a horizontal face in the shape of a desired marking within a group located above the road group. Select both the road group and the marking group.



9.2 Choose “Plugins / Vali Architects / Instant Road Nui / Road Markings” or on the Instant Road Nui toolbar click the symbol. Select a color for the marking and click “OK”.

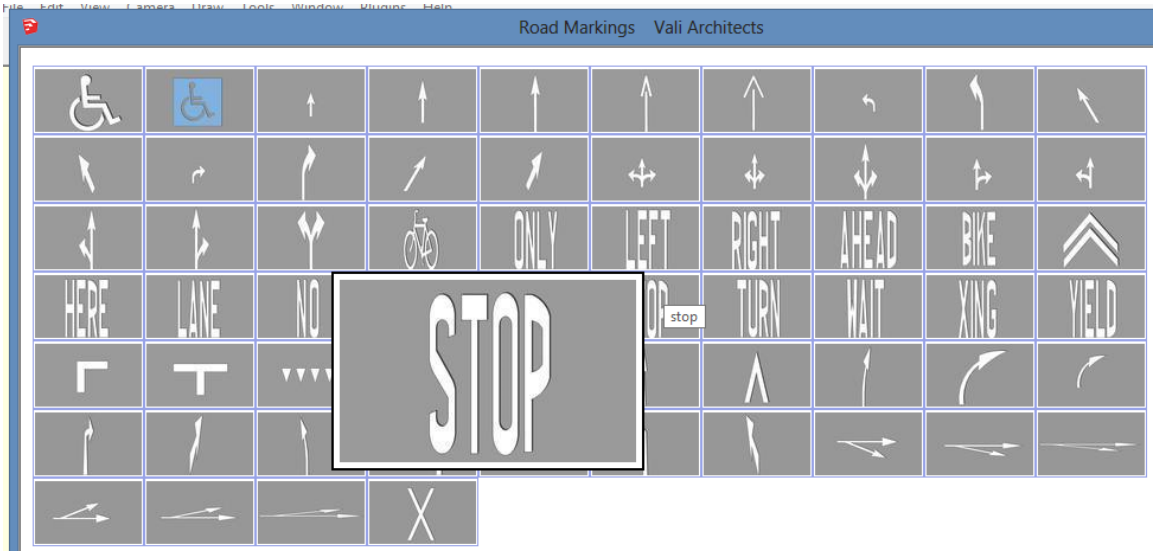


9.3 The shape will be made into a decal and applied to and follows the contours of the road.

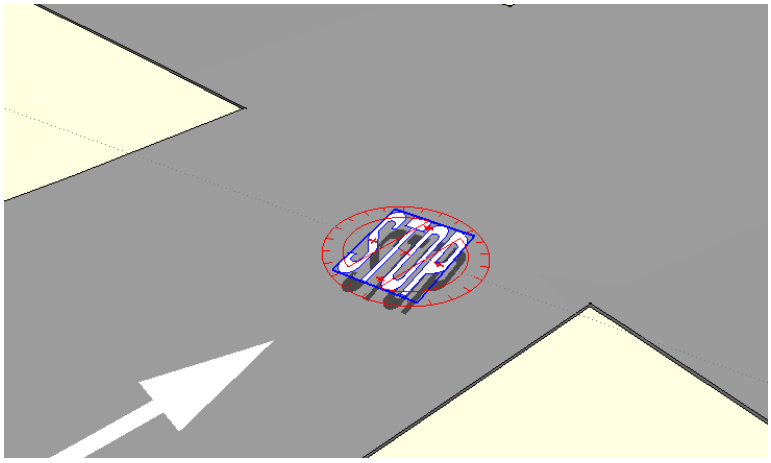


9.4 There are several preset markings to choose from. Choose “Plugins / Vali Architects

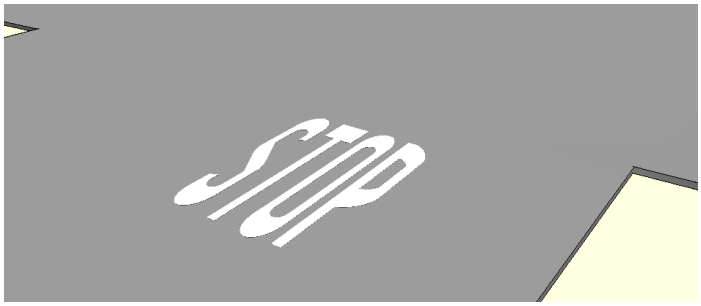
/ Instant Road Nui /Make Preset Road Marking" or on the Instant Road Nui toolbar click the symbol. Select an image from the menu.



9.5 Place the image and rotate into position.

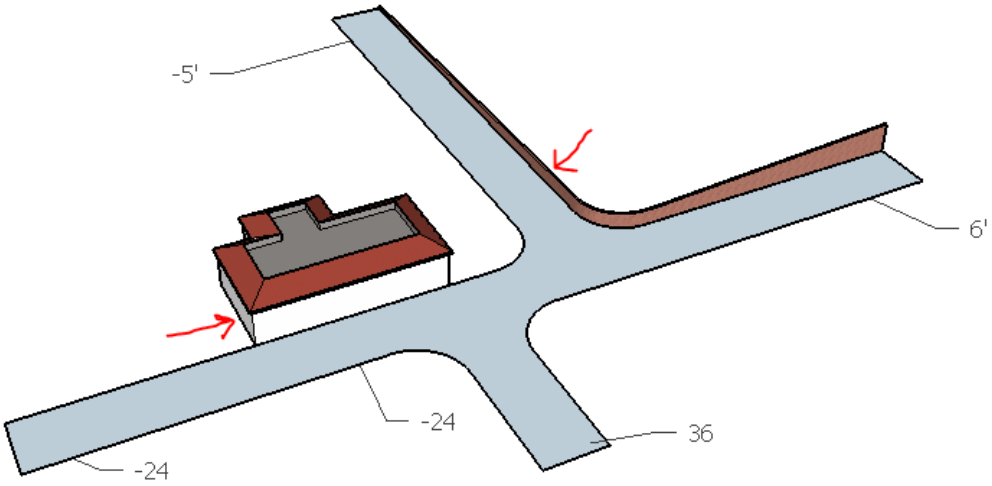


9.6 Follow steps 9.1, 9.2, and 9.3 to create the decal.

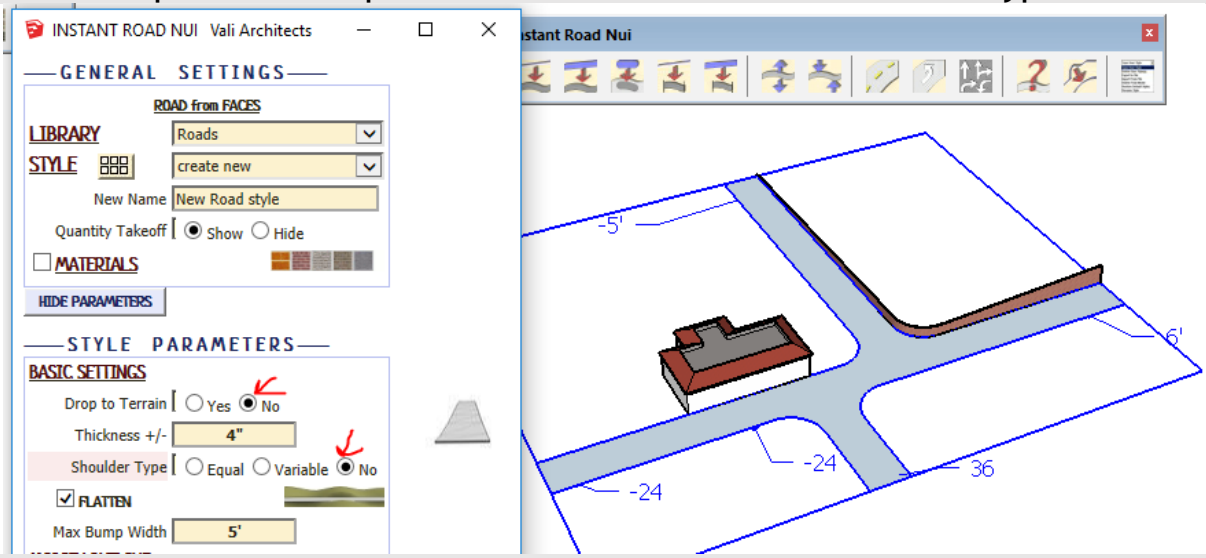


Lesson 10. No shoulder. *Starting with Version 3.4, it is possible to model a road without a shoulder using either the road from center line or road from faces methods. There is no need to start with a terrain mesh.*

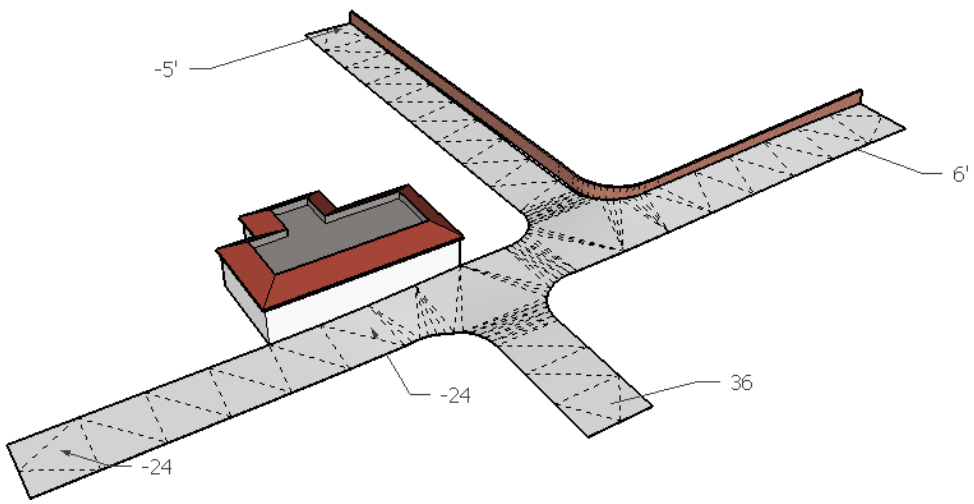
10.1 Here I am making a road from a face that is close to a wall and a building so I don't have room for a graded shoulder. I will not be dropping to a terrain mesh so I've used the text tool to indicate the finish elevations for sections of the road.



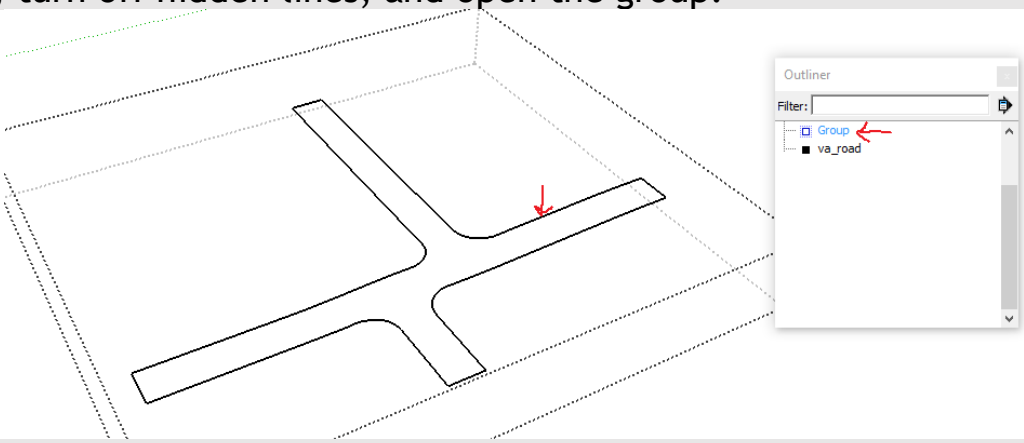
10.2 I select the road face group and the elevation texts, open the road from faces menu, set the Drop to Terrain parameter to "No" and the Shoulder type to "No".



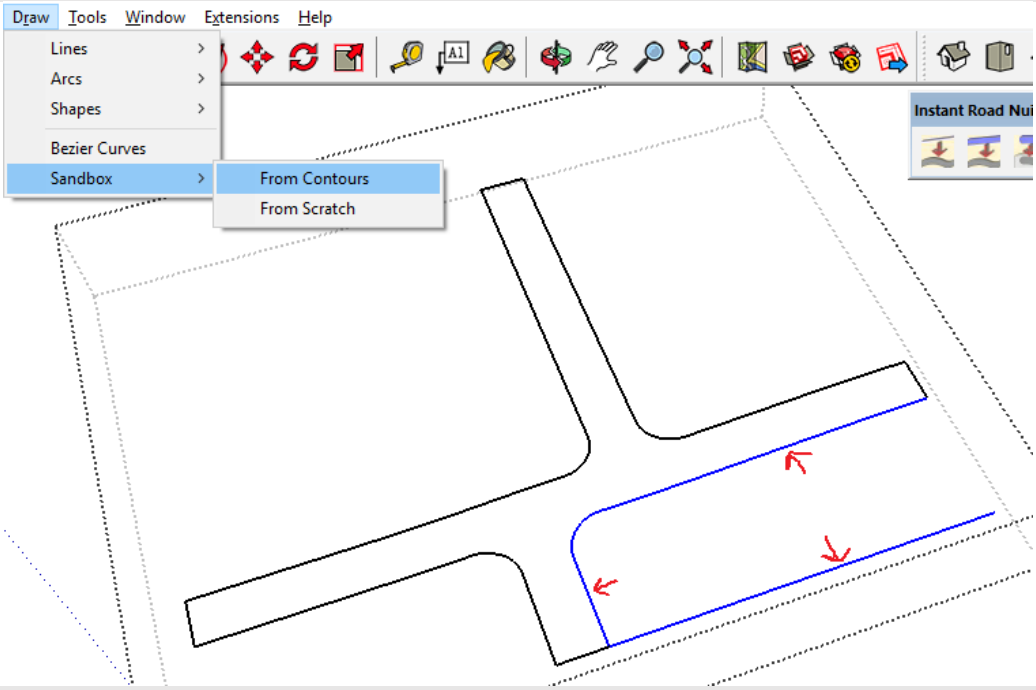
10.3 I click "Make Road" and the script models the road but does not make a shoulder



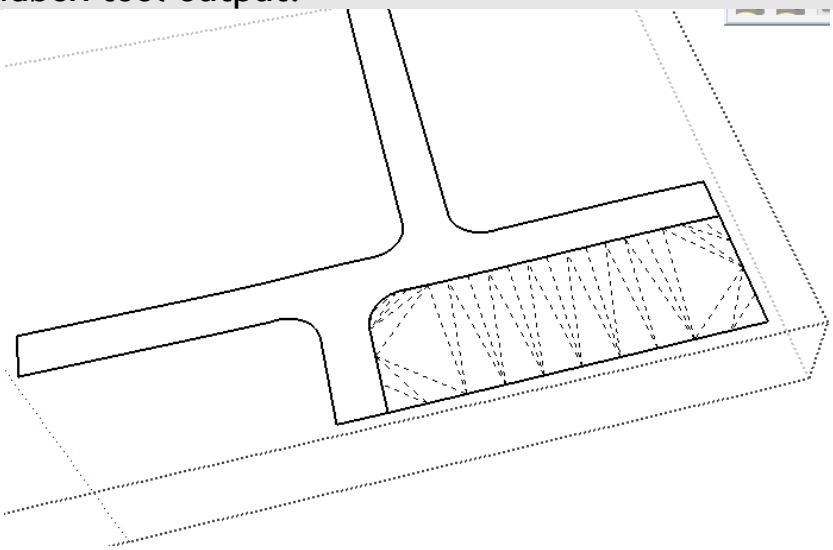
10.4 Now I want to find the edge of the road to use with the sandbox tool to make a terrain mesh. The script makes a group of hidden lines that follow the edge of the road. I open Outliner, turn off hidden lines, and open the group.



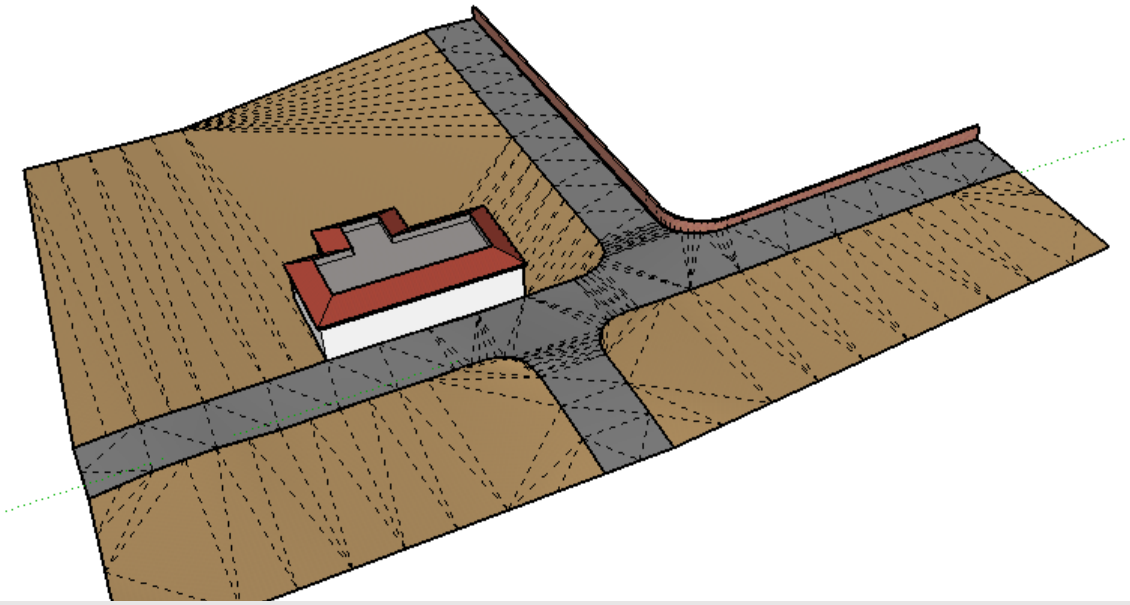
10.5 Next I use the sandbox tool to grade to the edge of the road. Here I'm just drawing lines for this purpose, but in a real project there would likely be some meaningful edges of other elements to use.



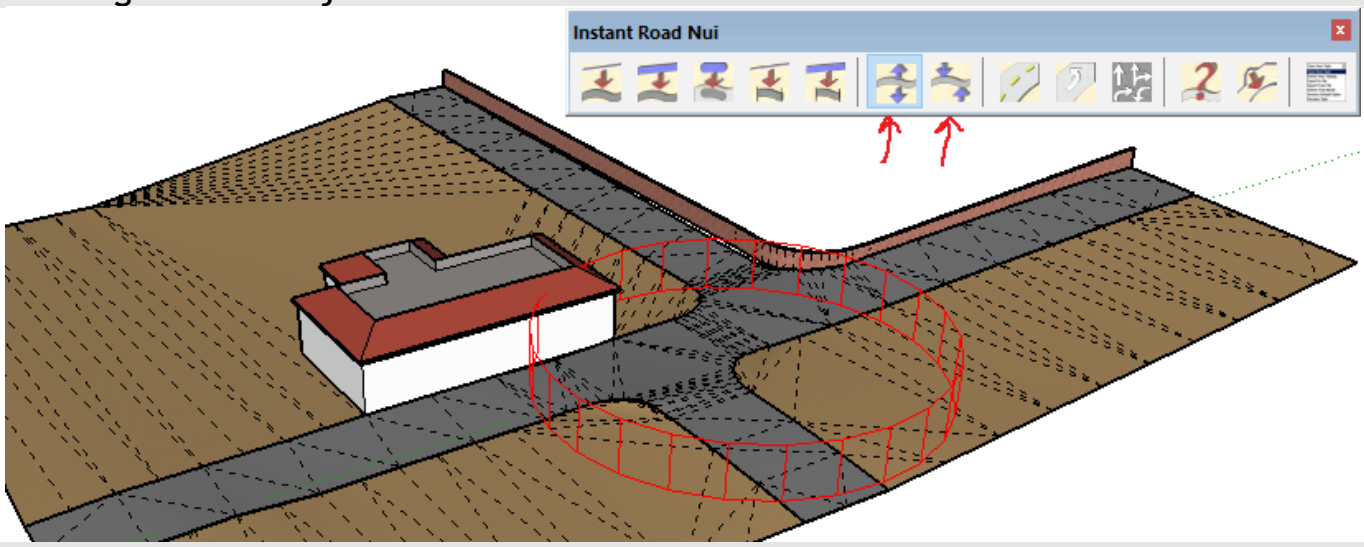
10.6 Here is the sandbox tool output:



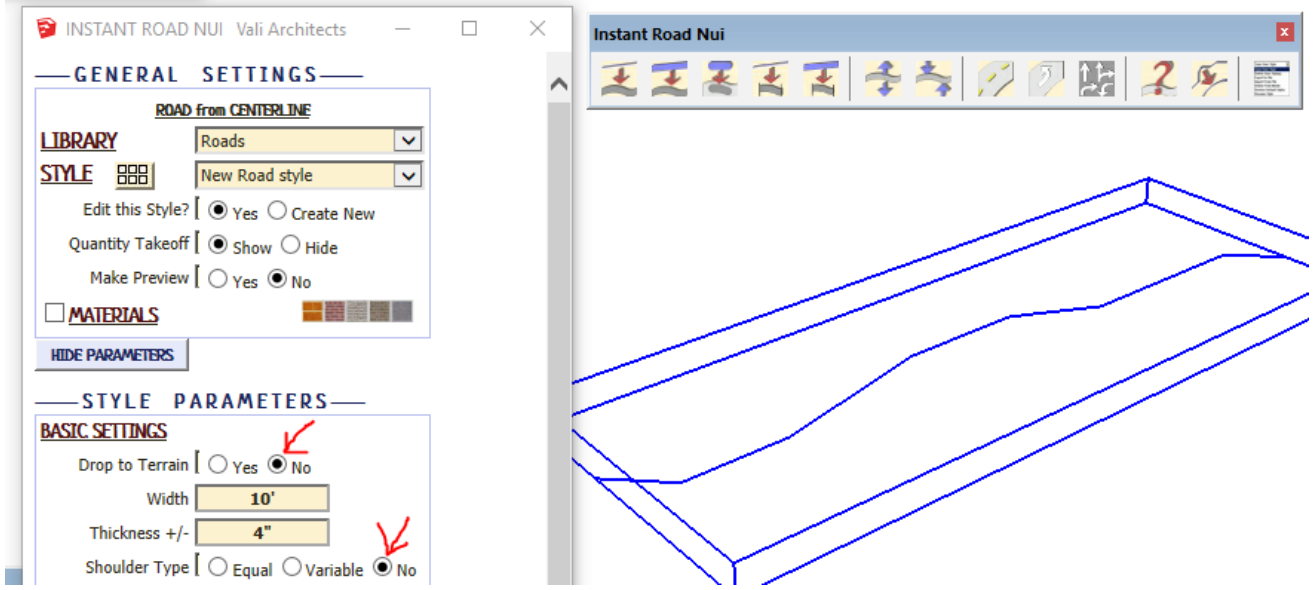
10.7 Continuing with the other areas I complete the model.



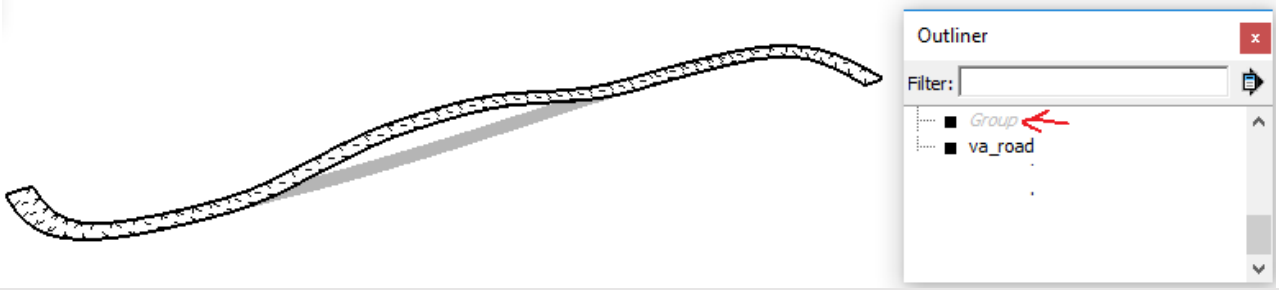
10.8 After exploding all the groups that the terrain meshes are in, I can now use my road editing tools to adjust both the road and the terrain mesh.



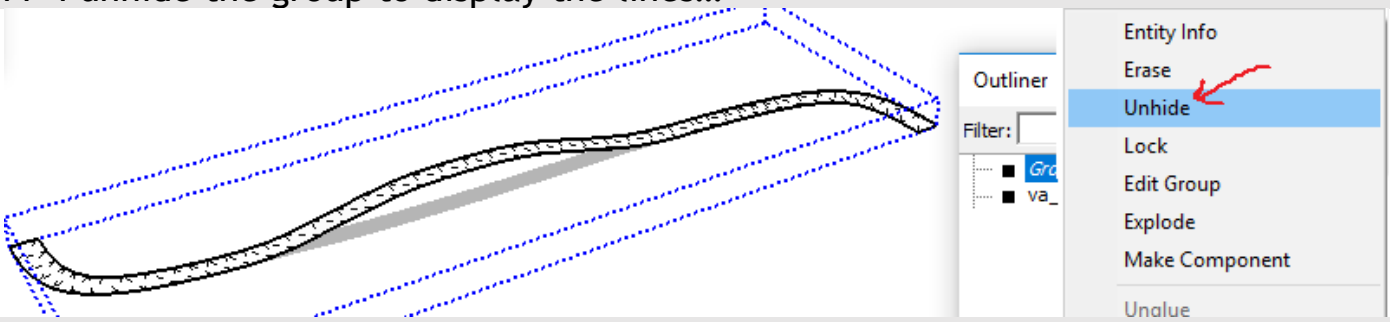
10.9 The same can be done using the “Road from Centerline” method. Here I made a road centerline in a group that has a “hump” in it and ran the script.



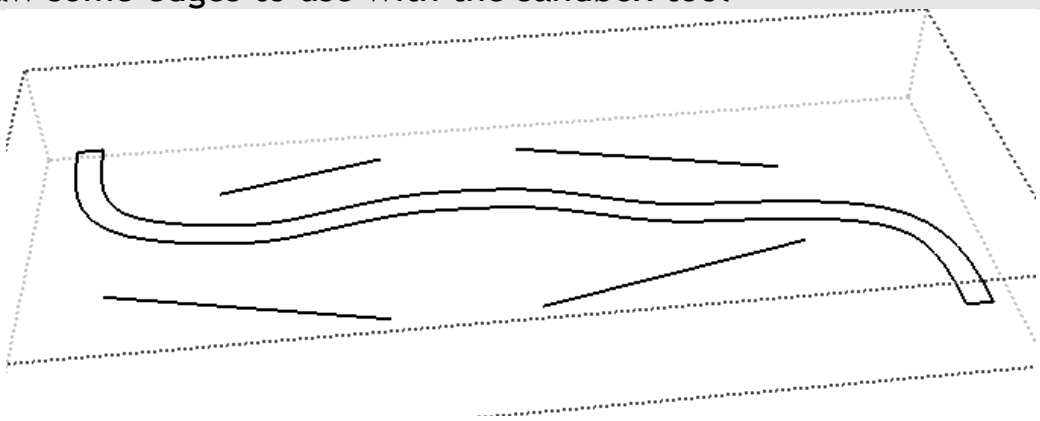
10.10 Again, the output is a road with no shoulder and I open the Outliner tool to locate the road edge group.

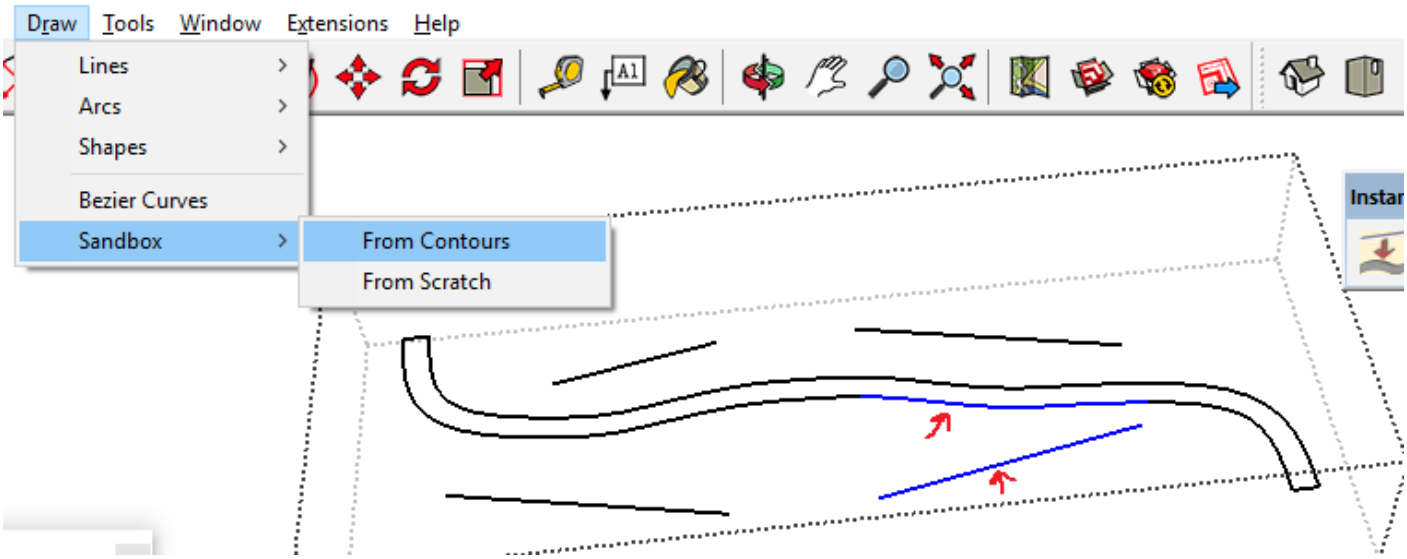


10.11 I unhide the group to display the lines…

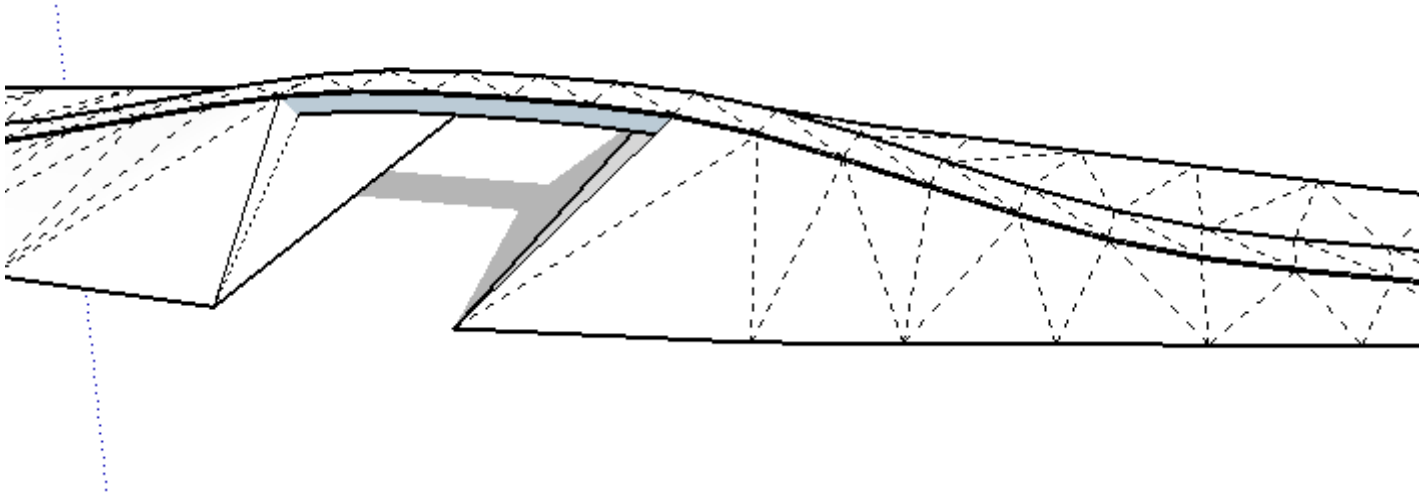


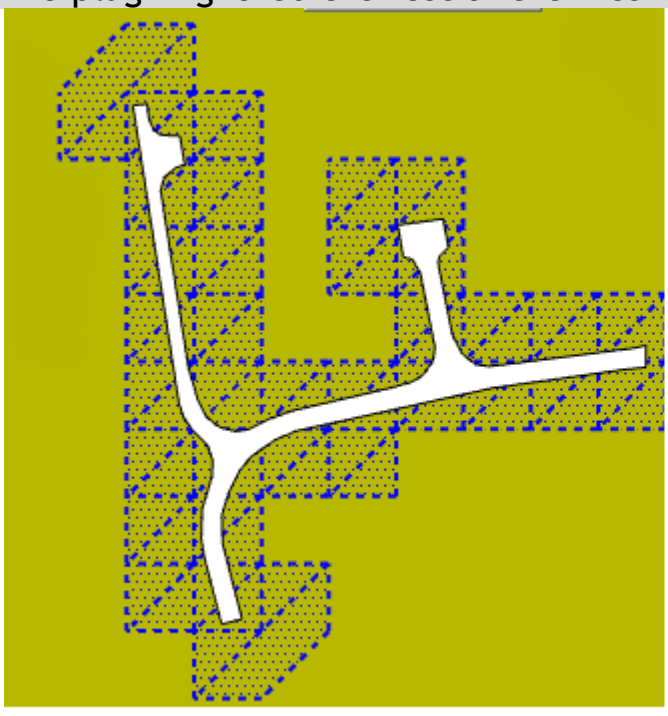
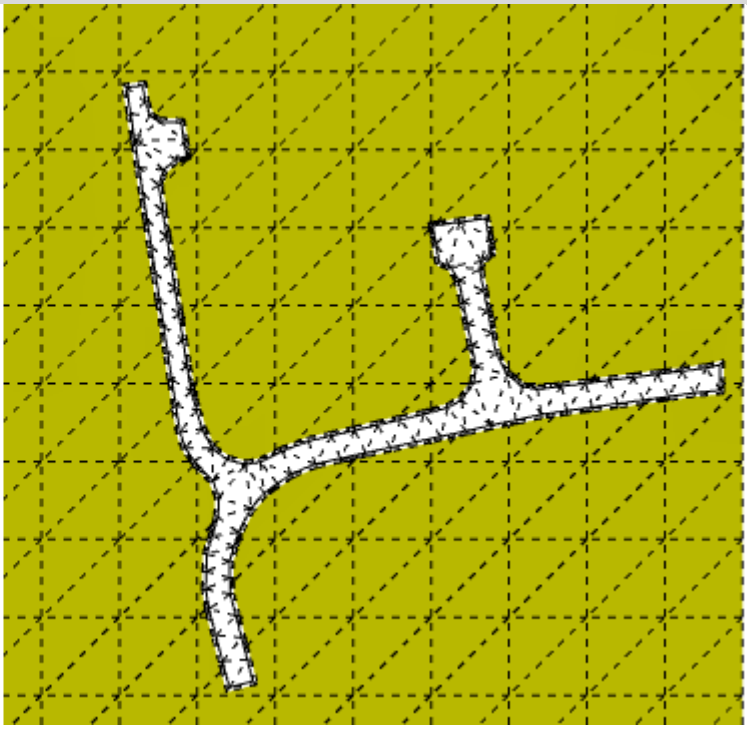
10.12 and draw some edges to use with the sandbox tool





10.13 …and use Didier Bur's extrude line plugin on the road edges in the center to give the bridge some thickness. Below is the result. (BTW, I use Didier's extrude line plugin every time I use Sketchup)



Lesson 11. Large Terrain Mesh *The plugin evaluates your entire selected terrain mesh - which can take a long time. If you have a large or highly detailed terrain mesh but the road is only located on a small part of it, you may save processing time by selecting only the mesh faces that the road and shoulder will fit on.*

11.1 Turn on hidden lines so you can see the edges in the mesh. Then carefully select the mesh faces that will be affected by the road and shoulder. (Better to select too many faces than not enough) Then select the road outline as well and run the plugin as usual. The plugin ignored the rest of the mesh.