

## ASSEMBLIES & CORRIDORS

---

You must have a valid profile with finished ground drawn in the profile to create a corridor.

An **Assembly** defines the attachment point of your cross-section to the alignment. The attachment point occurs at the midpoint of the assembly marker.

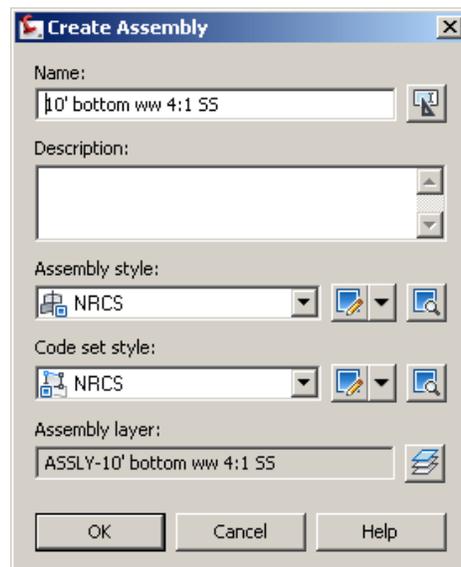
A **Subassembly** represents individual components of the proposed cross-section. Subassemblies attach to the left or right side of an assembly's attachment point.

A **Corridor** is a 3D model of a proposed design based on alignments, profiles, and assemblies. Corridors can be used to create finished ground models or generate section data. Corridors can be used to represent an individual alignment, profile and assembly, or multiples of each.

For this example our alignment represents the Center Line of a 10' bottom width waterway. Therefore, when we build our subassemblies they will be set an equal distance (5' each) from the assembly marker. Be aware, that if your alignment represents the left or right side of your object (waterway, diversion, etc), you would want to build the subassemblies appropriately.

### 1. Creating an Assembly

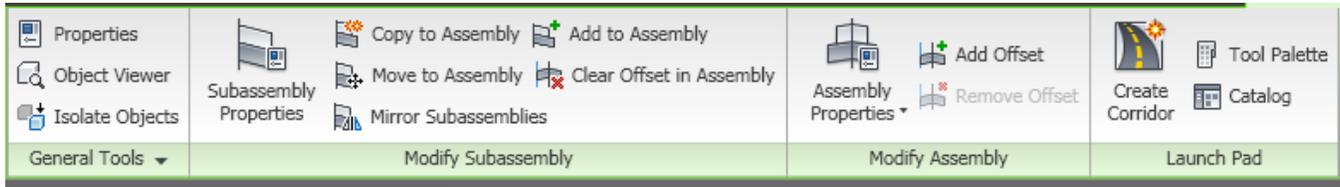
- From the Home Ribbon > Create Design Tab > Assembly > Create Assembly
- The following dialog box will appear
- Name the Assembly, be as descriptive as possible



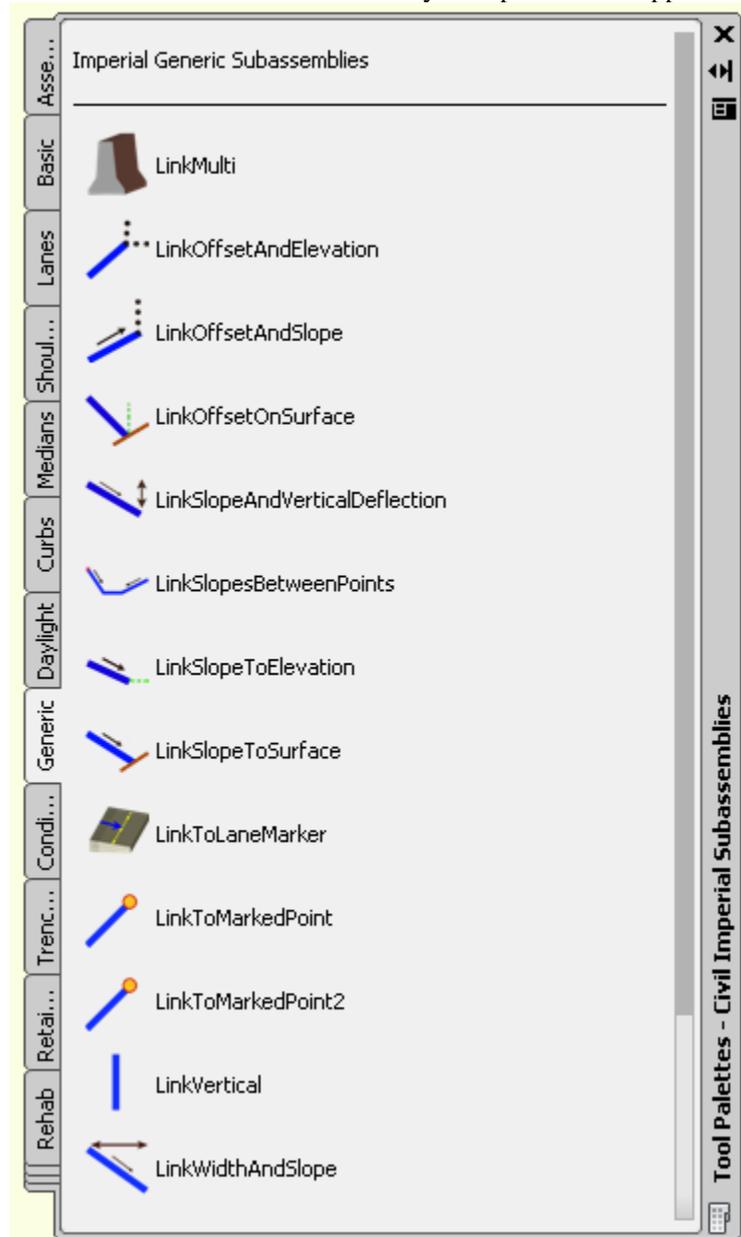
- Click OK
- Follow the Command Line to select the location of where this will be located

**ASSEMBLIES & CORRIDORS**

- f. Click on your Assembly (green line with a blue circle in the middle) and a conceptual toolbar will appear



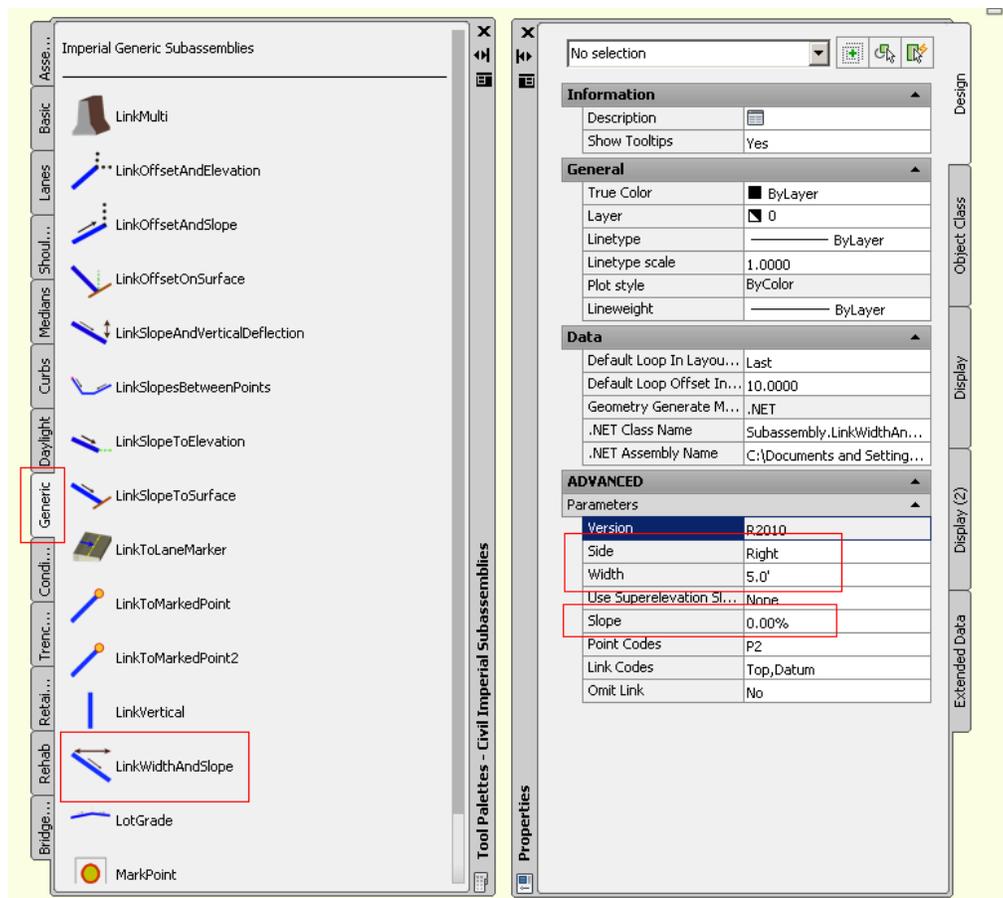
- g. Click on the Tool Palette Icon and the Subassembly Toolpalette will appear



**ASSEMBLIES & CORRIDORS**

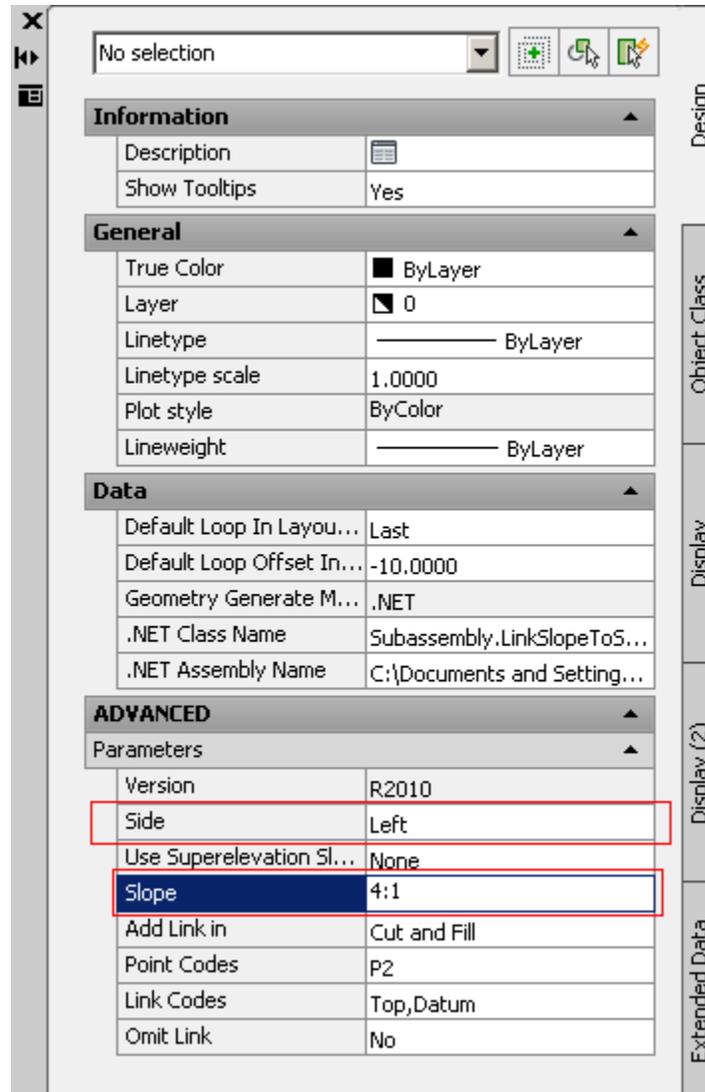
\*\*\* Choosing what subassembly you want to use is a personal choice, there is no “right” or “wrong” subassembly. Many different subassemblies will give you the same result. The Civil 3D Help Section has extensive coverage on the subassemblies, so be sure to reference that if you have any questions. The subassemblies used in this Help Sheet are the authors’ personal choice.

- h. Starting with the waterway bottom, I’m going to go to the “Generic Tab” on the Toolpalette and choose the “Link Width and Slope” Subassembly. Once I click on the subassembly the Properties window will open.
  - i. In the Advanced Section appropriately change the Side, Width, and Slope as needed.
  - ii. Once the parameters are correct click on the blue circle in the Assembly and the subassembly will appear.
  - iii. If your properties box is still open, just change the Side and click on the blue circle again. If the properties box is closed just start by click on the subassembly in the toolpalette again.



**ASSEMBLIES & CORRIDORS**

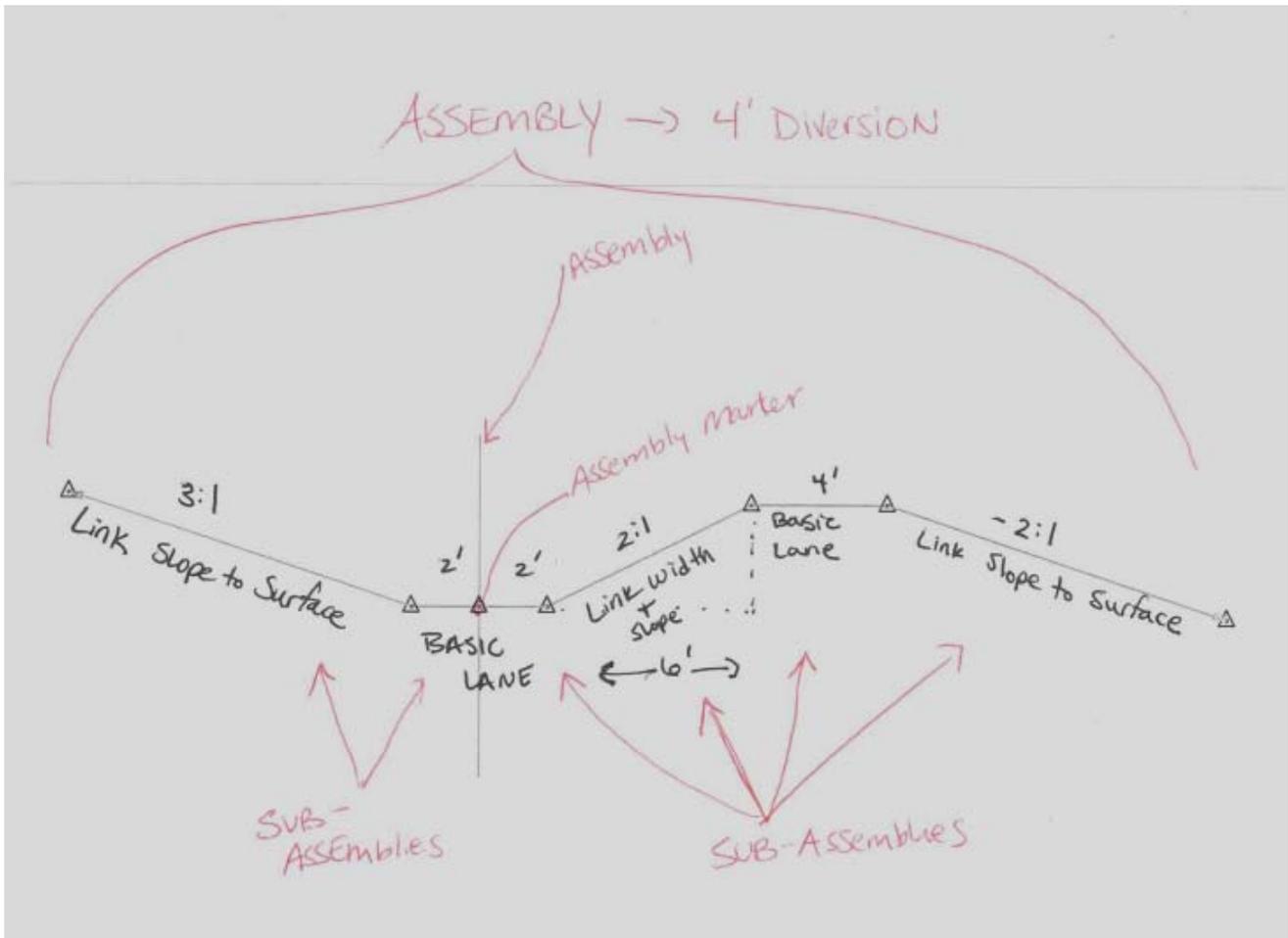
- i. For the waterway sides I'm going to use the Generic Tab on the Toolpalette again, but this time choose "Link Slope to Surface" subassembly.
  - i. This subassembly I only need to change the side and the slope
  - ii. You can enter the slope as a percent or as run:rise (the program automatically changes it to a percent for you).



**ASSEMBLIES & CORRIDORS**

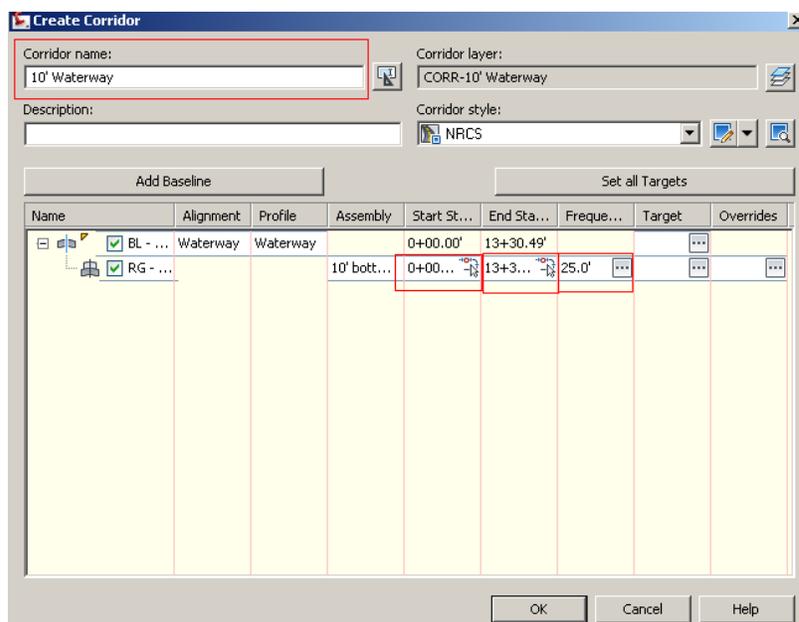
Assemblies can be as simply or as complex as you want. You can use them for diversions, dams, etc.

Below is an example for a diversion.



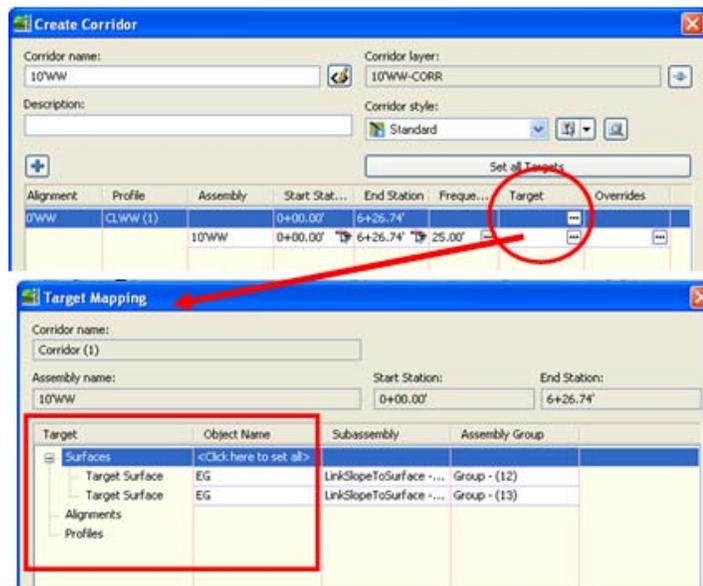
**ASSEMBLIES & CORRIDORS****2. Building a Corridor**

- a. Now that we have an alignment, finished ground profile, and an assembly we can build a corridor.
- b. From the Home Ribbon > Create Design Tab > Corridor > Create Corridor
  - i. When the “Command” line asks you to “Select a baseline alignment”
    1. Right-click to get a list of your defined alignments.
    2. Pick the appropriate one.
  - ii. The “Command” line asks you to “Select a profile”
    1. Right-click to get a list of the profiles you created.
    2. Pick the one you assigned designated to be “Finished Ground” for your planned waterway bottom.
  - iii. The “Command” line asks you to “Select an assembly”
    1. Right-click to get a list of the assemblies you created.
    2. Pick your choice (10’ ww).
  - iv. You get a large dialog box, labeled “Create Corridor”.
    1. Choose a corridor name consistent with the rest of your process, (i. e. 10’ WW Corridor).
    2. You will see several columns in this dialog box. You can edit all of them to get your corridor to do what you want:
    3. You can change the beginning and ending station.
    4. You can set the frequency of sampling, (25’ is default).

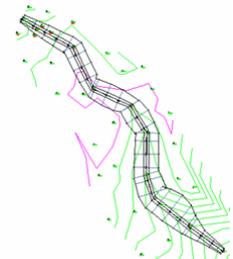


**ASSEMBLIES & CORRIDORS**

- v. IF your assembly includes a subassembly that daylight to a surface (like we used in our example: “Like Slope to Surface” you must set the Targets
1. Target Mapping allows you to assign a surface to which daylight subassemblies are day lighted. **YOU MUST SET THE “TARGET” COLUMN OR DAYLIGHTING WILL NOT OCCUR.**
  2. **You only want to set the target for the Surface,** if other options are available (such as Alignment or Profile) do NOT set those targets as we only want to daylight to the EG Surface!
    - a. In the “Target” column’, pick the little box with the 3 dots.
    - b. You’ll get another dialog box marked “Target Mapping”.
    - c. You’ll see 3 categories of targets. The first category is “Surfaces”.
    - d. Pick the row marked “Object Name”.
    - e. Pick your existing ground (EG) surface as your target surface. These will daylight your sideslopes properly.
    - f. Hit “OK”. The Target Mapping box will close out.



- vi. Hit “OK” again to close out the “Corridor” dialog box.
- vii. Things will flash, and data will appear, and the “Event Viewer” may pop up, showing a lot of events. Close it out if it pops up.
- viii. If you look on your plan view, you now have the outline of a waterway with daylight lines.

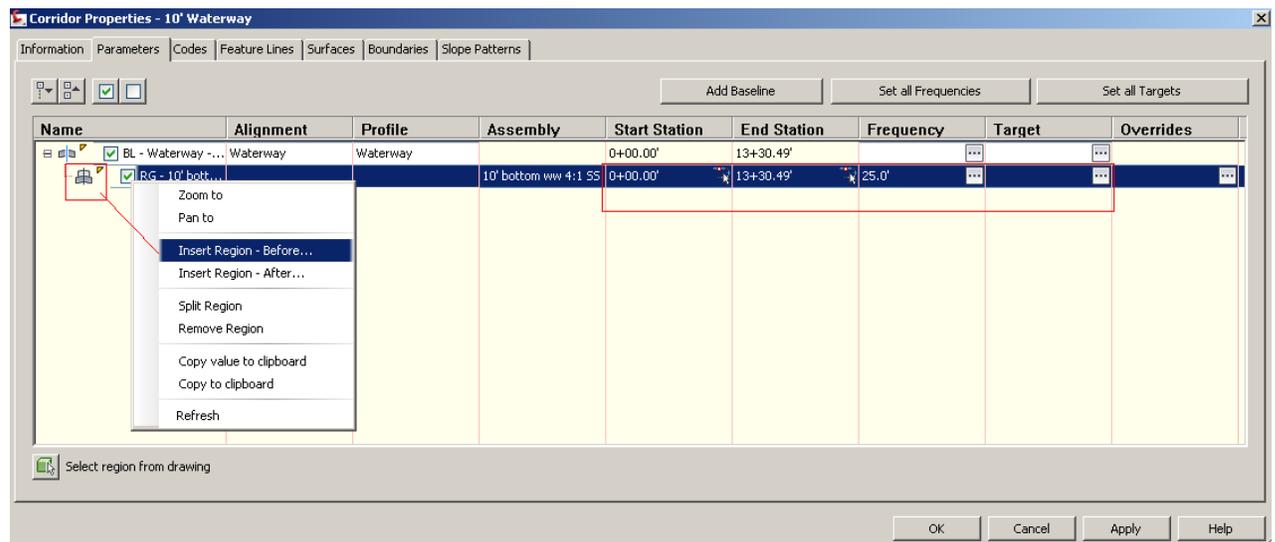


**ASSEMBLIES & CORRIDORS****i. Complex Corridors:**

- a. Each Corridor can have multiple alignments, profiles, or assemblies. For example if you have a 10' waterway that transitions to a 20' waterway you can do that with 1 corridor! You will just need 2 assemblies, one for the 10' bottom and one for the 20' bottom.
- b. To adjust corridors, after they are created, you must go to the Corridor Properties dialog box. (Click on the Corridor and the Conceptual Toolbar will appear > click on "Corridor Properties")

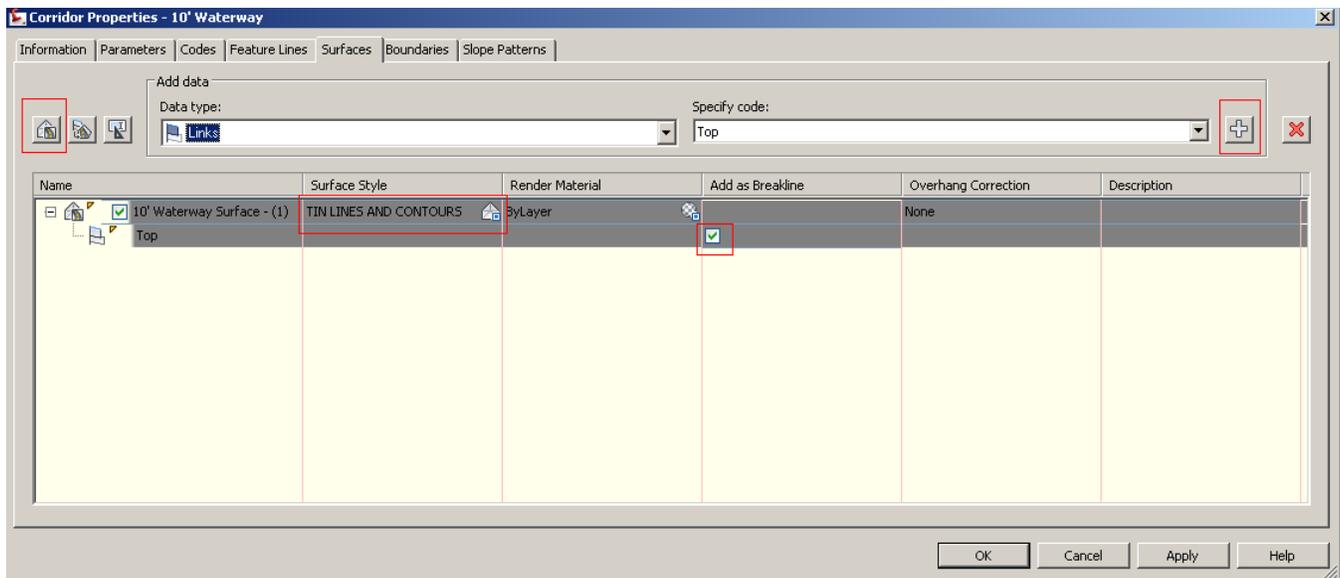
**i. Parameters Tab**

1. In the Parameters tab you can review and adjust most of the corridor controls, including which alignment, profiles, and assemblies are being used.
2. Baseline is the attachment point of the assembly (most like the centerline of your object such as the centerline of the 10' waterway).
3. Each baseline has at least 1 Region. Each region is an area which a particular assembly applies. You can have multiple baselines and multiple regions within the same baseline.
4. Each region has controls that enable you to review the Target Mapping as well as the Frequency at which corridor sections should be created.
5. To add a region right click on the Assembly Icon on the far left and choose "Insert Region" from the drop down list. Follow the dialog boxes and command lines to select the proper settings for that region. You will have to readjust the starting and ending stations for your existing region so they do not overlap.



**ASSEMBLIES & CORRIDORS****ii. Creating a Surface from a Corridor:**

- i. The Surfaces tab of the Corridor Properties dialog box enables you to build the proposed surface based on corridor geometry. As the corridor changes, its surfaces automatically update.
  - a. Click on the Corridor and the Conceptual Toolbar will appear > click on “Corridor Properties”)
    - i. Parameters Tab
      1. Choose the “Surfaces” Tab
        - a. Click on the “Create a Corridor Surface” icon
        - b. Make sure under “Add Data” the Data Type is “Links” and Specify Code is “Top” (top surfaces follow the uppermost part of the corridor geometry). Click the blue + sign.
        - c. You can choose to check the “Add as Breakline” box.
        - d. You can change the surface style if you wish
        - e. Click “OK”
- ii. Your surface should now appear. The surface will be on the layer that was current at the time you created the corridor surface.



**ASSEMBLIES & CORRIDORS****iii. ADDING BOUNDARIES**

## 1) Why Add Boundaries?

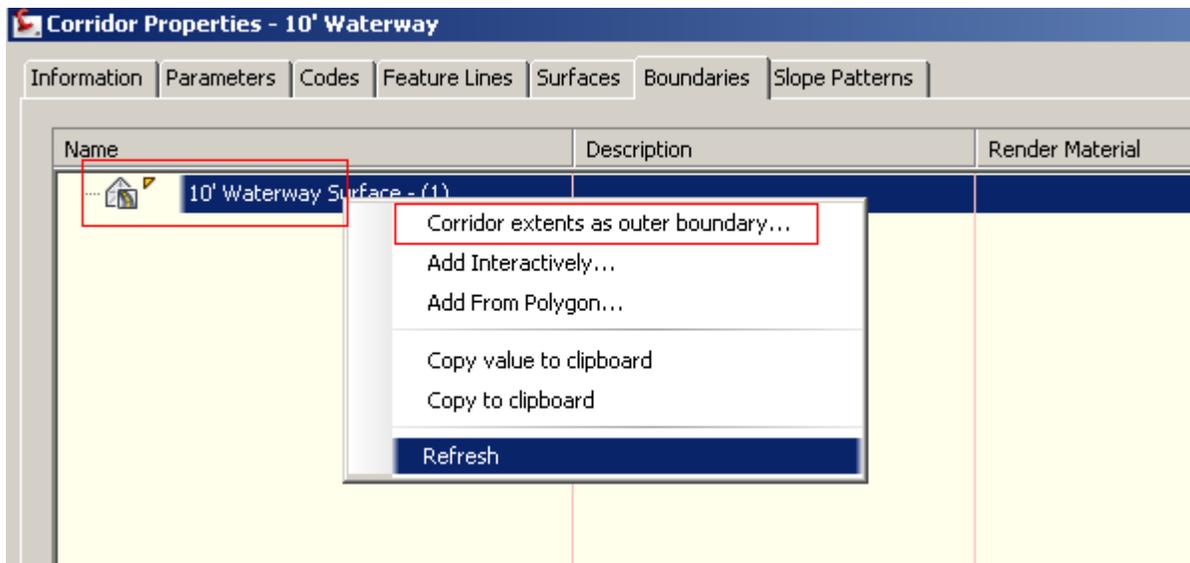
- To control where your corridor surface is located, i.e. keeping the contours in the corridor surface area.
- Keep surfaces from dropping off to elevation 0.

2) **Method 1:** Add the boundary through Prospector (just like you do for any surface, therefore I'm not going to go into detail on this method).

- Draw a polyline that represents the boundary around your corridor.
- In Prospector, under the name of your Corridor Surface, right click on boundaries and click "ADD". Chose the type of boundary (typically outer) click "OK". Click on your boundary line you drew. Wahla.. Your data is added!

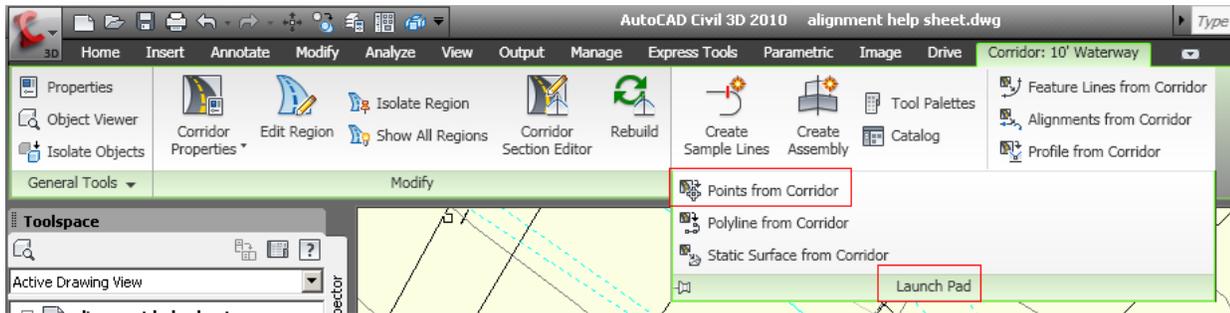
3) **Method 2:** Add the boundary through the Corridor Properties dialog box.

1. In the Boundaries Tab > right click on the name of your corridor surface > Select "Corridor Extents as Outer Boundary"

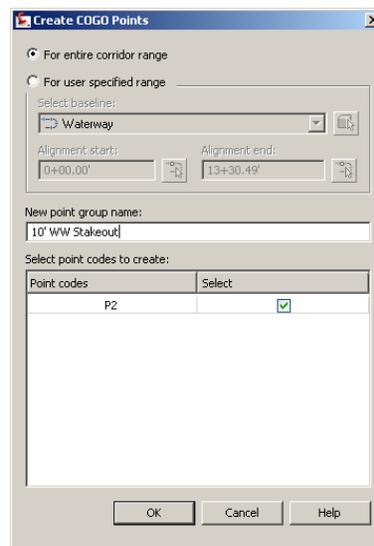


**ASSEMBLIES & CORRIDORS****iv. Creating Layout Points from a Corridor:**

- a. Click on the Corridor to get the Conceptual Ribbon to appear > Expand the Launch Pad Tab by click on the down arrow by the name “Launch Pad” > Choose “Points from Corridor”



The following dialog box will appear:

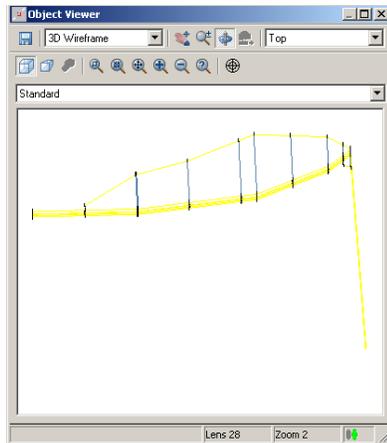


- b. You can associate layout points to the whole profile, or a “reach” of your choosing.
- c. You’ll need to name the point group that the points will be placed in.
  1. (i.e. WW Stakeout Points).
- d. Hit “OK”
- e. The points will now be in your drawing, and the Point Group should appear in Toolspace under the Point Groups.

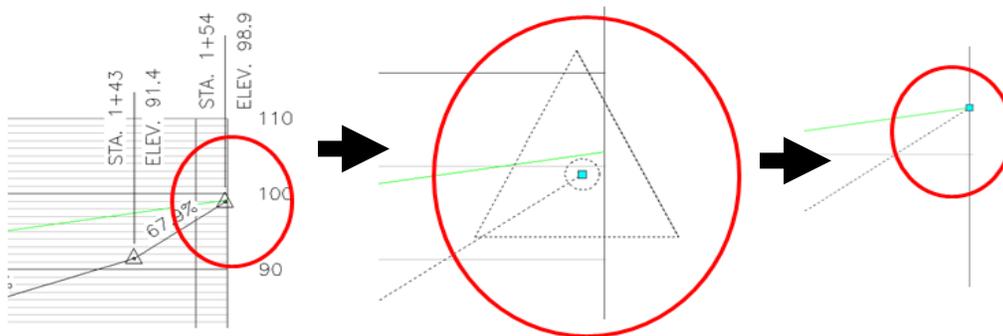
**ASSEMBLIES & CORRIDORS****Common “Drop Off” Problems:**

Check out your corridor in 3D by highlighting the corridor > right clicking > object viewer

Does your corridor drop off anywhere? This tends to be a common problem that can easily be fixed!



**Make sure the start and ends of your Finished Ground on your Profile is O-Snapped to the existing ground.**



**You may need to rebuild your corridor (in prospector) after you do this.**

**If that doesn't do the trick you'll have to create a boundary around the corridor.**

You'll need a Corridor Surface to do this (a surface created from a corridor).

See page 10 for instructions on how to add the boundary to your corridor surface!