AUTODESK UNIVERSITY

14 NEW Topography Tools by Environment for Revit®

(but who's counting)

Enhancing Revit's grading capabilities

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Arch-Intelligence

Learning Objectives

- Effective use of Toposurfaces, which are key components for a successful transition to Revit
- Create landscape designs with ease and precision, without any need for additional software or programming skills
- Implement simple, flexible design workflows in projects of varying scale and type.
- Enhancing efficiency, accuracy, and productivity by integrating all of Environment's tools into your workflow

Description

A great many AEC professionals around the globe still have this misconception that Revit is not suitable for landscape and site design. While this may have been true in the past, we, at Arch-Intelligence, are proving this idea utterly wrong! With BIM the de-facto standard in the industry, landscape professionals are increasingly being asked or mandated to adapt their workflows to the BIM approach and technologies. A fast-growing number of these designers are finding that Environment for Revit is not only the answer to their woes, but that it is opening up a whole new world of design opportunities. In this class, landscape architect and in-house Revit guru, Nehama Shechter Baraban, will guide you through Environment's broad and versatile set of Topography Tools. Join us and learn how to effortlessly inflate and smooth surfaces, correct missing survey data, build topographies related to their surroundings, move Civil data between Revit and other platforms, and much more.

Speaker:

Experienced landscape architect, Revit expert, esteemed educator, and lecturer of one of AU 2021's top rated classes, Nehama Shechter is Arch-Intelligence's COO and professional guru. At Arch-Intelligence, Nehama is responsible for setting the professional tone and direction for our industry leading BIM-based landscape and site design platform, Environment for Revit®, and for keeping the entire team inline and on target.

Nehama gained her Bachelor of Landscape Architecture degree from the Technion - Israel Institute of Technology in 2016. For a period of nearly 6 years, while still in university, she began working as a landscape designer and leading projects of different shapes and sizes. In her free time, Nehama enjoys mindful moments, nature, quite music, yoga, and most of all, spending time with her loving family. In 2019, after giving birth to her daughter, Nehama took time to tackle the grueling, and nearly impossible task of learning how to use Revit® for site design. That's when she discovered Arch-Intelligence and Environment for Revit®. As a self-employed landscape architect, Nehama leveraged Environment's broad set of tools to implement Revit® in her landscape designs and dramatically improved the results of the projects she worked on. After experiencing the truly transformative power of Revit + Environment firsthand, Nehama decided to dedicate her time to spreading this knowledge and groundbreaking technology to other landscape designers around the world and was warmly welcomed into the Arch-Intelligence family.

A huge thank you to Oren Bar-Ner for editing and polishing up the texts in this handout and to Ilya Volokin for editing and polishing up the ideas presented in the class.

Intro: Hooked on Topographies

Grading

Environment for Revit® was developed to embolden site planning professionals to finally make the transition to BIM, while providing the most streamlined workflows possible, and in doing so, to transform Revit® into the software of choice for site designers. To achieve this objective, we looked to the heart of the matter, addressing the most fundamental site modeling requirements. Chief among these requirements, and perhaps the most important aspect of any site-related project, is grading.

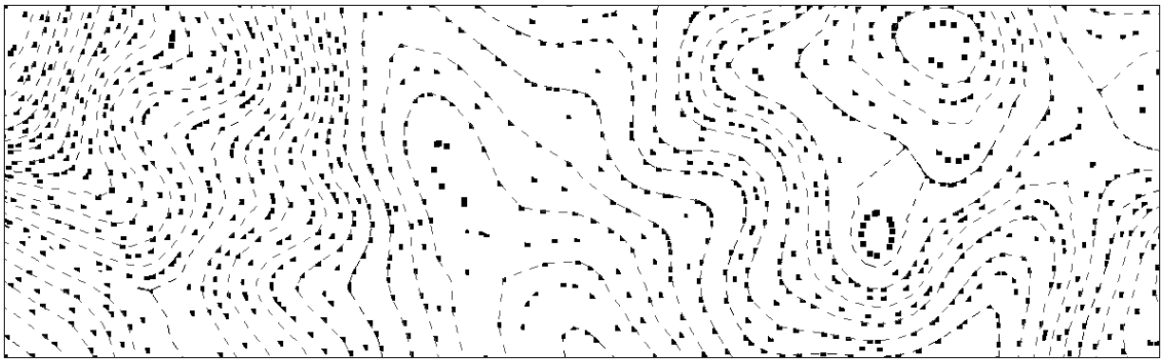
The word “grading” refers to a very wide spectrum of actions, but in a nutshell, it is the process of modifying an existing topography. Every outdoor intervention involves some changes to the existing topography or ground and can, therefore, be referred to as grading. Grading occurs in most project phases, at the very beginning of construction and through to the very end of the process when adjustments are made to polish up the face of the landscape. So, whether you are an urban designer, a road engineer, an architect, or a landscape architect - we all engage in grading.

GRADING IS THE START OF ANY CONSTRUCTION PROCESS. IMAGE BY SHUTTERSTOCK.

“THE PRINCETON LINE” BY MAYA LIN. PHOTO COURTESY OF PRINCETON UNIVERSITY ART MUSEUM

Topographies in Revit and how they benefit grading

In Revit, the Topography category (a.k.a. Toposurface) allows us to achieve the most accurate grading results. This category behaves very much as we'd expect it to - a Toposurface has no thickness or layers, and constitutes the triangulated connection between elevation points you have placed in space (where each point has an X,Y,Z location value). This approach well-suits the materials that make up the earth, which, unlike other building materials that are continuously evolving, are very primitive materials and will, of course, stay pretty much the way they are - soil will be soil, sand will be sand, and gravel will be gravel. This permanency means that we can use Toposurfaces to create very complex geometries while maintaining a very high level of accuracy, something we wouldn't be able to do in mass environments or with very dynamic, parametric surfaces.



A COMPLEX TOPOGRAPHY. THE BEST REPRESENTATION OF THE GROUND.

Elevation points:

The more elevation points you add to a surface, the more accurate it will be, and an abundance of elevation points is key to creating smooth surfaces. However, the accuracy afforded by a multitude of elevation points comes at a price. More often than not, topographies in landscape models can contain hundreds of thousands of points, and even though, outside of edit mode, Toposurfaces won't slow down Revit, editing a very heavy surface can be challenging.

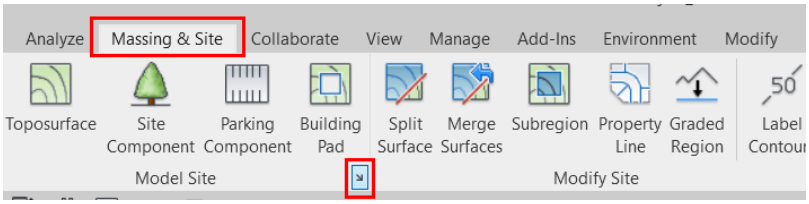
With this at the forefront of our minds, we developed Environment's topography tools to add as many points as needed to obtain high levels of accuracy, while also accounting for the performance aspect. In other words, our tools are designed to **optimize** the number of elevation points added to a Toposurface to achieve maximum smoothness and accuracy with the minimum number of points.

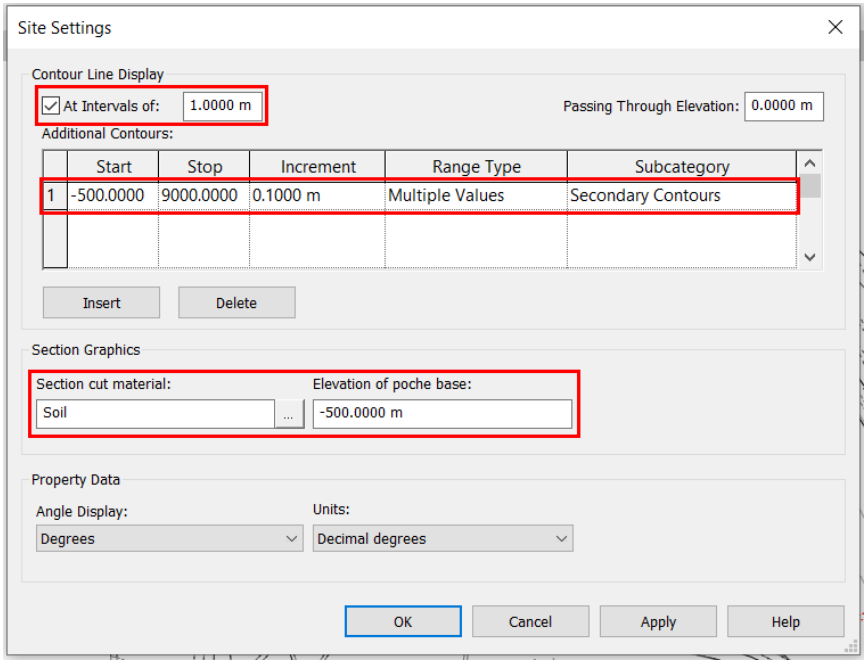
Pro tip → Remember that the elevation of each point in Revit always refers to the Internal Origin, which in site projects is sea-level elevation. With that said, upcoming Environment versions will allow you to place elevation points in relation to other elements, such as a Project Base Point.

Contour lines:

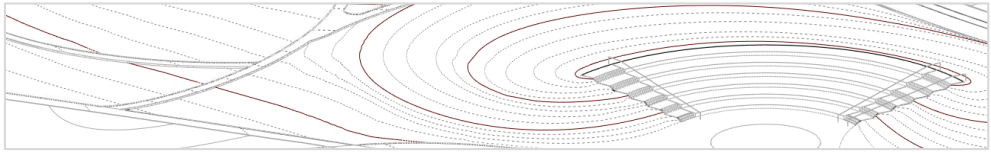
By default, Topographies in Revit display contour lines as you create them. Contour lines provide the most accurate representation of the three-dimensional shape of a surface and are one of the principal tools used by every landscape architect or site designer to understand and portray the terrain they are working with or to design a proposed grading.

Pro tip → Revit offers complete control over the presentation of contour lines on your surfaces through the Site Settings window, accessible via the Massing and Site ribbon. Here is an example of site settings in a standard site project in Revit:





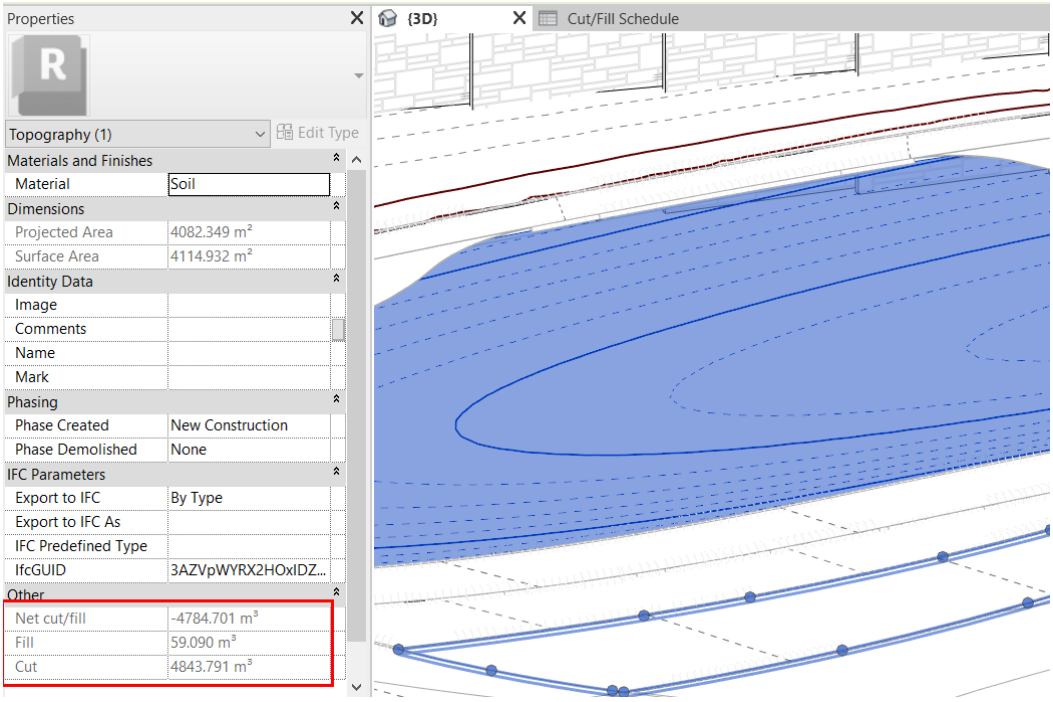
Contour line graphics can also be controlled through the Object Style menu (definitions for the entire project) or the Visibility Graphics menu (for a specific view) under the Topography category.



Cut & Fill calculations:

Topographies can also be used to calculate earthwork volumes for a proposed project. This capability is a native feature of Revit's Toposurfaces and is of substantial value to any project. Revit can perform cut & fill calculations when there are two overlapping surfaces assigned to different design phases in our model. At the end of this class, we also present another topography tool that can assist with these calculations.

Pro tip → Once you model a surface as an existing ground assigned to an early phase (usually called existing), any surface created in the following phase will display the appropriate cut & fill value in its properties. It doesn't matter if your proposed design is composed of several different surfaces, as they can all, eventually, be displayed together in a joint schedule, or, perhaps, separated into areas - whatever you decide.

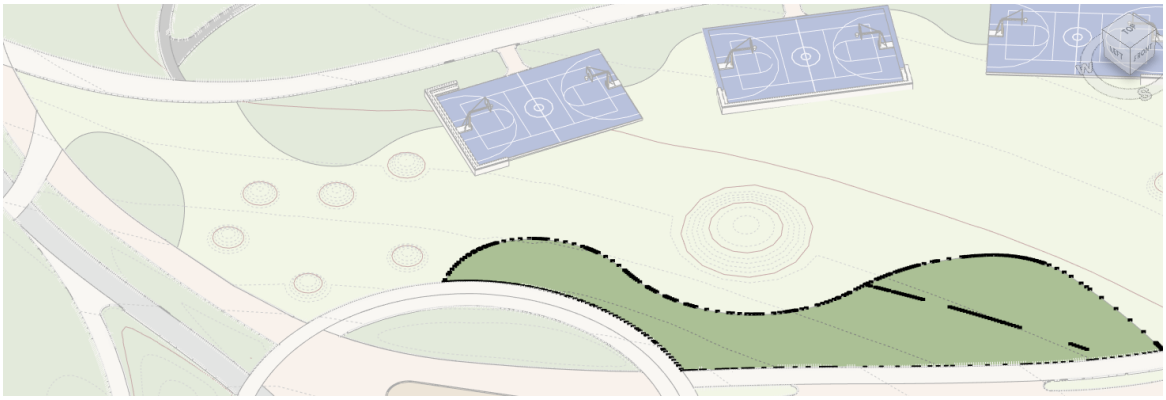


<Cut/Fill Schedule>

A	B	C	D	E	F
Topography Name	Phase Created	Topography Area	Cut	Fill	Net cut/fill
	New Construction	<varies>	7813.96 m³	33643.24 m³	25829.28 m³
Grand total: 36			7813.96 m³	33643.24 m³	25829.28 m³

Subregions and Splitting surfaces:

As a rule of thumb, I prefer not to use topography “Subregions” even though this could be very convenient. The reasoning for this is that when you create a Subregion on a surface, Revit adds elevation points on the boundary and / or may even delete existing points, causing your surface to lose accuracy but without any option to control these changes. The better option is to use the Massing and Site > Split Surface tool, although in this case you might end up with the same result but will be able to see and edit the elevation points on the boundary.



SPLITTING A SURFACE TO CREATE AREAS WITH DIFFERENT MATERIALS

How to build a landscape Revit model – a few words about workflows and best practices.

There is a fairly widespread misconception that landscape models are composed of a single large Toposurface representing the existing ground plus the modifications defined in the proposed design. This would be equivalent to saying that a building is one big chunk of cast-in-place concrete. A landscape model is more similar to a quilt, where every element, every path, or plaza, is stitched in place in its unique position, shape, and slopes, and where all of these elements are sewed together to make the complete landscape model. That being said, in the final stages of your design, a single all-encompassing surface can be used to represent the site’s excavation plans, and we will touch on this topic, for which there is a dedicated Environment feature, at the end of the class.

Recommended workflow for modeling a site in Revit →

Step 01: Setup the context
Begin by placing existing constraints, such as planned and existing buildings, planned and existing roads, and other elements your design will connect with. This allows you to design based on the relationship between the proposed project and its surroundings.

Step 02: Create your design outline.
Start off your design by creating flat geometries for the main skeleton of your design, using the floor or roof categories, or even by drafting up a sketch using simple Detail Lines.

Step 03: Add grading and elevations.
Next up is to design the grading for each element, beginning with the project's primary paths and hardscapes, and moving to the secondary surfaces, such as gardening beds and turf areas. I elaborated on this workflow in my former AU2021 class: *Landscape modeling in Revit with Environment tools: Overview and workflows.*

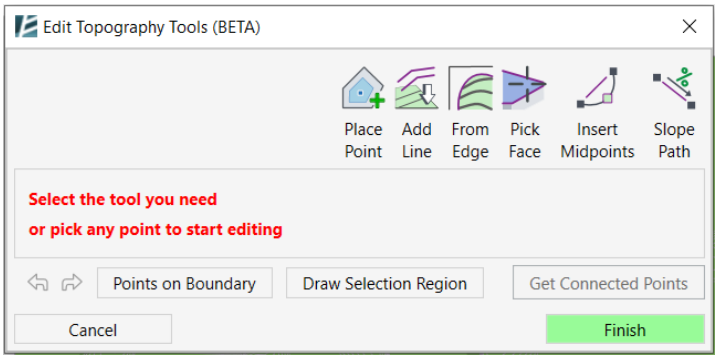
Getting to know Environment's topography tools

This class's objective is twofold. As suggested by the class's name, it introduces you to 14 (or more) of Environment for Revit's newest tools for grading and topography, and to their primary benefits and uses. Secondly, to provide context and aid with understanding, we present examples of the most common uses of these tools, i.e., how we actually use the tools in practice. If you want to dive deeper into our tools you can find additional information on our YouTube channel and in our user guide.

Something to consider…

While Environment for Revit makes grading, placing elevation points, and using contour lines a walk in the park, you will get the most out of our tools if you are familiar with the theory and use of all of these topics.

Topography Toolset:



Well aware of the importance of topographies to site design, we've bundled many of our topography tools into a single toolset, affording easy transition between tools for greater design flexibility, simpler implementation of design changes and topography editing, and for an improved overall user experience.

Key advantages of the toolset include:

- **Efficient elevation point placement** – Swiftly and accurately place elevation points, allowing you to better meet design requirements, such as your project's relationship with the surrounding landscape, desired slopes, and other design ideas.
- **Elevation point optimization** – Let's you place as many points as needed for maximum accuracy, while also optimizing the number of points.
- **Convenient access to related native Revit tools** - Amongst others, we've included Revit's basic 'Place Point' tool, allowing you to place, copy, move or delete points while you're performing more complex topography manipulations with Environment's tools.
- **Smart selection** – The toolset's default mode, selection mode provides advanced options to select elevation points on a surface.

Let's take a closer look at the different tools in Edit Topography Tools:

From Edge:

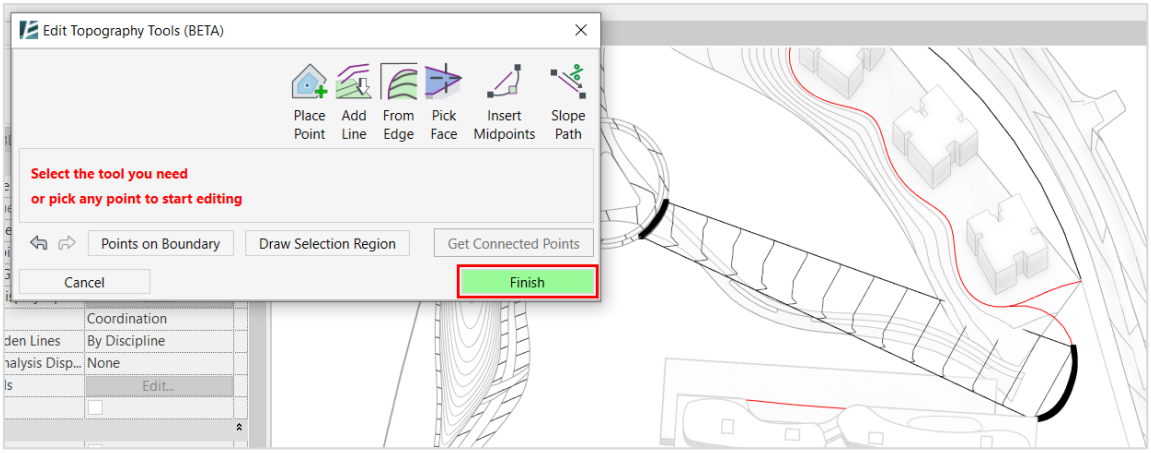
When creating a surface in your model, you will almost always begin by connecting it to one or more additional elements surrounding the surface, e.g., connecting it to the context of your project (a road, a building, or some other component belonging or related to your design).

The "From Edge" tool lets you place points on any 3D edge in your model, including edges in linked Revit or CAD files, making it one of Environment's most useful tools and an excellent starting point to create almost any element in a landscape model.

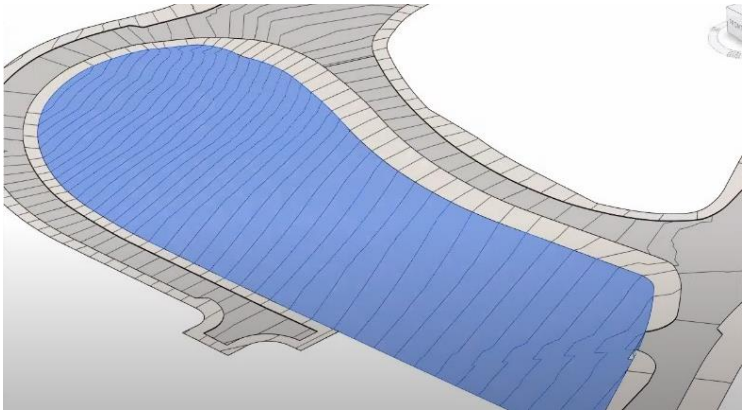
Using "From Edge": Simply click on any edge in your model (it can also be an edge of a linked model) and Environment will add elevation points to it. Moreover, with From Edge, you can easily assign an offset to these points to create a surface above or under the selected edges.

Common uses:

a. Create a basic surface that connects two points (edges) in your model: While this might sound trivial, creating a surface that connects two model edges can give us a good idea of the slopes we will be contending with. As examples, think of a pathway connecting a road and a building, or of the general sloping of a lot situated between two main roads.

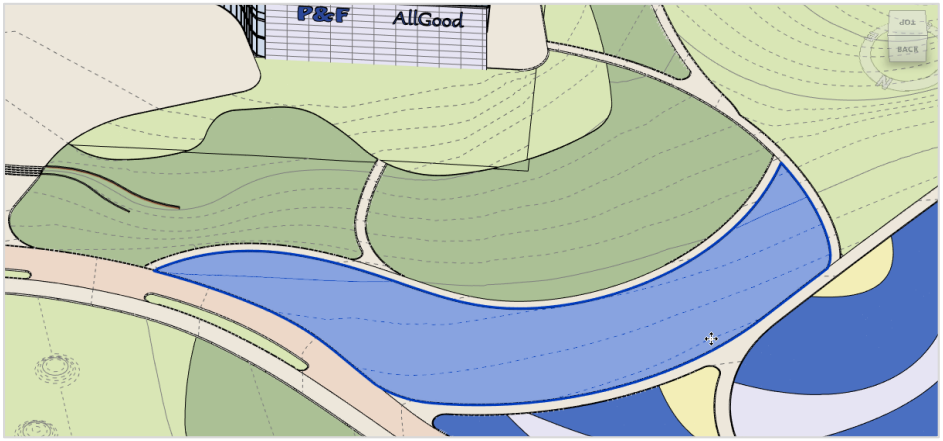


BEGIN GRADING A PLANNED PATH BY CREATING A BASIC SURFACE TO CONNECT TWO MODEL EDGES



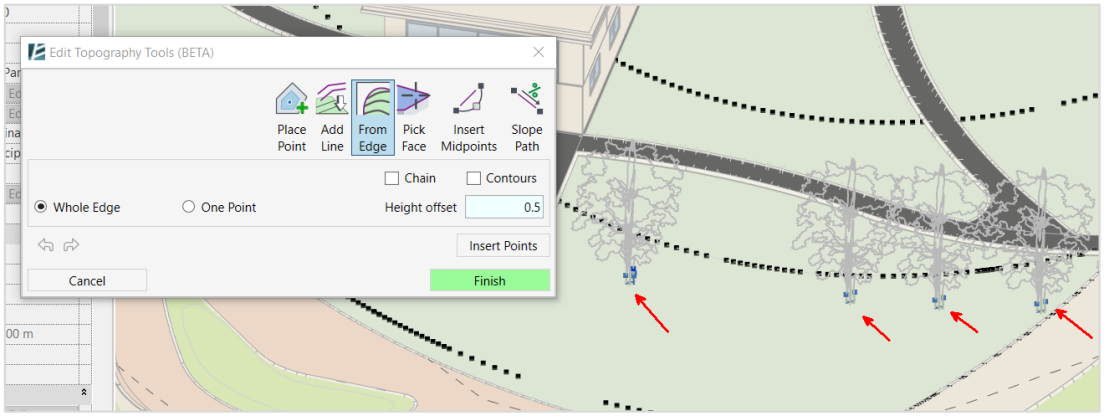
START DESIGNING A LOT BETWEEN ROADS

b. Model secondary surfaces in your design, such as a gardening area confined between paths and / or walkways.



WHAT WE CALL A SECONDARY SURFACE- A SURFACE CONFINED BETWEEN THE MAIN DESIGN ELEMENTS, SUCH AS PATHS.

c. When you would like your proposed surface to relate to existing elements, such as trees you wish to preserve.



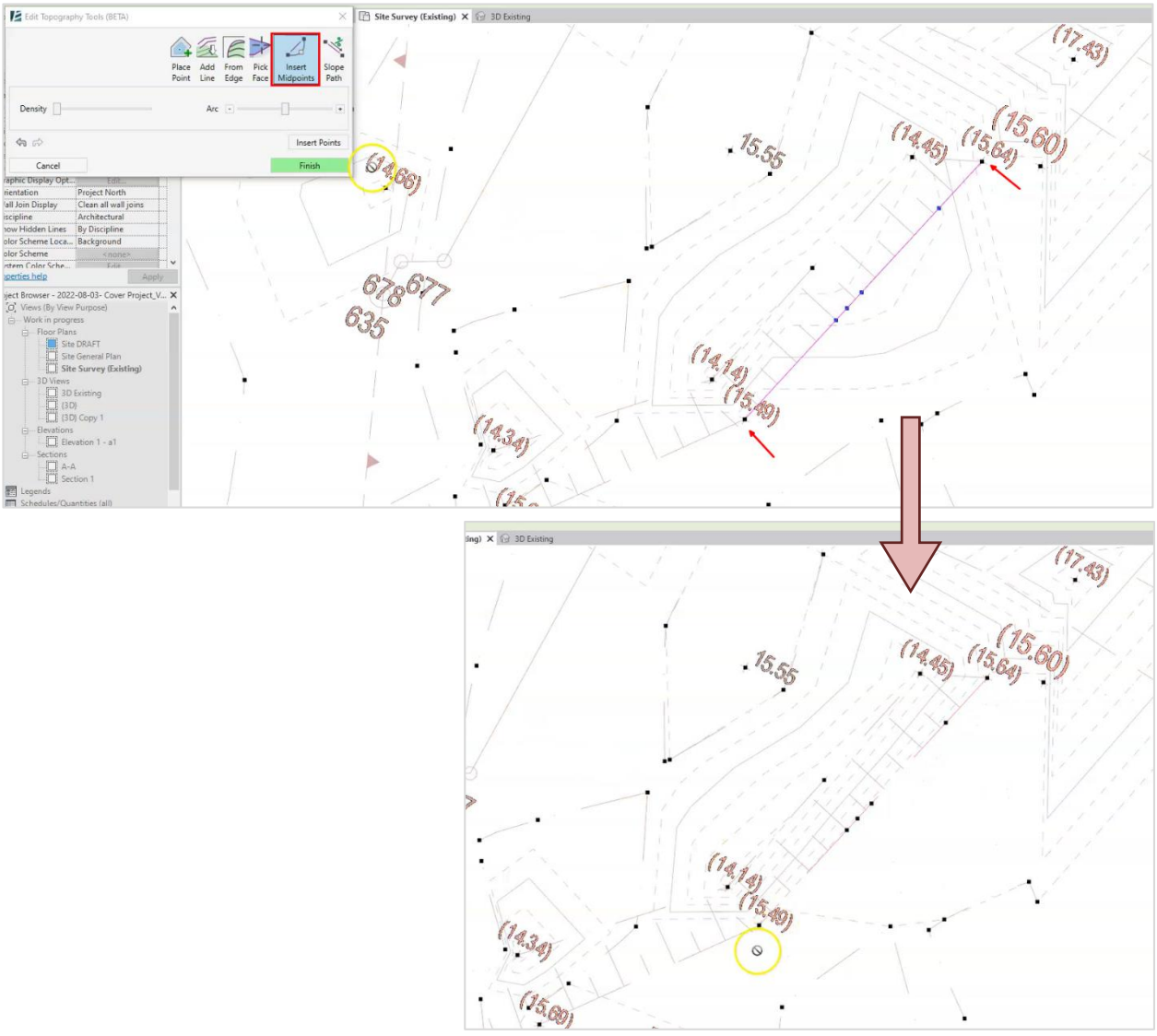
ADD ELEVATION POINTS IN RELATION TO EXISTING TREES

Insert Midpoint:

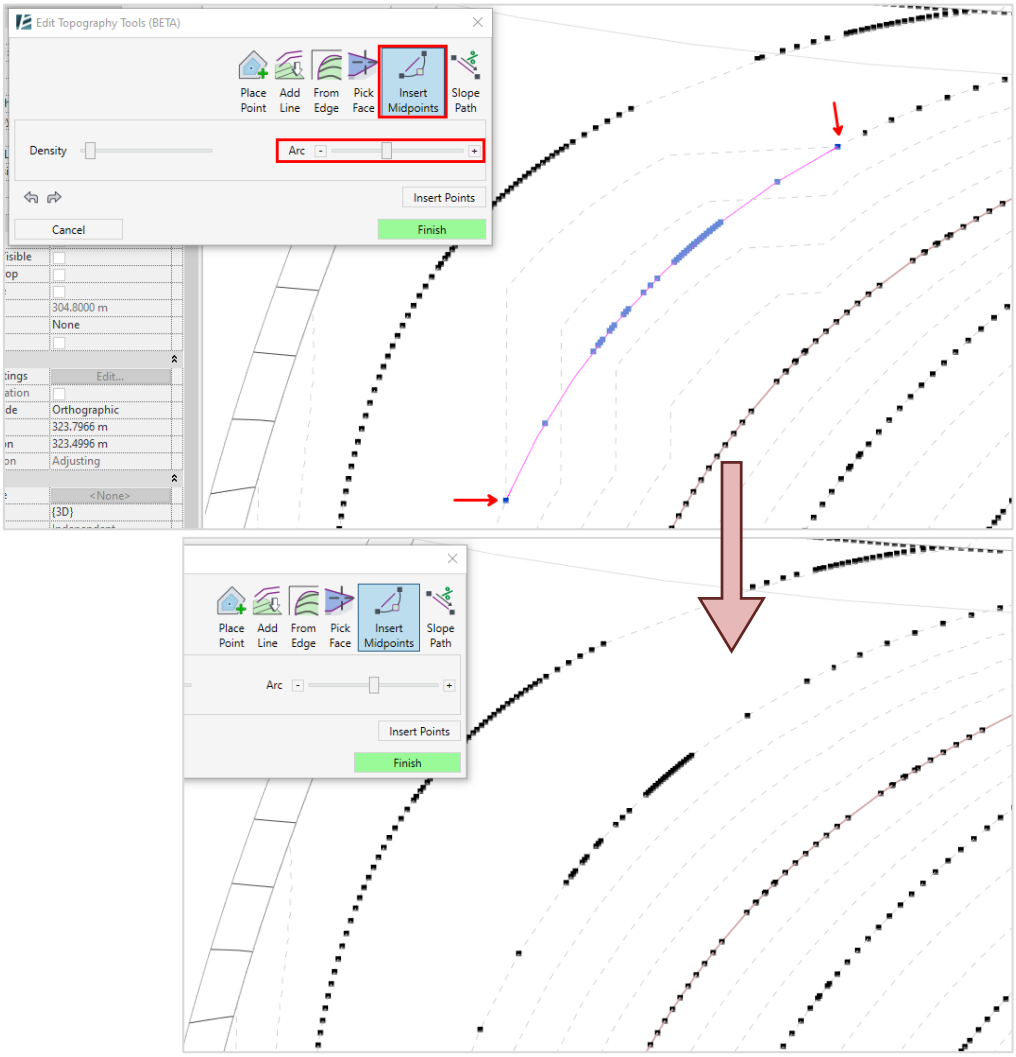
Often, when shaping your topography, you may need to add elevation points to arrive at a specific shape. With “Insert Midpoint”, you can insert missing information (i.e., elevation points) between two other points, to form your desired shape within the topography.

Common uses:

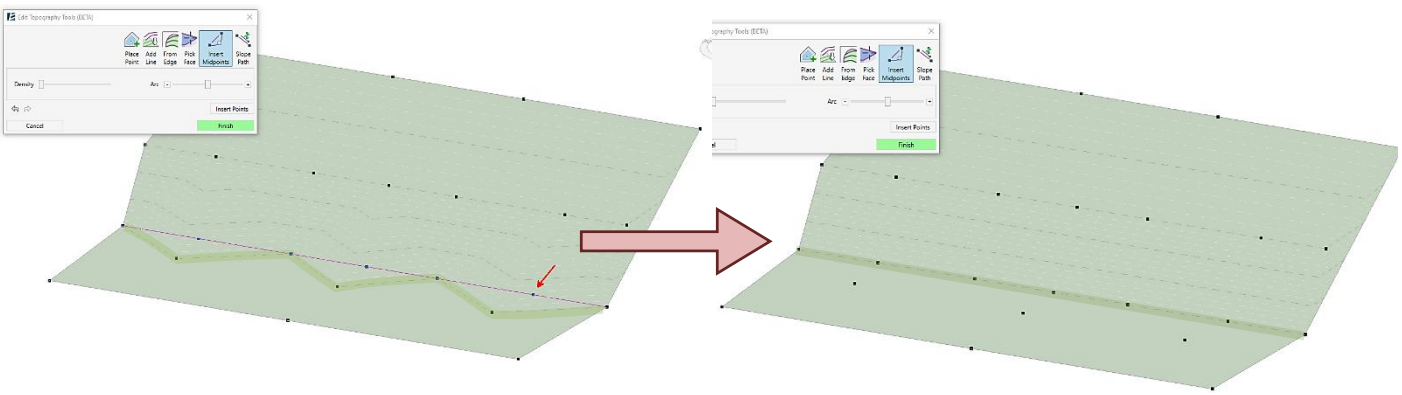
a. Complete missing survey information while maintaining the landform described by the surveyor in the original file.



b. Smooth lines and shapes in a designed surface.



c. Make Revit understand what shape you wish to achieve between two elevation points.



Add Line:

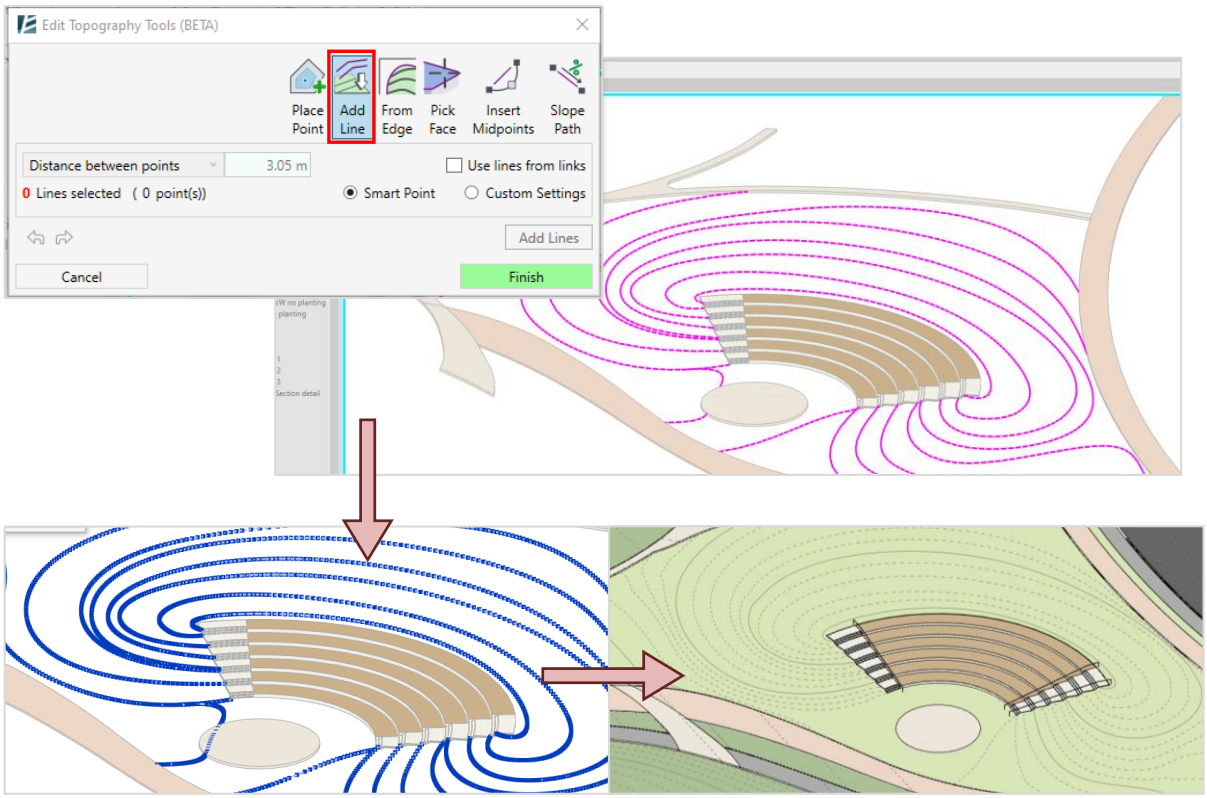
When creating a topography in Revit, we usually begin by placing points in space and then view the resulting surface and the contour lines representing it's shape. However in the landscape discipline, a reverse process is very common in which we start by drawing the lines representing the shape of the proposed topography.
Environment accommodates this workflow by allowing you to draw contour lines using the Model Line category and to assign elevation to each line with the 'Set Elevation' tool (additional information regarding this tool is provided herein).

With the Add Line tool you can create a topography from these Model Lines by automatically placing points along the lines you created.

This tool also optimizes the number of points needed to create the accurate surface that follows these contours.

Common uses:

- Use model lines as contours for a designed surface, as depicted in the example below.



Slope Path:

When determining the slope along a straight or curved path, sometimes we need to set a predefined slope value for the path to match design requirements. Other times, we want to see how steep or gentle the slope is between two points on a specific surface.

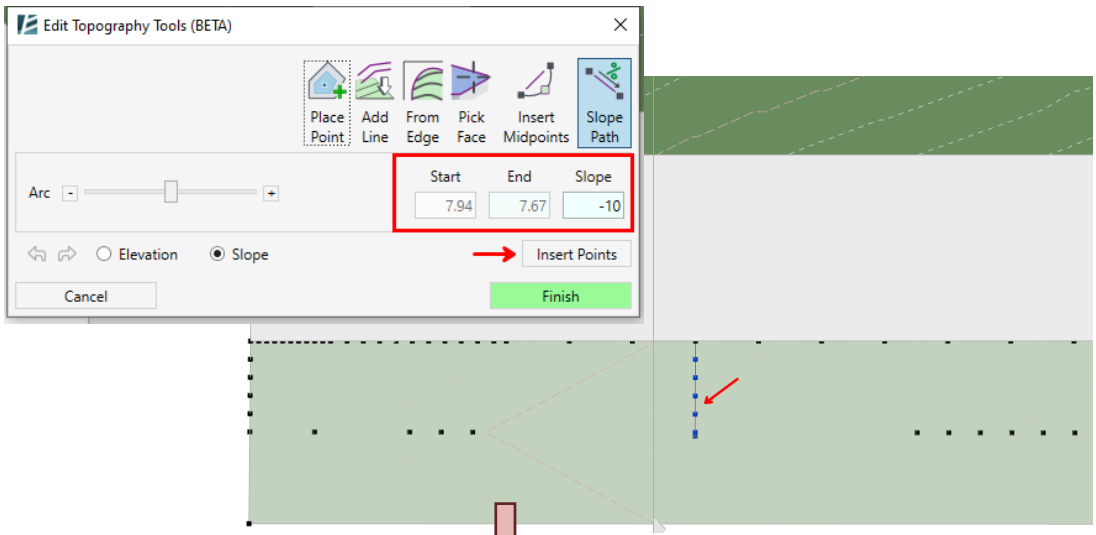
Slope Path lets you take either approach to help you achieve a preferred slope between two points:

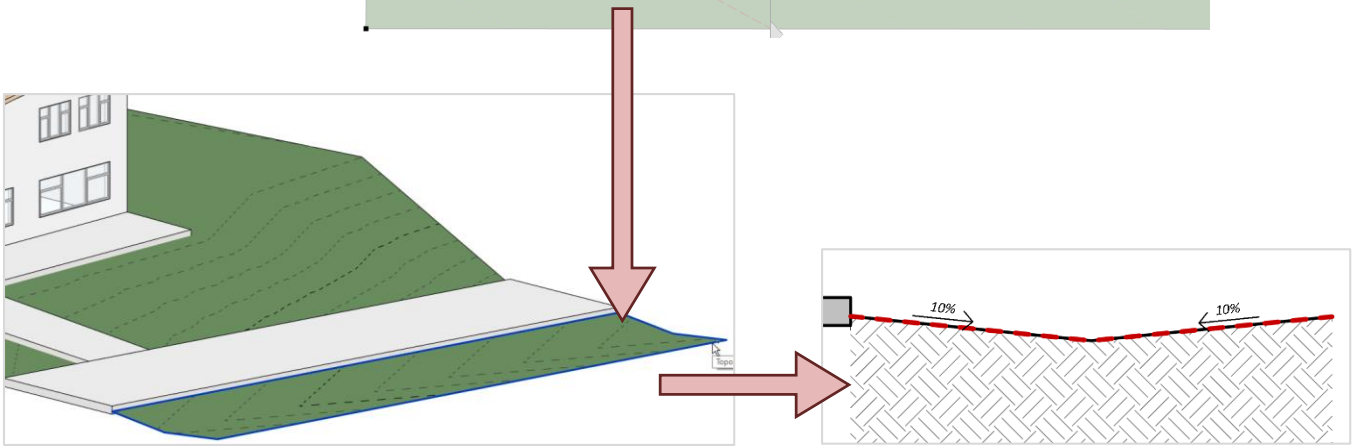
- Create a target slope along a straight or curved path by setting the slope value (in percentage points or using any other slope unit, such as 1:12”).
- Set a start elevation and an end elevation for the path.

  Whichever approach you choose, all that’s required is to pick the start point, drag to set the slope path, and click again to place a point at the end of the slope path.

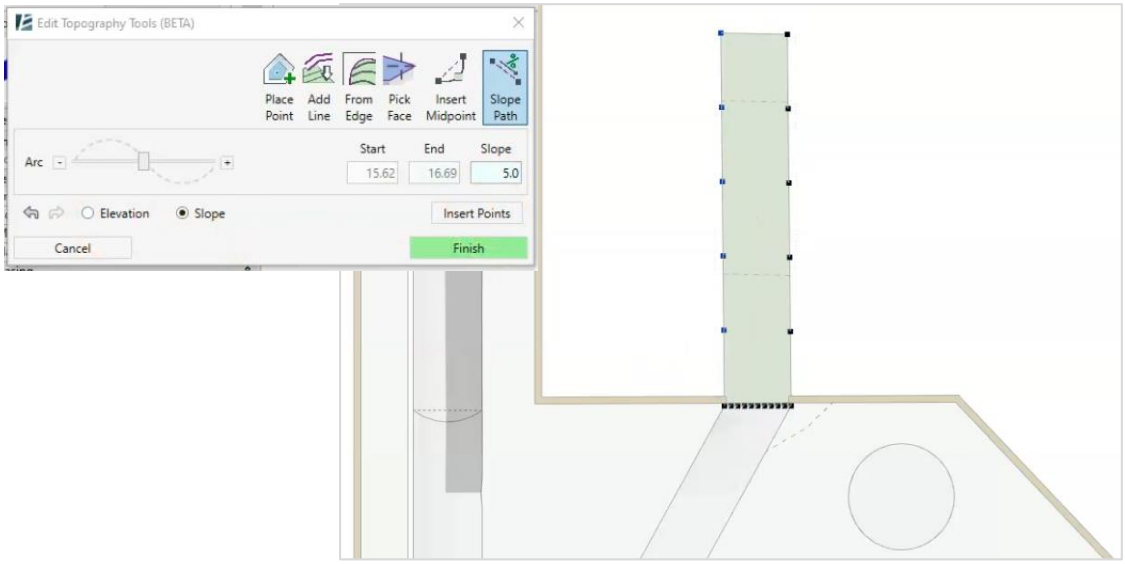
Common uses:

- Easily create a swale to drain and / or retain runoff water.

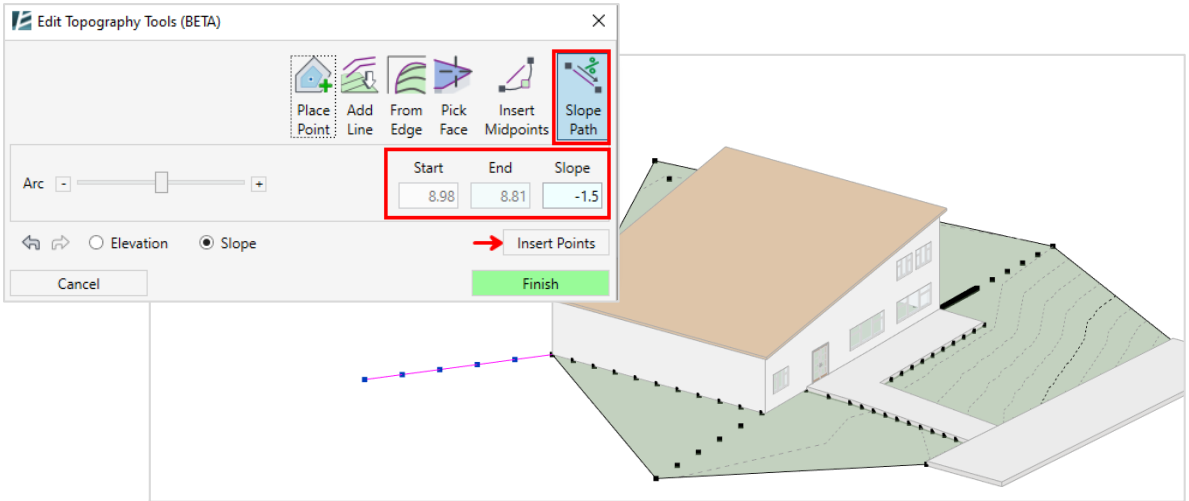


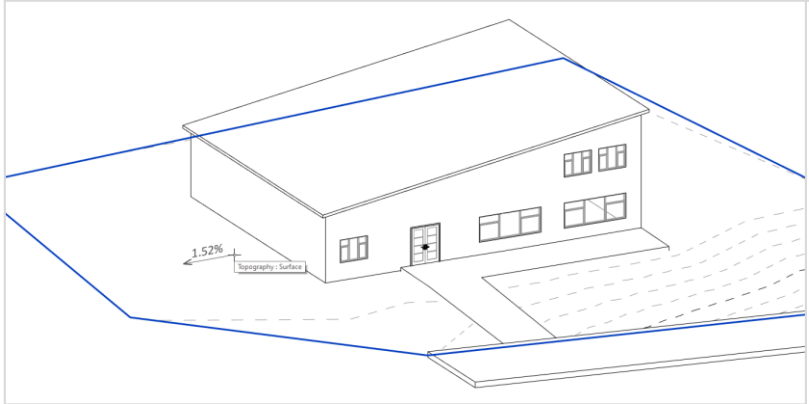


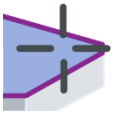
- Creating a path with a predefined slope.



- Connecting to existing elements with a pre-defined slope.





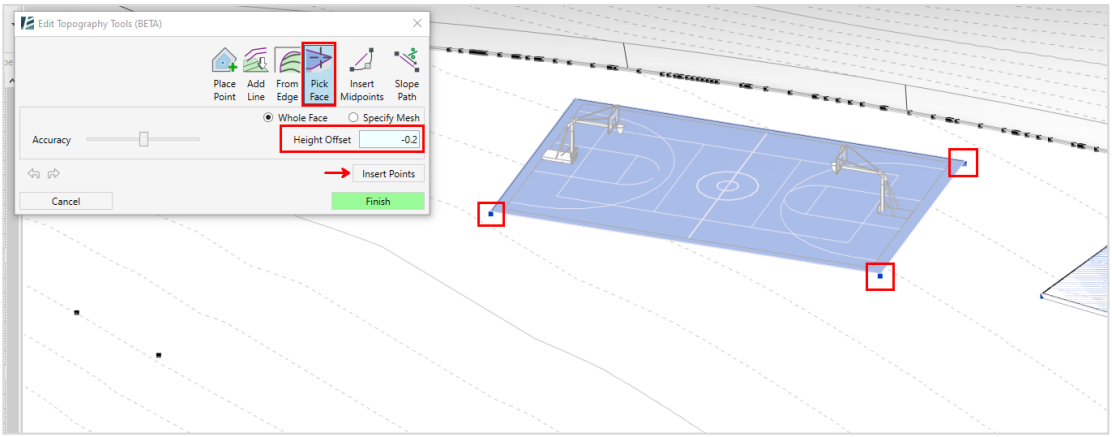


Pick Face:

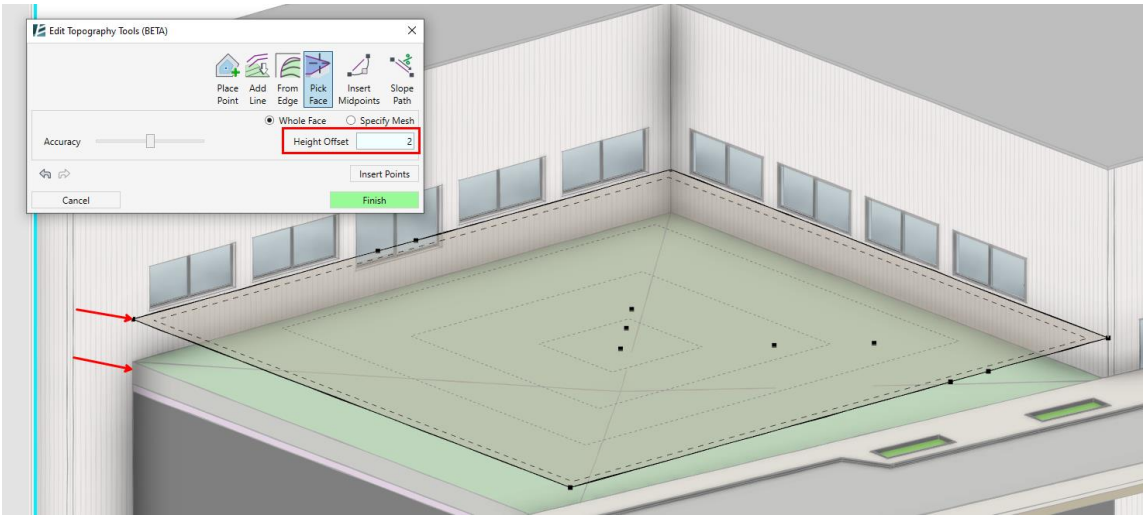
Select any face, Toposurface or mass in your model, including linked elements, to place points on the selected surface, and use these to create a new surface or edit an existing one. As touched upon earlier, Pick Face also lets you set vertical offsets to these points, for instance, to create the new surface above or below the reference surface.

Common uses:

- Adding an element, such as a basketball court, on a Toposurface and aligning the surface to this new element (i.e., aligning the Toposurface to the court).



- To create a surface with the exact same shape as an element in a linked model. For example, if you're designing a roof garden and need the bottom floor of your garden to align with the linked building's construction roof.

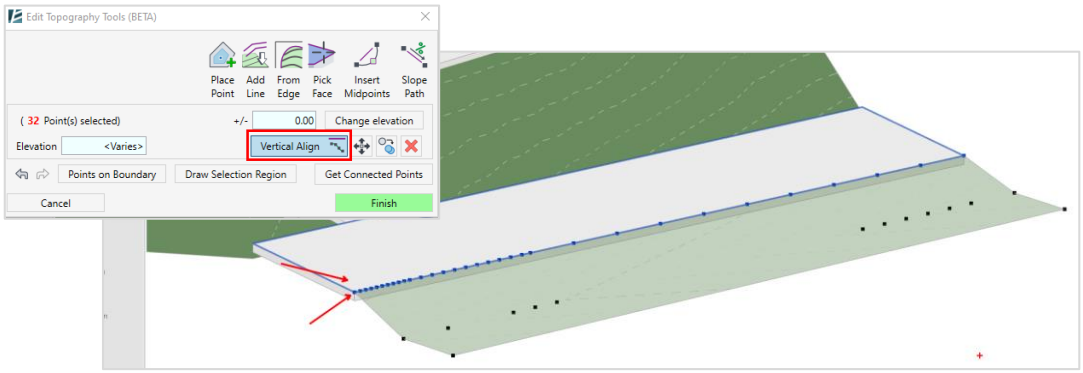


Vertical Align:

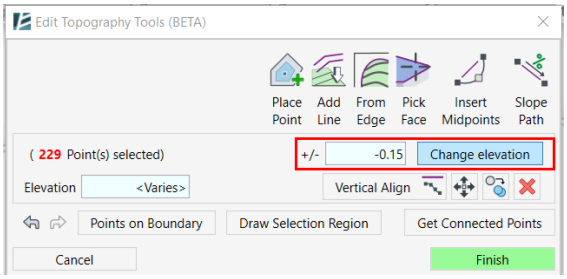
In any design discipline, and especially in site design, changes are a big part of the game, perhaps the biggest part, and Vertical Align lets you make sure your surfaces stay aligned as you implement these changes. With Vertical Align, you can select any surface or slab surface in your model and vertically align multiple elevation points to the selected surface, as long as these points overlap or intersect the surface.

Common uses:

- A great tool for making design changes to one surface and then updating another surface to align and connect with the modified surface.



Change elevation:



Add or subtract the same elevation value to multiple elevation points (as opposed to setting the absolute value of each elevation point).

Common uses:

- When we need to vertically move multiple points with different elevations to match design requirements. For example, if we want to design a gardening bed to be lower than the pavement.

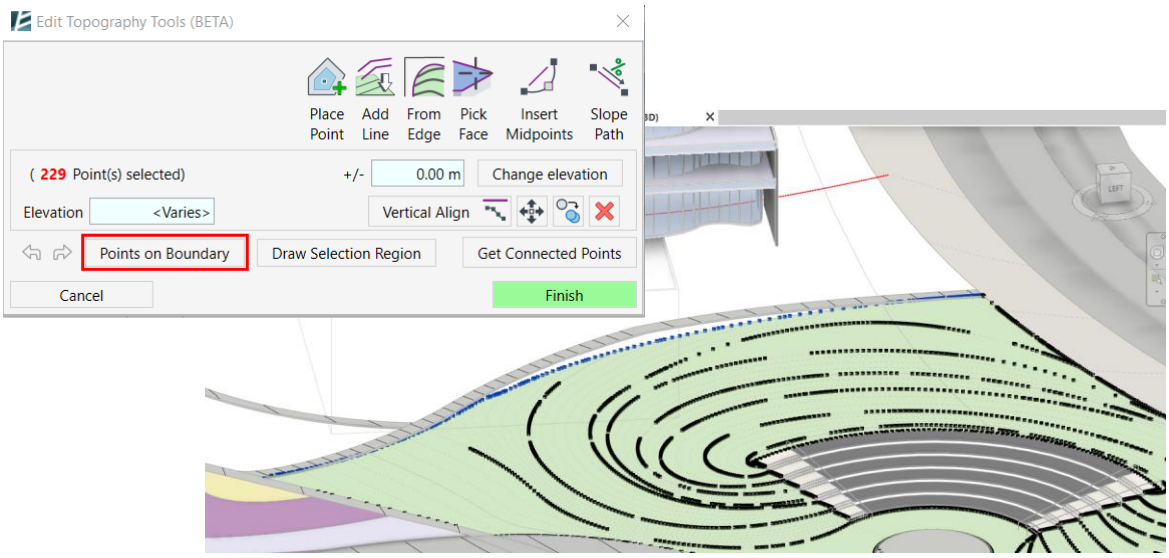
Topography tools – Selection options:

Points on Boundary:

Select a sequence of elevation points along a surface's boundary.

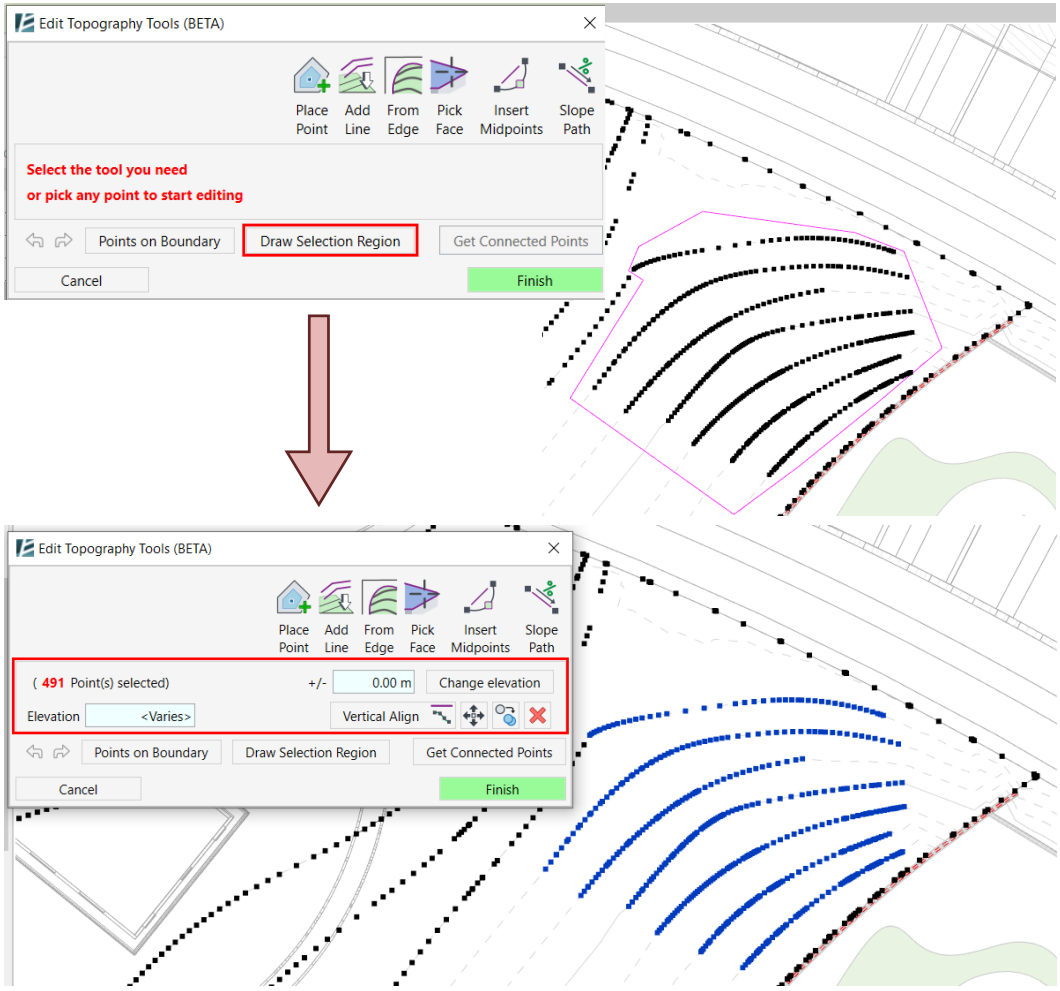
Common uses:

- When we only want to change the elevation of a certain section of a surface's boundary, for example to align with a path (see 'Vertical Align' tool above).



Draw Selection Region:

If you wish to select and edit a defined group of points within a surface, this selection option lets you draw a boundary on your surface to accurately select the desired group of points. You can then preform any editing action on those points without affecting the rest of the surface's elevation points – e.g., **copy, move, delete, or vertically align** them to another surface.



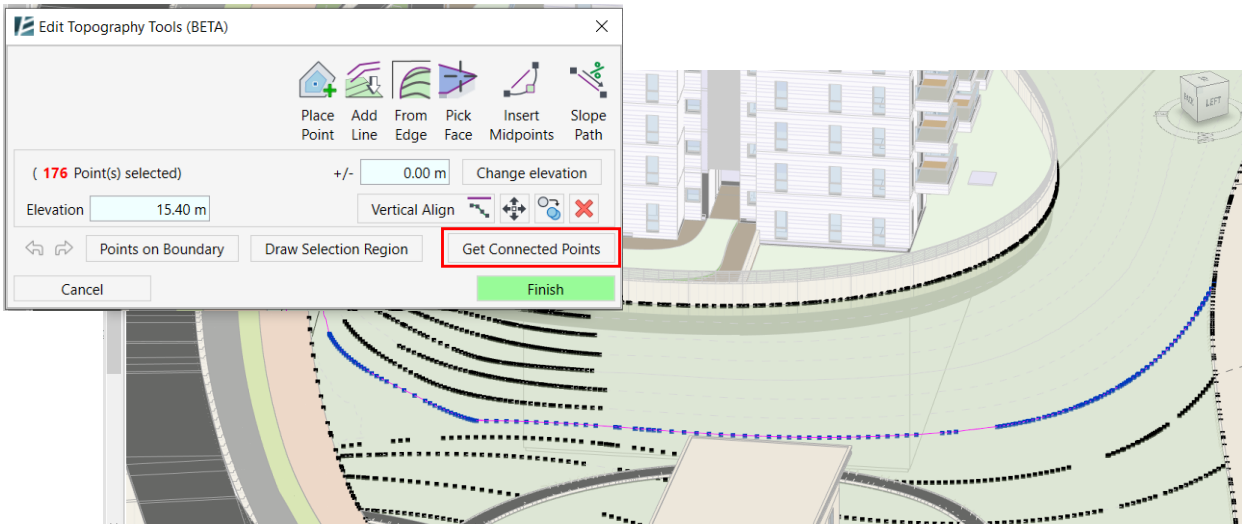
Get Connected Points:

When working with topographies, it's important to understand that topographies are composed of elevation points, and not contour lines, which are only graphical aids that help us to discern elevations. As such, although somewhat counterintuitive, if your goal is to modify the contours of a surface, you need to edit its elevation points, not its contour lines.

"Get Connected Points" lets you, with a single click, select a sequence of elevation points with equal elevation, allowing you to modify them in concert.

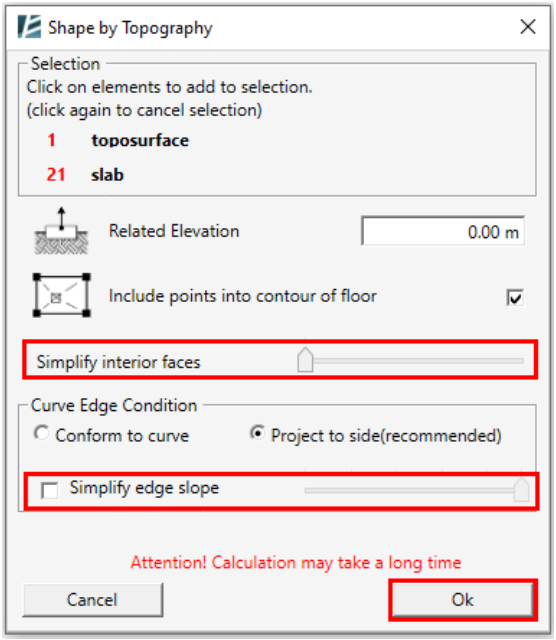
Common uses:

- After creating a surface from Model Lines (where Environment places elevation points along these lines), use Get Connected Points selection if you need to change the placement of one of these lines (and its associated points) or to change its elevation.



Shape by Topography:

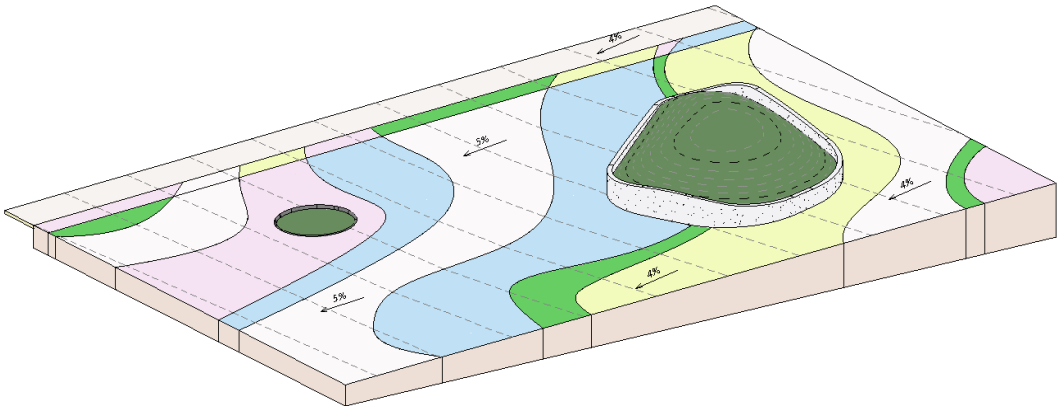
For those of you who are familiar with Revit, you already know that topographies are pliable and easy to edit (and if you aren't, then you will soon find out 😊). Conversely, slabs aren't quite as simple to work with (to say the least), however, we need to use slabs often in site design. To bridge this gap, we commonly use topographies as helper surfaces when shaping slabs in landscape models.



At Arch-Intelligence, we took the idea of using topographies to shape slabs one step further and added a feature to Environment for Revit specifically for this purpose, "Shape by Topography". As one of our first tools, we've greatly optimized it over the years, for a much smoother and faster shaping experience, that leaves Dynamo scripts far behind. Indeed, Shape by Topography offers a slew of advantages over Dynamo scripts, including working faster with large surfaces (something that Dynamo scripts often fail at).

Here are a few things you can do with Shape by Topography:

- Select as many topographies and as many slabs as you want.
- Add elevation points only to a floor or roof's boundary, but not to its face, which can be useful when designing paths and roads.
- And amongst our latest improvements, we've added an option to Shape by Topography that lets you simplify your surface to reduce the number of points added to a slab boundary or to its face, while keeping it's accuracy. This option helps to improves model performance especially when working on very large projects



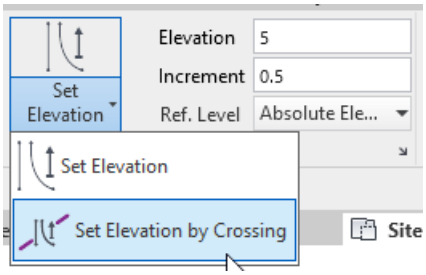
MULTIPLE FLOORS SHAPED BY ONE TOPOGRAPHY

Model Line tools:

Earlier in this handout we mentioned that it is common practice to use contour lines to represent landforms and also as an aid for grading design. Seeing as Model Lines are three dimensional in Revit, they are a perfect proxy for contour lines, and in Environment, we've appropriated Model Lines for this purpose. Here are a few of the tools available in Environment that help streamline working with Model Lines:

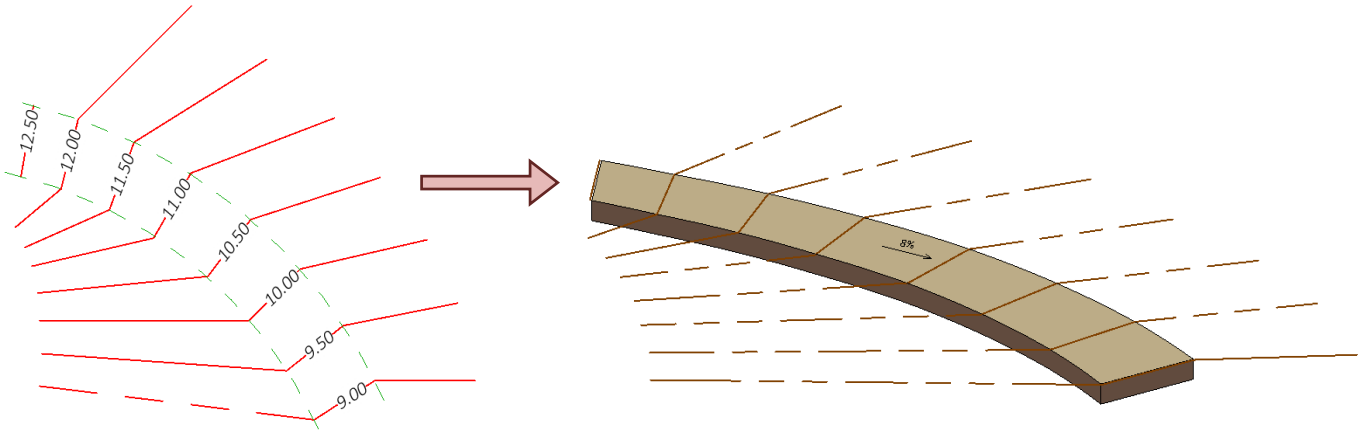
Set Elevation:

In landscape and site design we often need to "play around" with elevations to achieve our end goal, but this no trivial task in Revit (without Environment).



So, we developed Set Elevation, the fastest and easiest way to assign elevation to model lines. Here's a glimpse of what you can do with Set Elevation:

- Simply set the elevation value and click on a line to change its elevation to the new value.
- Add an increment value to set the elevation to a sequence of lines with a predefined vertical distance between them.
- Use "Set Elevation by Crossing" to elevate a sequence of lines in just two clicks.
- Go to "Model Line Settings" where you can mark an option that will automatically create a text label on your lines to show their elevation, similar to the Contour Labels option in Toposurfaces. This text label is linked to the line it describes, allowing you to change the line's elevation simply by editing the label's text.



USING MODEL LINES IN THE PROCESS OF DESIGNING A SLOPED ROAD

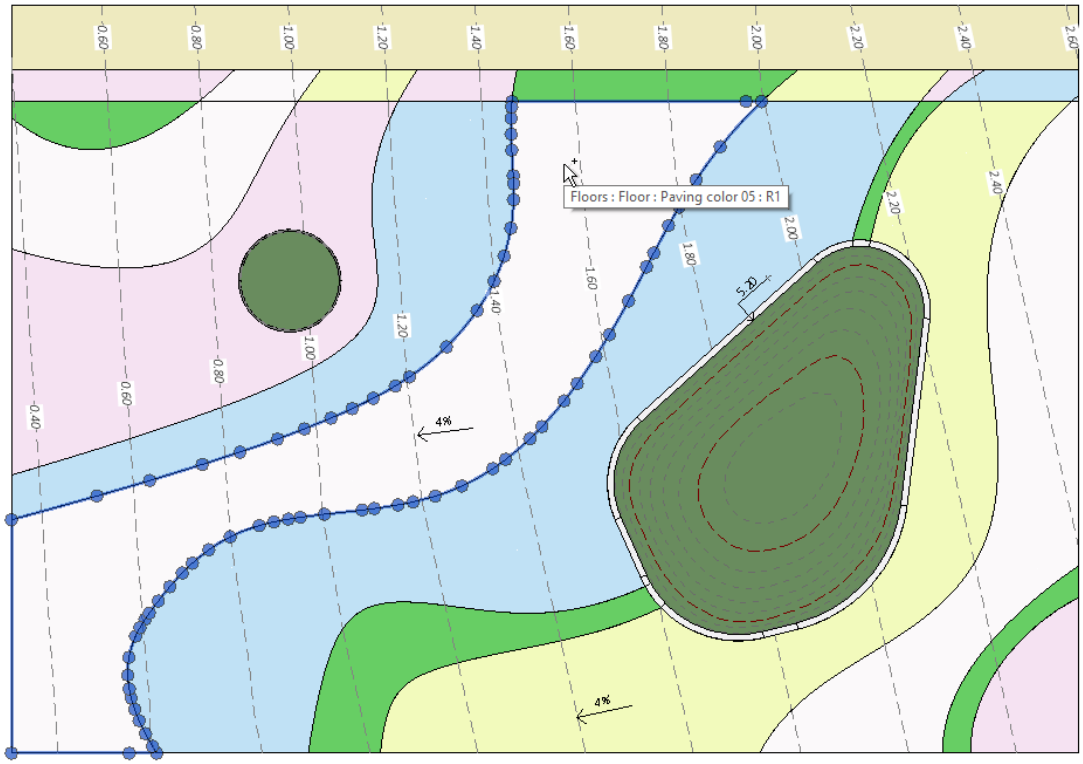
Check Elevation:

For various reasons, we sometimes just need to know a line's elevation. Use "Check Elevation" to place a text symbol that shows a line's elevation in relation to the project's origin (almost always sea level in landscape design). Also here the text is dynamic and will change with the underlying line's elevation and vice versa, i.e., the line's elevation will change when we change the text.

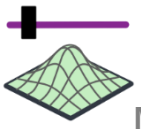
Slab Contours:

Similar to topographies, "Slab Contours" lets us place contour lines (i.e., model lines) on slabs (floor or roofs). These lines are dynamic and will shift automatically with changes to the slab's height or shape.

As you may have guessed, this feature is an absolute must when producing landscape drawings and construction documents.



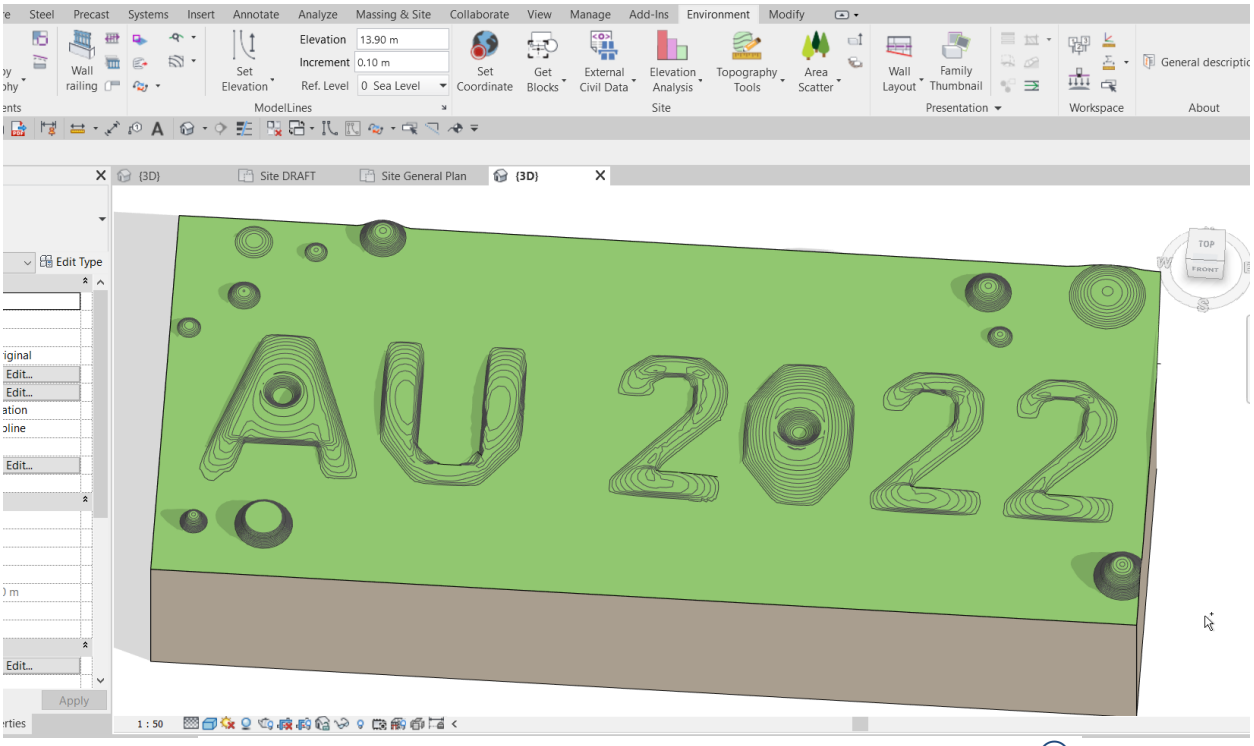
PRESENTING CONTOUR LINES AND CONTOUR LABELS ON FLOORS



Modify Topography:

Déjà vu? While the name of this recent addition to Environment's suite of features rings similar to our "Edit Topography Tools" (a.k.a. "Topo Tools"), it is separate because it offers a different logic to placing elevation points. While Topo Tools is more structured and mathematic, allowing us to place points according to parameters or in relation to other elements in our model to create precisely formed surfaces, the "Modify Topography" toolset provides a more freehand approach to editing and sculpting topographies.

At its core, Modify Topography spreads a net or a grid of elevation points over your topography, yielding a very smooth shape. Then, with its specific tools, you can do things like control the size of the grid, where a smaller grid will result in more elevation points and a wider grid will result in less points, or modify the angle of the grid to influence the resulting shape.



PLAYING WITH THE MODIFY TOPOGRAPHY TOOLS TO SCULPTURE A SURFACE ☺

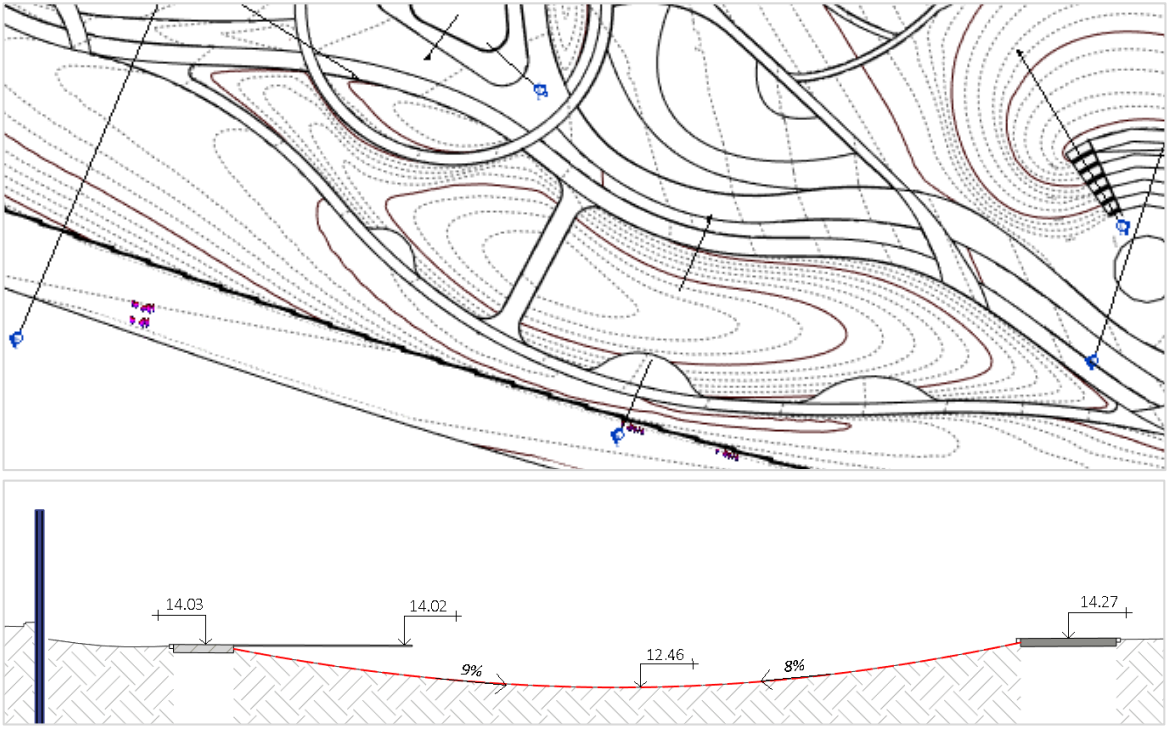
Inflate Surface:

Thinking of placing a play castle atop a mound or designing a pond in a small basin in your topography? With “Inflate Surface” you can inflate or deflate any surface or specific area within a surface with nearly the same ease as inflating a balloon or letting the air out of one (worry not, your topography won’t zip around your model like a rapidly deflating balloon).

The tool is designed to keep your surface’s original boundary and the elevation points on this boundary. Inflation or deflation is set using a percentage slider, where the selected percentage is relative to the original shape and slope of the edited surface. Use the preview button to see the different profiles of the resulting shape. You can then go back and keep on editing and changing parameters until you reach a satisfactory result. For example, you can change the cell size of the grid and its alignment to test different results.

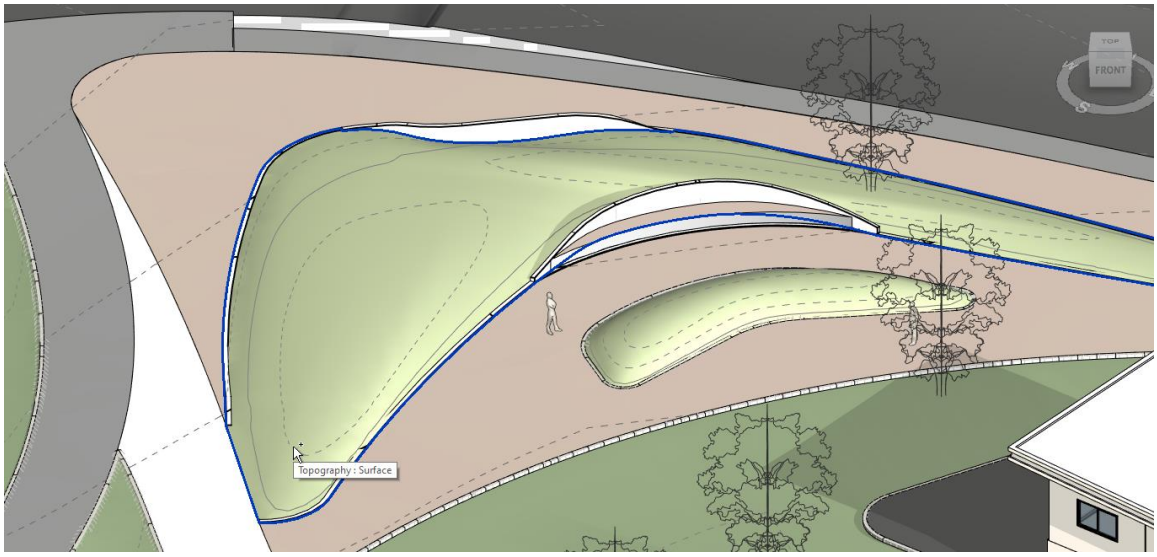
Common uses:

a. Use a negative inflation value to deflate a surface to create a swale or an area for runoff water retention where rainwater can infiltrate the ground.

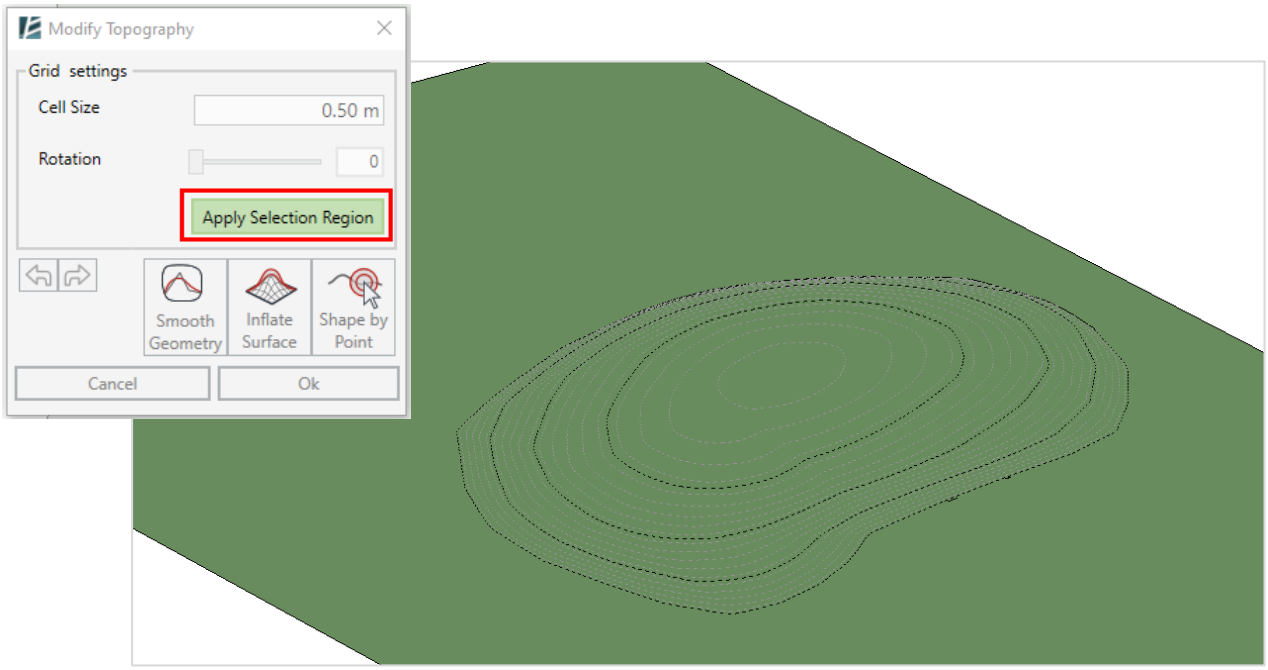


A DEFLATED SURFACE IN A PLAN AND A SECTION VIEW

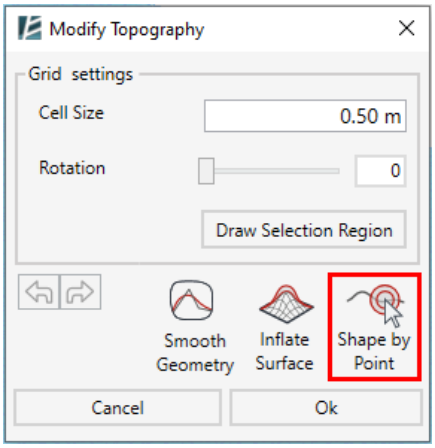
b. Create a gardening area in between paths and inflate it to design a smooth grassy knoll.



c. Use the ‘Draw Selection Region’ to draw an artistically shaped boundary, and then inflate it to form an interesting land design.



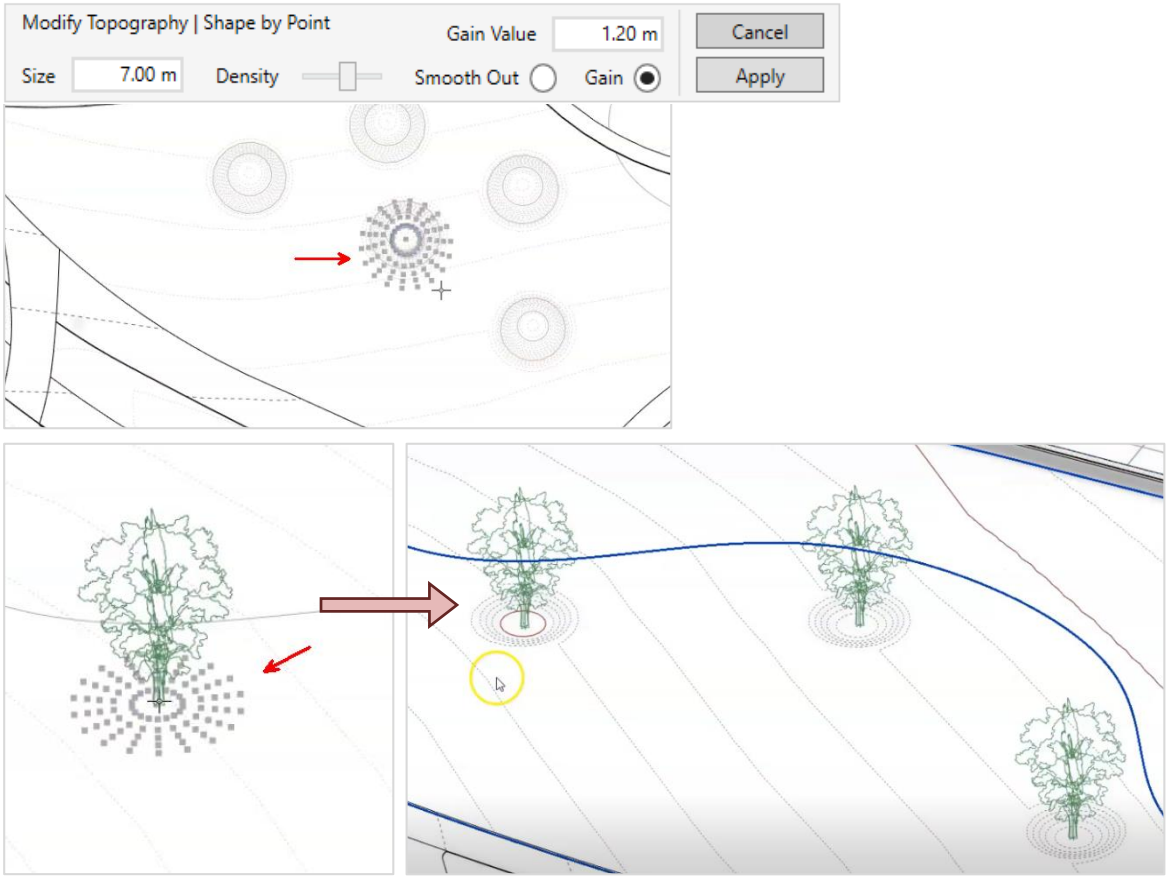
Shape by Point:



If you want or need to create a bulge or trough around a specific point in your topography, the Modify Topography toolset also includes the "Shape by Point" tool. This command lets you form a round localized hill or basin by spreading elevation points in a radius around a selected point and then choosing inflation or deflation, respectively. You can control the overall height of the shape and its size (diameter), as well as use the density slider to determine the quantity of points to be added - the more points you add the smoother your shape will be.

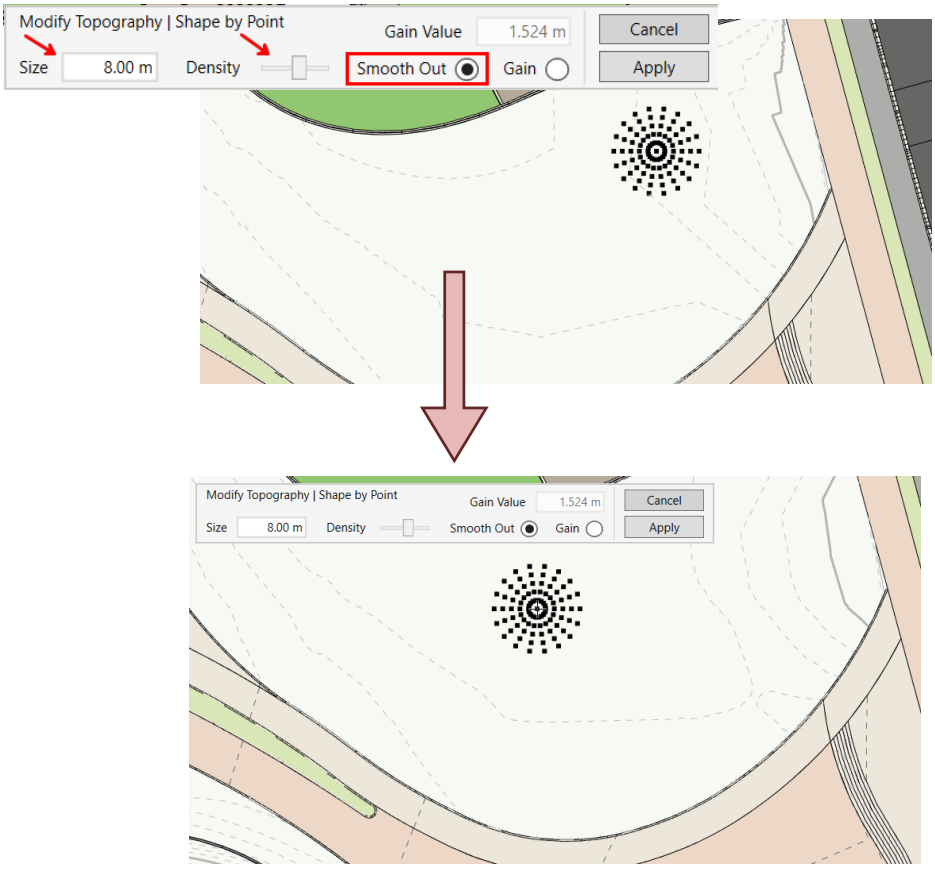
Common uses:

- Create grassy hills with a single click
- Create swales around trees to ensure rainwater reaches the trees and infiltrates the ground around them.



ONE-CLICK HILL OR BASIN

- You may also use the **Smooth Out** option to locally smooth out an existing topography.



SMOOTHING A SURFACE WITH 'SHAPE BY POINT' TOOL

Surface from file:

Collaborating with other teams and including their designs or parts of their designs in yours is a natural part of any architecture project, especially when taking a BIM approach.

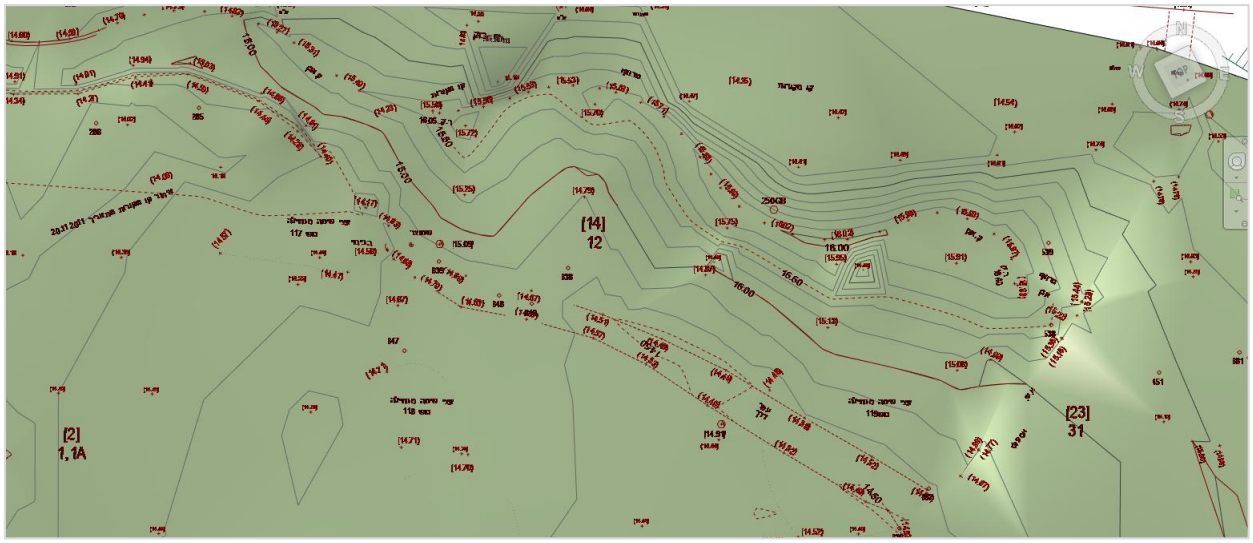
In one such instance, we may receive survey data from an engineer in the form of a CAD file. Such files will often include elevation points in the form of a text or a CAD block that we, as site designers, require when modeling the existing ground. In AutoCAD, we use the “Data Extraction” command to export the necessary data to a CSV file containing a table with the X,Y,Z coordinates of each elevation point. (For more information about this process click here)

In Revit, we could then use the ”Import Instance” feature, included in Revit’s native topography tools. However, this method can become problematic when working with real world coordinates owing to Revit’s 20-mile limitation.

Environment’s ”Surface from File” feature alleviates this concern, allowing you to create a topography from your CSV file with just a few clicks and at the correct coordinates.

Common uses:

- Every project with shared coordinates, where you need to use a CSV point file to import data.



A TOPOGRAPHY MODELED FROM A CSV FILE EXTRACTED FROM A CAD FROM A SURVEY

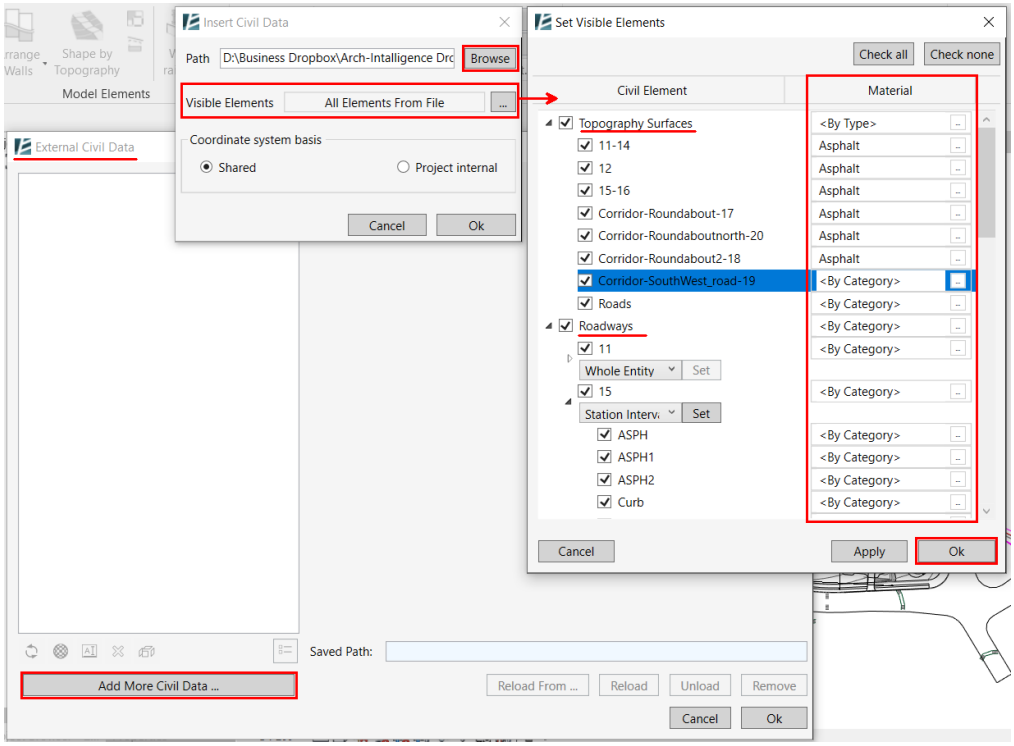
External Civil Data:

In another collaboration feature, Environment for Revit lets you Import any surface or corridor elements from Civil 3D (exported in the LandXML file format) directly into your Revit model.

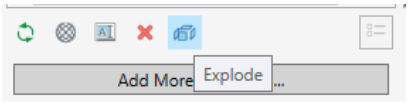
The External Civil Data command provides smooth and seamless collaboration between Revit and Civil by identifying the different road profiles designed in Civil3D and allowing you to control each part of the planned road separately. In addition, when importing a surface (a.k.a tin surface) Environment will make sure that the imported topography will have the same triangulation form and same original boundary as designed by the civil engineer!

In addition:

- All of the imported elements will be made available to you as Revit elements in your model. You can even assign appropriate Revit materials to each of the elements.
- You do not need to import all of the Civil data. Within the command's interface, you may select which of the elements in the file you wish to import into your model.
- At any stage, you can go back and change the settings, you can delete an element, change its visibility or material, or even "explode" an element so that it can be edited within Revit.



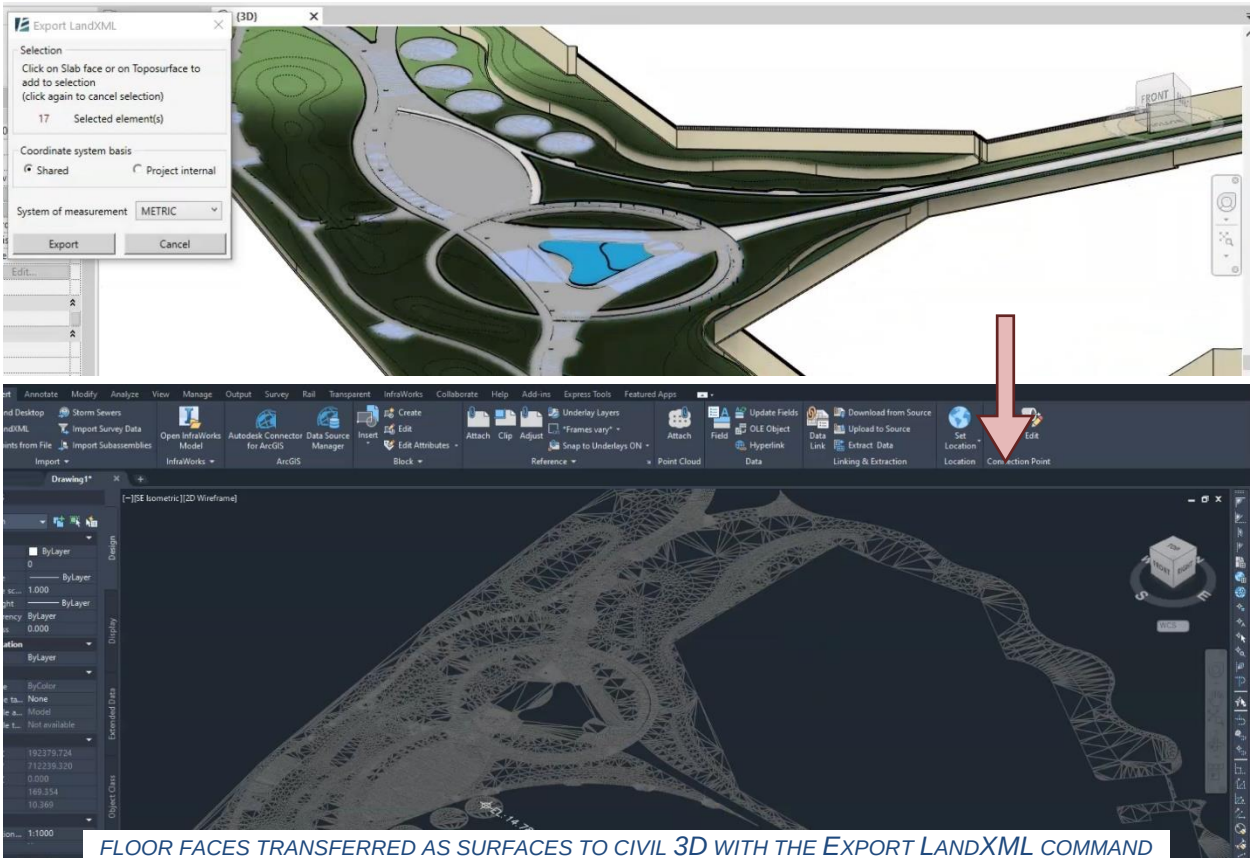
Pro Tip →



Occasionally, you may want to edit an imported surface to split it or merge it with another surface. To do that, you will first need to ”Explode” it from the rest of the data, using the ”External Civil Data’ command. Keep in mind that in order to maintain the accurate slope originally designed in Civil, and because triangulation methods used in Civil and Revit differ, Environment may add points to the surface (in some cases a lot more). Consequently, for certain surfaces, calculations might take some time.

Export to LandXML:

Of course, no collaboration is a true collaboration when it’s just one way. As such, you may use Environment to export any surface from your model to a LandXML file format such that it will be correctly placed in real world coordinates within the Civil3D file. This feature works with any surface including floor or roof faces.



FLOOR FACES TRANSFERRED AS SURFACES TO CIVIL 3D WITH THE EXPORT LANDXML COMMAND

Before we sign off, we would like to acknowledge all the hard work of our programmers that make the magic happen, even under the impossible conditions of the war in Ukraine.
Thank you for reading through this handout, and viewing the associated presentation. Please don’t hesitate to reach out to us with any questions or purchase inquiries.

Best of luck from the Arch-Intelligence team.