

Module 3 – Grading Workflow and Methods

Note: This module was created with the assumption that both students and teachers have a basic understanding of site engineering, and working with contour lines to design a site's grading.







Module 3 – Grading Workflow and Methods

Part 1 – Creating a Topography from Model Lines

- Assigning elevations to Model Lines Set Elevation
- Model Line settings in 'Environment' tools
- Checking and labeling Model Line elevation Check Elevation
- Creating a topography from Model Lines Create Surface

Part 2 – Sloping a Floor according to a 'help surface'

- Shaping (grading) a Floor by a topography Shape by Topography
- Hiding and revealing elements in a specific View Hide in View by Element/by Category
- Getting to know the Visibility Graphics Overrides settings for a specific View

Part 3 – Implementing all of the different methods for creating sloped surfaces

- Completing the slope design of simple paths using Modify Sub Elements
- Manually changing points and snaping to model elements
- Sloping curved paths using Shape by Topography

Part 4 – Floor contours, Floor patterns and secondary surfaces

- Adding contour lines and contour labels to Floors Floor Contours + Check elevation
- Modeling secondary surfaces with topographies using Surface from Edge
- Splitting a Toposurface Split Surface
- Correcting a deformation in a Floor's pattern in a specific View Object Outline

Part 5 – Creating a section and editing graphic settings

- Create a new section View Section
- Hide or reveal a section symbol on a plan View Hide at Scale Coarser Than
- Changing a section's View depth Far Clipping / Far Clip Offset
- Changing a section's View Scale
- Hiding helper surfaces in a cross-section Hide in View > By Element
- Smart annotating Spot Elevation
- Showing a topography cut profile in a section View Surface Profile



Exercise 3

Part 1 – Creating a Topography from Model Lines

In this exercise, we will use **Model Lines** as contours from which we will create a Topography.

Creating a helper surface from Model Lines to grade the Floors:

- Open the attached Module 03_Ex 01 file.
- Switch to 'Site General Plan' **View** from the project browser.
- Switch to the **Wireframe** display on the "**View Control Bar**" This makes all model surfaces transparent, allowing you to see the reference picture we inserted for guidance.



• Draw **Model Lines** to match the elevations in the reference image. You can draw them ruffly similar to the example below: (Remember these are only help lines for grading purposes).



Tip: Use the *Help Lines* line *Type*. We created this line style especially for creating helper lines. These lines are meant to aid in the design but should not be included in the project documents.



If this line style is not currently visible in the View, open the Visibility Graphics Overrides window and turn on the "Help Lines" Sub-Category under the Lines Category.

Visibility/Graphic Overrides for Floor Plan: Site General Plan

N	lodel Categories	Annotation Cate	gories Ar	nalytical Model Categorie
	Show model	categories in this vi	ew	
	Category name	search:		
	Filter list:	Architecture	~	
	10.11.10			Projection/Surface
	VIS	ability	Line	s Patterns
	🗄 🗹 Gener	ic Models		
	🕀 🗹 Hards	cape		
	🛓 🗹 Lighti	ng Fixtures		
1	📄 🗹 Lines			
	🗹 </td <td>Area Boundary></td> <td></td> <td></td>	Area Boundary>		
	I = I	Axis of Rotatio		
	⊻ <∈	Beyond>		
		Centerline>		

• Define an elevation for each line according to the reference plan, using the **Set Elevation** command under the **Environment** ribbon (don't forget to hit the Enter key to actually set the elevation). Click on **Set Elevation** to execute the command.

Environment				
t	Elevation	4.40		t II
Set Set	Increment	0.10		Set .
Elevation	Ref. Level	Absolute Ele	-	Elevation
Mo	delLines		к	N 14-

Tip: To set the elevation of a series of related lines, for example, the lines of an even slope, you can select the **Set Elevation by Crossing** option, under the **Set Elevation** command:

- Enter the elevation of the bottom-most line (in reference to sea-level) in the "Elevation" field.*
- Enter the desired vertical increment between each line in the "Increment" field.*
- Draw a line across the contour lines whose elevation you would like to set.
- <u>Executing the command will set the elevation of the desired contour lines at the desired</u> <u>increments.</u>

How can we know if the command was successful? The Model Line we selected will change its color (in this specific **View** only). We can also go to the 3D **View** and see the change in elevation.





• Switch the visual style to Consistent Colors to preview the surface we will be creating.



- Go to the **Environment** tab and open the **Topography Tools** window to create a new surface.
- Select the **Add Line** tool and select all the relevant **Model Lines** (make sure to not select any of the other help lines we created).
- Pick the Custom Settings option to adjust the number of elevation points added on each line.
 Environment



• Click on the Add Lines button to add elevation points along the selected Model Lines and hit Finish to exit the command.



- Now, we want to make sure that the helper surface covers all of the Floors for which we • wish to create slopes with the aid of the surface.
- Switch to top View or Floor Plan View. ٠



slope.

Select the new topography and on the Modify tab, click on Topography Tools again to edit • the surface. (Some actions are possible via the regular Edit Surface tool, however, All actions are available through Environment's Topography Tools).

Tip: Arrange the points in the direction of the topography lines to maintain a consistent

Using the Move tool in the Topography Tools window, select and drag the relevant points • to enlarge the surface so that it will cover all of the **Floors** without changing the slopes.





Part 2 – Sloping a Floor according to a 'help surface'

In this exercise, we wish to create a topography as a help surface (reference surface) to aid in assigning slopes to the flat **Floors** we modeled as the exterior paths.

- Select the surface and give it a name in the Properties window under the 'Name' parameter. This will allow us to identify each surface by its purpose later in the modeling process.
- Switch to 3D View

•



Properties	×
R	
Topography (1)	∽ 🔠 Edit Type
Materials and Finishes	*
Material	<by category=""></by>
Dimensions	*
Projected Area	1271.824 m²
Surface Area	1273.375 m ²
Identity Data	*
Image	
Comments	
Name	Exterior paths helper
Mark	
Phasing	*
Phase Created	New Construction
Phase Demolished	None

Environment

Shape by

Topography Model Elei

Drape a Floor over a help Toposurface using Shape by Topography

- Select the topography and Floors and click on Environment > Shape by Topography (you can select the topography and the floors before or after starting the command).
 - Define the "Related Elevation" of the top of the **Floor** relative to the helper surface. In our case it's 0.

Add points (1 from 1)			×
Read data			
Read surface			
Calculation			
Calculation			
Add			
Points			
Split Lines			
		Canad	





 Now, we'll repeat the command in order to slope the road, but in this case, we'll define an offset in the Related Elevation parameter, such that the road will be 15 cm lower than the sidewalk.

MODULE 03 | EXERCISE



- Open the Visibility Graphic Overrides (VG) menu and turn off the 'Help Line' line style Category in this View.
- Alternatively, you can right-click with your mouse on one of the lines, and click on Hide in View > Category.

Cancel		1
Repeat [Filters] Recent Commands	>	
Hide in View	>	Elements
Override Graphics in View	>	Category
Create Similar		By Filter
Edit Family		

• Select the **Toposurface** and hide it in this **View**.



Pay attention: When showing or hiding an element in a **View**, make sure you understand the difference between **hiding a specific element and hiding an entire category**.



Part 3 – Implementing all of the different methods for creating sloped surfaces

Defining a Floor's elevation using a Slope Arrow

• Select the **Floor** and set its elevation to 5 meters above sea level.

Properties	×
Floor Generic Floo	r 10/10 - 15 cm 👻
Floors (1)	V 🔓 Edit Type
Constraints	*
Level	Sea Level 🗡
Height Offset From Level	5.0000
Room Bounding Related to Mass	
Structural	\$
Structural	



• Select the Floor and initiate the Edit Boundary command In the Modify ribbon.



• Select "Slope Arrow"



• Draw the Slope Arrow on the surface to indicate slope location and direction, as follows:





• Set the slope grade (percentage)

Note: The Slope Arrow element accounts for the Height Offset from the Level assigned to the Floor and creates a slope according to the length and in the direction of the arrow.

• Click the green checkmark to approve and exit the command.

Properties	×
R	~
<sketch> (1)</sketch>	✓ 🗟 Edit Type
Constraints	*
Specify	Slope
Level at Tail	Default
Height Offset at Tail	0.0000
Level at Head	Default
Height Offset at Head	0.0000
Dimensions	* ×
Slope	-1.5000%
Length	7.2199

Slope a Floor by defining each and every elevation point



• Place '**Spot Elevation'** annotations over the four points where this path connects to the other paths, to indicate the elevation we should assign to its four corners.



MODUL	E 03	EXERCISE

Annotate	Properties	×
A Spot	Spot Elevations E-Spot elev_Proposed	•
Elevation C	1 27	

Tip: Use the '**TAB**' button to identify the *Floor* you wish to annotate. Continue pressing 'TAB' until the system identifies the correct *Floor's* points.



• Select the Floor and initiate the command for editing the points – Modify Sub Elements.



• We can change the height of the pathway by selecting each point and assigning them elevations or by switching to 3D and changing a point's elevation by selecting and dragging it using the arrows, until it attaches to the relevant **Floor** edge.







Note: When you set the elevation of the first point, Revit will display a warning that it has detected that the **Floor**'s slope is too steep. You can ignore this message, because the slope will work itself out once you set the elevations for all of the relevant points.



 To create a sloped Floor for the rounded paths in the plan, follow the first method we described of creating a helper Toposurface and shaping the Floor on top of it.
 Draw the Model Lines according to the following image and set the lines' elevations according to the plan.





• After shaping the **Floor** on top of the helper **Toposurface**, adjust the **Floor's** elevation points with the '**Modify Sub Element**' command, to connect it to the surrounding paths.



• Switch to 3D to View the end result with sloped Floors.





Part 4 – Floor contours, Floor patterns and secondary surfaces

Adding contour lines to the Floors:

Note: In Revit, topographies can 'naturally' display their contour lines according to predefined settings. *Floors,* however, don't have this feature, so we use an *Environment* feature to add smart *Model Lines* to the *Floor* face instead of contour lines.

 Select all of the Floors within the model and select the "Slab Contours" command (you may also click on the command first, and then select the Floors and click 'Finish').

2	Set Increment 0.00 m	Get
	Slab Contours	
Α	Create horizontal contours on selected slabs.	
X	The ability to adjust the increment of contour lines used line style for each slab separately	and the

- Multiple Finish Cancel
- Define vertical distances / height intervals between the contour lines on the **Floors** and define line **Types**.

Slab Contour Lines	×
Contour Increment	0.1
Line Style Contour_Line Cancel	Ok

• Add contour elevation labels to the lines – Check Elevation

Tip: You can place elevation labels by manually selecting single lines or by drawing a line across a number of contour lines at once.





Secondary surfaces: Modeling the gardening areas with Toposurfaces.

- Switch to 3D View
- Select the **"Topography Tools**" command and pick the **'From Edge'** tool to create a new topography.



 Define a Height Offset as indicated in the image to create a surface 5 cm below the pathway.

	Chain Contours
Whole Edge One Point	Height offset -0.05
	Insert Points
Cancel	Finish

 Select the edges that you want to serve as the basis for creating the surface and execute the command.
 You can unselect an edge by clicking on it a second time.



Tip: After we've selected all of the edges, we recommend enlarging the surface a little by selecting the 'One Point' option and clicking on points outside the surface boundary. This will help simplify splitting the topography later on.



- Switch to **Floor Plan** and split the topography based on the paths that define its boundaries.
- Select the **Split Surface** command and then select the topography.





• Change the topography's 'Material' and 'Name'.



- Repeat these actions to create the project's western gardening area in the same manner.
- Switch to the Site General Plan View.



Because the Floors are sloped, their texture might be displayed as distorted. To correct this – we'll turn off the Floors' top texture and, in this View, we'll create a two-dimensional texture that will cover the Floors and display a clean texture. Pay attention – this solution applies only to the specific View in question.



• In the "Visibility Graphics" window, turn off the "Patterns" property for all of the Floors in the View.

Tip: You can open the Visibility Graphics window by using the keyboard shortcut "VG".

Show model categories in this vi	ew				If a category i	s unchecked, i	it will not be vi	isible.	
er list: <multiple></multiple>	~				2,				
125 11 115	F	Projection /Surfa	ce	C	ut	11.15	Detail	^	
Visibility	Lines	Patterns	Transparency	Lines	Patterns	Halftone	Level		
Duct Accessories							By View		
Duct Fittings							By View		
Duct Insulations							By View		
Duct Linings							By View	_	
Duct Placeholders							By View	_	
Ducts							By View	_	
Electrical Equipment							By View	_	
Electrical Fixtures							By View		
Entourage							ill Pattern Gra	aphics	
Fire Alarm Devices									
Elex Ducto							Foregrou	und Visible	_
Flex Dines							Datter		
Eloors	Override	BiddenHidder	Override	Override	Override		Fatter		1
Eood Service Equip	o remacin	CHARGERLINGSET		orenaem			Cole	lor: <pre>lor:</pre>	
- · · ·							Backgrou	Ind 🗹 Visible	_
All None	Inve	rt Expa	and All	erride Host Lay	ers		Patter	ern: <no override=""></no>	기
				Jour time styles	•	-	6-1		
Categories that are not overrie	dden are drawn	Object Obj					CON	ior: <pre><no override=""></no></pre>	
according to Object Style setti	ngs.	Object Styl	es			1	low do these set	ttings affect view graphics?	



• Now we'll create a new Pattern using the **Object Outline** command in the **Environment** tab.

Note: Revit's 'Filled Region' is a two-dimensional, View specific element. You can also create one via the Annotation ribbon, but the one you created using Environment>Object Outline will be linked to the Floor it was created from and will adapt as you edit the Floor's boundaries. Environment creates a new 'Filled Region' Type to cover the Floorings, but it behaves as a separate element from the Floors. This means that we can delete it at any time, without deleting the underlying Floors.



• Select all of the **Floors** and then select the command.

Part 5 – Creating a Section View and controlling topography appearance

• Go to the View tab and click on Section to create a new section View.



Draw the new section View as follows:





MODULE 03 | EXERCISE

Cancel

Go to View

Create Similar Edit Family Select Previous Select All Instances Delete

Find Referring Views Zoom In Region Zoom Out (2x) Zoom To Fit Previous Pan/Zoom Next Pan/Zoom Browsers Y Properties

Rotate Hide in View

Repeat [Hide Category]

2

Override Graphics in View

Recent Commands

	(00)
ŀ	Sections
	Section 1

 Switch to the "Section 02" View from the project browser, or by selecting the section symbol in the current Floor Plan View, right-clicking on it and selecting "Go to View".

Important: When creating a new Section mark on a plan View, the Section View inherits its scale from the current Floor Plan View, thus the Section mark will not appear on plans with a scale greater than this. To change the appearance of a section symbol for larger scale Views, select the section and change the 'Hide at scale coarser than' Parameter.

огарние отвриау орнонь	EUIL
Hide at scales coarser than	1:500

• In the section **View**, hide the project's helper surfaces and help lines.

You can identify a helper surface by selecting a surface and looking at its name in the Properties window. Then hide it in this **View**:



Tip: At this point, the topography in this section **View** appears a lot deeper than the planned elevation. We can change this by opening the "**Site Settings**" window in the "**Massing and Site**" ribbon and changing the '**Elevation of poche base**' parameter.





Module 4 – Placing and Creating Families









Module 4 – Placing and Creating Families

Part 1 – Adding Families to your model

- Adding Families to a model Component
- The Types of each Family
- Placing a Family on a surface Host surface
- Adding new Families to a file Load Family
- Placement angle using the space bar
- Editing a Family Edit Family
- Changing the level of detail in a View Detail Level

Part 2 – Creating a new Family

- Creating a new Family Metric Generic Model
- Setting a Category to a new Family
- The Family workspace
- Modeling a Family Extrusion
- Loading a Family to a file
- Changing a Family's or a Type's name through Project Browser
- Loading a Revit Family from Autodesk libraries
- Getting to know Family download sites

Part 3 – Scattering elements based on predefined parameters

- Adding a rockery Family Rockery Element
- Arranging a line of rocks Array
- Scattering a row of bushes Line Scatter
- Attaching element elevations to surfaces Align to Surface
- Scattering a group of plants in an area Area Scatter



Exercise 4

Part 1 – Adding Families to your model

Component \rightarrow Components are all Revit **Families** with a defined 3D or 2D geometry that are used for purposes of building and representation in our project.

Placing trees in the model and importing new Families

- Open the Module 04_Ex 01 file, and switch to the Site General Plan View.
- Add a new tree Family from the Massing & Site menu or the Architecture > Component menu.



Tip: When placing a component in a model, Revit will automatically assign it the height of the surface on which we placed the element. This property is called "**Host**", i.e., the hosting element. We can change the newly added element's host by selecting it and clicking on "**Pick New Host**".



Tip: We recommend browsing through the various tree *Families* within the file – what parameters does each *Family* make available and how does each *Family* look in different *Views* and in different visual styles.



• Create a new **Type** of tree: select the tree component and click on the "**Edit Type**" button to open the **Type Properties** window. Within the window, select the **Duplicate** option.



	1/1-10/				
/pe Propertie	es				\times
Family:	ENV_Tree_RPC_Metr	ric_2020	\sim	Load	
Туре:	Planting_RPC_Metric	_2020	~	Duplicate	
				Rename	
Type Paramet	ters				
P	arameter		Value	=	^
Constraint	s	1		*	
Default Ele	vation	0.0000 n	1		
Graphics		1		*	
Symbol < Pla	anting>	Tree Syn	nbol_Bare		
Materials a	and Finishes	4		*	
Material_in	_View	<by cate<="" td=""><td>egory></td><td></td><td></td></by>	egory>		
Dimension	s	1		*	
Height		1.0000 n	า		
Plan_Symbo	ol_Size	1.0000 n	1		
Identity Da	ata			*	
Render App	pearance		Red Ash [Fa	ill]	
Render App	pearance Propertie		Edit		
Type Image	9				
Keynote					
Model					
Manufactur	er				
Type Comn	nents				\sim
What do these	e properties do?		Cancel	Apply	
	UK OK		Curren	, thbuy	

 Give the new Type a name and change the height of the tree and it's radius ("Plan Symbol Size").

Tip: the height parameter is a built-in parameter for the planting Category. Other parameters, such as **'Plan Symbol Size'**, depend on the creator of the specific **Family**.

pe Propert	ies			×
Family:	ENV_Tree_RPC_Metr	ric_2020 ~	Load	
Туре:	Red Maple	~	Duplicate	
/	×		Rename	
Type Parame	aters			
F	Parameter	Value	=	^
Constrain	ts		*	
Default Ele	evation	0.0000 m		
Graphics			*	
Symbol < P	lanting>	Tree Symbol_Bare		
Materials	and Finishes		*	
Material_ir	n_View	<by category=""></by>		
Dimensio	ns		*	
Height		9.0000 m		
Plan_Symb	ol_Size	7.0000 m		
Identity D	ata		*	
Render Ap	pearance	Red Ash [Fall]		
Render Ap	pearance Propertie	Edit		
Type Imag	le			
Keynote				
Model				
Manufactu	irer			
Type Com	ments			~
What do the	se properties do?			
<< Previe	ew OK	Cancel	Apply	



• Next, go to the Insert tab and click on **Load Family** to add a new **Family** of trees to the file. Browse to select the following **Family** from the Module 04 folder. This **Family** presents different graphics and properties.

Insert	R Load Family					?	×	(
	Look in:	A raw		\sim	+ <u>-</u>	× 🖣	Views	•
	^	Name	Туре		Preview			
Load L	and the second s	ENV_Iree_Geometry_Metric_2020.fra	Autodesk kevit fa					
Family								
×								
	and a							
	there project							
	82							
	The second							
	(Property)	File name: ENV_Tree_Geometry_Metric_2020.rfa		~	1			
	► ✓	Files of type: All Supported Files (*.rfa, *.adsk)		~	-			
-	Too <u>l</u> s 🔻			<u>0</u> ;	ben	(Cancel	

- To place the new **Family** within your model, click on the '**Site Component**' menu from the **Massing and Site** ribbon, and select the **Family** from the list above the **Properties** palette.
- Now we'll create a new Type, similarly to the way we created a new Floor Type Click on "Edit Type", select "Duplicate" in the Type Properties window, and change the following parameters:

Note: This **Family** has additional parameters that can be changed, because whomever created the **Family** decided to make these parameters changeable variables.

Type Propertie	25			;
Family:	ENV_Tree_Geometry_Metric_2020		\sim	Load
Туре:	Type: Planting_Geometry_Metric_2020			Duplicate
				Rename
Type Parame	ters			
	Parameter	Value		= ^
Constraint	s	·		*
Default Ele	vation	0.0000 m		
Graphics				*
Front Silho	uette <planting></planting>	Tree Elevation_Palm		
Symbol < PI	anting>	Tree Symbol_Palm		
Materials a	and Finishes			*
Material_in	_View	<by category=""></by>		
Dimension	15			*
Height		13.0000 m		
Plan_Symb	ol_Size	7.0000 m		
Identity Da	ata			*
Tvpe Imag	e			



- Next, create a number of additional tree **Types** in the same way, and place them in your model as you see fit.
- Arrange benches and trees within the model using the **Architecture** > **Component** command.





Tip: To position components based on a quiding line within the model, select the **Family** you want to insert and hover over the edge or line without clicking on it. Press the **spacebar** a number of times to turn the component in the correct direction.



Loading people Families into the model

• Open this lesson's folder and find the following **Family**. Open the **Family** by double clicking it:

🔊 1_a_wman-.rfa

Please notice that a Revit 'Family' file has been opened, and not a 'Project' file. You can see that this is the case by the fact that the toolbar and the tools within are different than those we see when opening a project.

Load into Project Project and Close	ľ	Modify	• •	
Load into Load into Project Project and Close		Ê	<u>ث</u>	
		Load into Proiect	Load into Project and Close	
Family Editor		Far	mily Editor	

- To load this Family into the file, click on "Load into Project".
- Now we'll select the project into which we wish to add the **Family**, and we'll place the people in the desired **View**.



Tip: On the bottom toolbar next to "Visual Style", you will find a button named "Detail Level". <u>Certain Family elements will be displayed differently when we change the View's level of detail.</u> <u>How an element will respond when different levels of detail are applied, is, again, up to the</u> <u>element's creator.</u>



Part 2 – Creating a new Family

Opening a new Family- Generic Model

Attention: There are quite a few Types of Families you can create, and the topic is worthy of a course of its own. In this course we'll learn a few basic actions to familiarize ourselves with the topic and that will provide us with the flexibility to work with other Families in the future.

- Open a new file of **Type Family** (".rfa" file extension).
- Select the appropriate Template from Revit's default lists Metric Generic Model







Part 3 – Placing elements in the model: Array and Scatter

Placing a row of rocks using the Array command

• On the **Environment** tab, select the **Rockery Element** command in order to import a **Family** of rocks into the model.



• Select one of the rock **Types** and import it into the model.

 Lay the first rock in the corner nearest to the road, select it, and click on the Array command (before placing the rock on the topography, hover over the sidewalk's edge and use the spacebar to align the rock with the pathway).







• Use the following settings and create the row of rocks.



• Next, click once at the edge of the first rock and click again at the edge of your planned row of rocks to set the desired row length.

Tip: We can also use Group and Associate to edit the number of rocks in the group after exiting the command.

• Repeat this process to create an identical row of rocks on the other side of the pathway.







Modeling a row of shrubs using Line Scatter on the Environment tab

• Select a Family of bushes and create three different Types of vegetation.





Properties			
	ENV_Gras ENV_Gras	s_Shaped_S s_Shaped_S	Shrub_2020
New Planting	g	~	Edit Type
Constraints			*
Level		Sea Level	
Elevation fro	om Level	0.0000 m	
Host		Level : Sea	Level
Offset from	Host	0.0000 m	
Moves With	Nearby		
Identity Data			*
Image			
Comments			
Mark			

.

vpe Proper	ties					×
Family:	ENV_Grass_Shaped_	Shrub_2020	\sim	Load		
Туре:	Native Grass type 01		\sim	Duplicate	·	
				Rename		
Type Param	eters					
	Parameter	,	Value		= ′	^
Constrain	its				*	
Default El	evation	0.0000 m				
Materials	and Finishes				*	
Foliage		Green_Planting	_Defal	t		
Trunk		Brown_Plantin	g_Defa	ult		
Dimensio	ns				*	
11.2.1.2		0.0				

Properties			_
Ŷ	ENV_Trop b_2020 ENV_Trop _2020	bic_Fontain_Shaped_Shr	u b
New Plantin	ig	🗸 🔠 Edit Ty	pe
Constraints			*
Level		Sea Level	
Elevation from Level		0.0000 m	
Host		Level : Sea Level	
Offset from	n Host	0.0000 m	
Moves Wit	h Nearby		
dentity Data	а		*
Image			
Comments			
Mark			

ype Properti	es		
Family:	ENV_Tropic_Fontain	_Shaped_Shrub_2(\vee	Load
Type:	Fountain plant Tupe	01 ~	Duplicate
			Rename
Type Parame	ters		
P	arameter	Value	=
Constraint	s		*
Default Ele	vation	0.0000 m	
Materials a	and Finishes		*
Foliage		Green_Planting_Defa	lt
Dimension	s		*
Height		0.75	



• Switch to the 'Site General Plan' and select the Line Scatter command on the Environment tab.



- This displays a window in which we will select "**Draw Path**" and draw a continuous path on which to position the bushes.
- After completing the sketching, click on Apply Path

		/ - =			CCCA.	a va cine style.
		h	1.		÷ کړ د	Help_Lines
Line Scatter	×	View	Measure	Create	Draw	Line St
Path Settings						
		Radius:	1.0000 m			
Skip Drawing	Apply Path	General	Plan	A 37%	₩ I I VK₩IN XIX	
Scatter Selection					T I	
	Pick On Screen				/ `	4.59
Keep related position				A		
ENV_Weeping_Shaped_Tree	_2020 : Weeping_Shapec \vee	027		<u></u>	/	
Scatter Settings			- 12 1 12		/	
Irregular method			PX.]	
Total number of elements	0			XXX	>	
Minimal distance	0.30 m	081	Z / 🕵		\sim	
Randomizing	0		WWXX			-
Placement level	Sea Level v					
Offset from level	0.00 m		\\\V/	1/// 🌂		
View range elevation		06.F	VP	(///		
Rotate after placement	Random rotation		V	YYJ	, ,	
Additional angle	0.00°		\mathbb{N}		2	
Combine elements			Y Z	C	\leq	JUL 1
Cancel	Apply	90°		IN		T
Einich	scattor		LAN S	XXXXXX		



• Select the desired Type and enter placement settings.





• Arrange a similar row of bushes on the other side of the path.





Modeling groups of mixed vegetation using Area Scatter

• Select the Area Scatter command under the Environment Tab.



• Next, select any surface to set the surface on which to scatter the elements. You may choose any surface to be used as the area for the scatter command.



• Create a mix of elements.

Advanced Selection	5

Select element to scatterSizeRatioENV_Tropic_Fontain_Shaped_Shrub_2020 : FourPick on screen0.81ENV_Grass_Shaped_Shrub_2020 : Native GrassPick on screen0.6m2	Scatter Advanced Selection		×
ENV_Tropic_Fontain_Shaped_Shrub_2020 : Four Pick on screen 0.8 1 ENV_Grass_Shaped_Shrub_2020 : Native Grass Pick on screen 0.6m 2	Select element to scatter 🖊	Size	Ratio
ENV_Grass_Shaped_Shrub_2020 : Native Grass Pick on screen 0.6m 2	ENV_Tropic_Fontain_Shaped_Shrub_2020 : Four	0.8	1
	ENV_Grass_Shaped_Shrub_2020 : Native Grass 🐣 Pick on screen	0.6m	2
Get from existing scatter group	Get fro	om existing s	catter group

• Define the placement of the elements in an orderly grid.





• Continue to scatter vegetation and additional elements as you see fit.

