

ACO PowerDrain SK300

Subassembly Installation and Reference Guide

User Guide for Autodesk AutoCAD Civil 3D files

Contents

1.	Introduction	1
2.	Installing the ACO PowerDrain subassembly	2
3.	Using the ACO PowerDrain SK300 subassembly	4
3.1	User Defined Parameter	5
3.2	PowerDrain SK300 with different Edge rail channel types	6
3.3	PowerDrain SK300 grating types	8
3.4	Haunch types	9
3.5	Point Codes	11
4.	Code Set Styles	12
4.1	Import Code Set Styles from one drawing to another	12

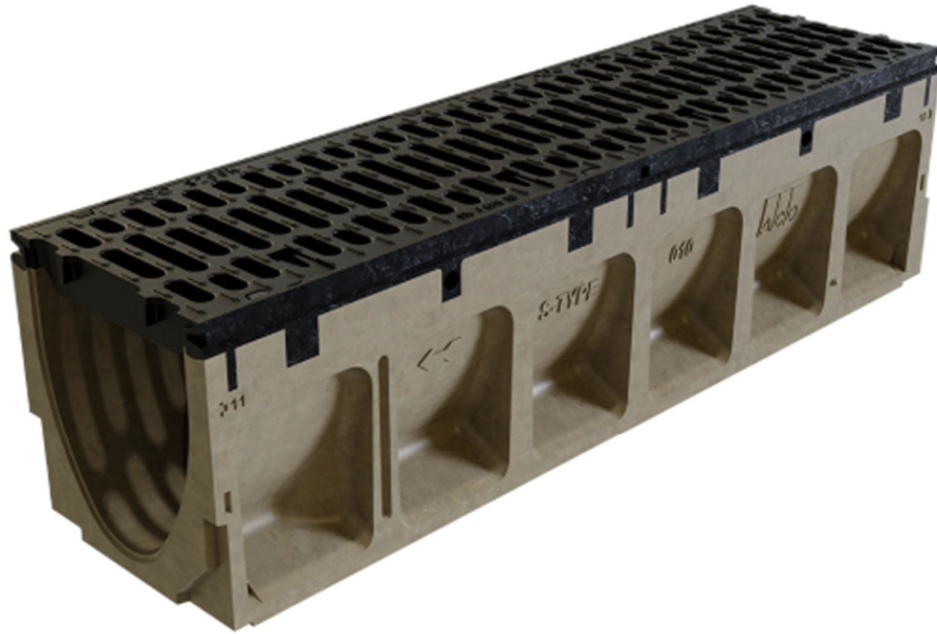
1. Introduction

ACO Water Management: Civils + Infrastructure

ACO Pty Ltd
134-140 Old Bathurst Road
Emu Plains NSW 2750
Australia

website: [ACO Australia | Quality and
Trusted Drainage Product Solutions](#)

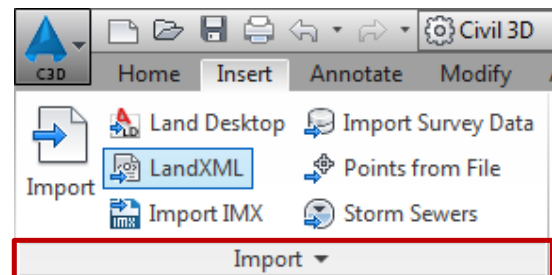
This document describes the installation, configuration and use of the ACO PowerDrain subassembly component for AutoCAD Civil 3D 2023.



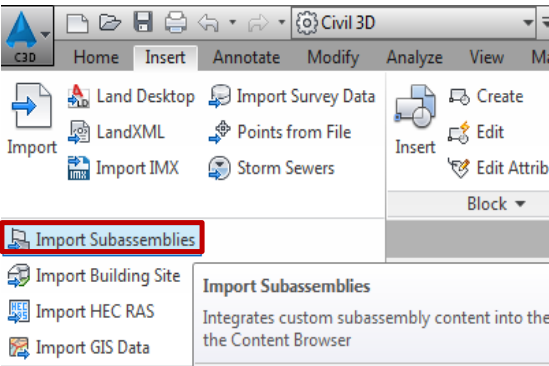
2. Installing the ACO PowerDrain subassembly

The PowerDrain sub-assembly is available as a .pkt file which contains the subassembly .dll file and associated configuration files for installing the subassembly in Civil 3D.

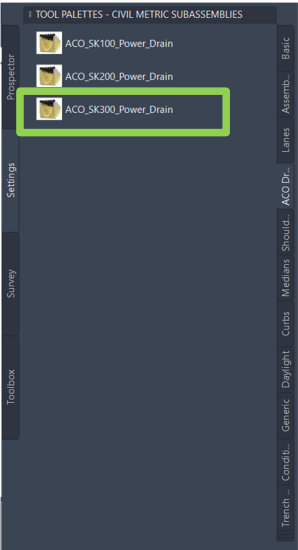
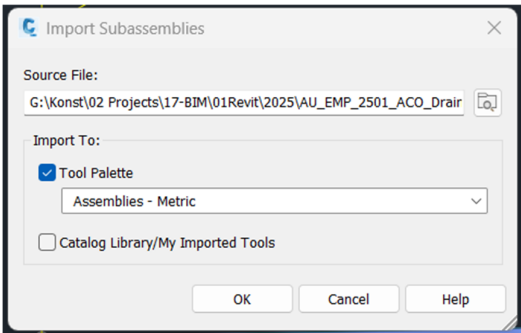
To install the subassembly, click on the Import panel title on the Insert ribbon.



Choose import subassemblies



Browse the location of the ACO PowerDrain SK300.pkt file, and choose a tool palette to import to, or create a new palette. The subassembly can also optionally be added to the user Catalog Library. The tool palette in civil 3D will now show the ACO PowerDrain SK300 subassembly. Note that by right-clicking in the tool palette, the palette can be customized by creating a separate item for the ACO KlaasikDrain K300/KS300, as shown here.



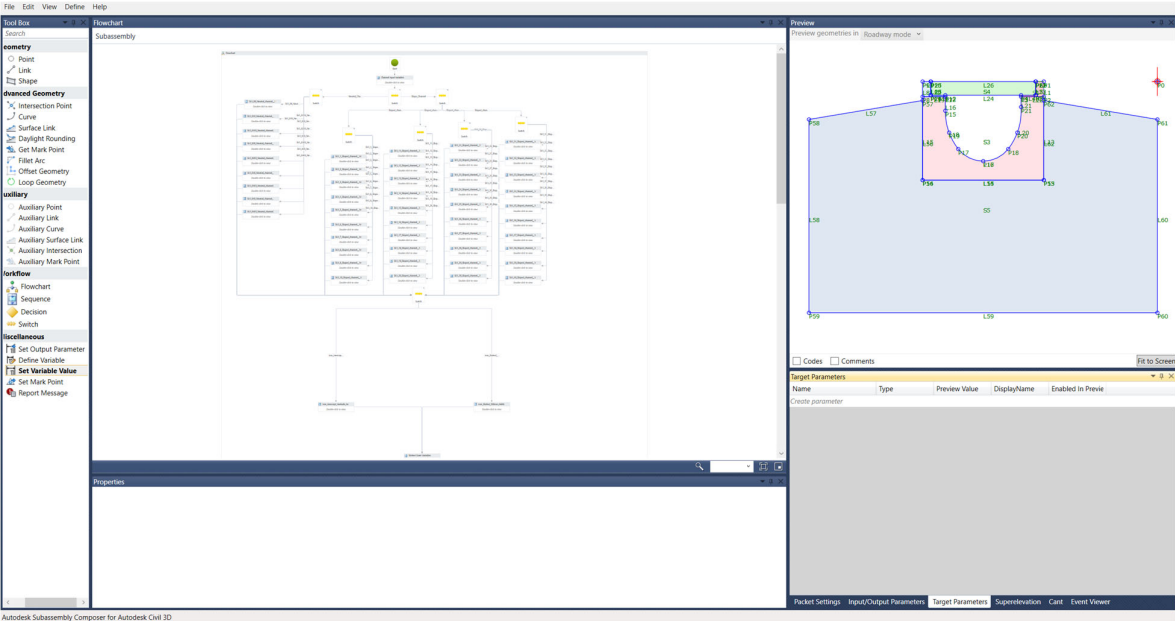
3. Using the ACO PowerDrain SK300 subassembly

The ACO PowerDrain subassembly includes definitions for the following Edge rail type:

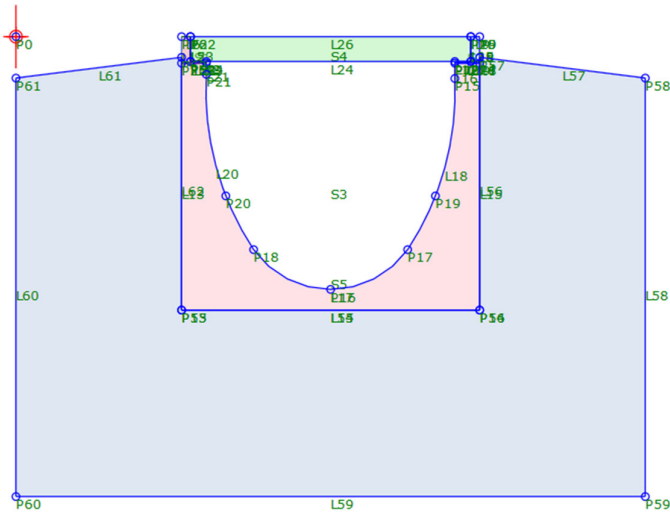
PowerDrain SK300 with Edge rail types:-

S300K Parts table

Channels and Accessories	Part No.	Invert Depth mm		Overall Depth mm		Volume L	Weight kg
		Female	Male	Female	Male		
SK3-00 Neutral channel - (1m)²	69041	300	300	325	325	68.2	59.1
SK3-1 Sloped channel - (1m)	69001	300	305	325	330	74.1	59.1
SK3-2 Sloped channel - (1m)	69002	305	310	330	335	75.7	59.6
SK3-3 Sloped channel - (1m)	69003	310	315	335	340	77.4	60.2
SK3-4 Sloped channel - (1m)	69004	315	320	340	345	79.0	60.7
SK3-5 Sloped channel - (1m) ²	69005	320	325	345	350	80.6	61.3
SK3-6 Sloped channel - (1m)	69006	325	330	350	355	82.1	61.9
SK3-7 Sloped channel - (1m)	69007	330	335	355	360	83.7	62.4
SK3-8 Sloped channel - (1m)	69008	335	340	360	365	85.2	63.0
SK3-9 Sloped channel - (1m)	69009	340	345	365	370	86.8	63.5
SK3-10 Sloped channel - (1m) ²	69010	345	350	370	375	88.3	64.1
SK3-010 Neutral channel - (1m)²	69042	350	350	375	375	80.3	64.1
SK3-0103 Neutral channel - (0.5m)²	69045	350	350	375	375	40.2	35.3
SK3-11 Sloped channel - (1m)	69011	350	355	375	380	89.8	64.6
SK3-12 Sloped channel - (1m)	69012	355	360	380	385	91.3	65.2
SK3-13 Sloped channel - (1m)	69013	360	365	385	390	92.8	65.8
SK3-14 Sloped channel - (1m)	69014	365	370	390	395	94.2	66.3
SK3-15 Sloped channel - (1m) ²	69015	370	375	395	400	95.7	66.9
SK3-16 Sloped channel - (1m)	69016	375	380	400	405	97.2	67.4
SK3-17 Sloped channel - (1m)	69017	380	385	405	410	98.6	68.0
SK3-18 Sloped channel - (1m)	69018	385	390	410	415	100.1	68.5
SK3-19 Sloped channel - (1m)	69019	390	395	415	420	101.6	69.1
SK3-20 Sloped channel - (1m) ²	69020	395	400	420	425	103.0	69.7
SK3-020 Neutral channel - (1m)²	69044	400	400	425	425	92.9	69.7
SK3-0203 Neutral channel - (0.5m)²	69047	400	400	425	425	46.4	38.5
SK3-21 Sloped channel - (1m)	69021	400	405	425	430	104.4	70.2
SK3-22 Sloped channel - (1m)	69022	405	410	430	435	105.9	70.8
SK3-23 Sloped channel - (1m)	69023	410	415	435	440	107.3	71.4
SK3-24 Sloped channel - (1m)	69024	415	420	440	445	108.7	71.9
SK3-25 Sloped channel - (1m) ²	69025	420	425	445	450	110.1	72.4
SK3-26 Sloped channel - (1m)	69026	425	430	450	455	111.6	73.0
SK3-27 Sloped channel - (1m)	69027	430	435	455	460	113.0	73.6
SK3-28 Sloped channel - (1m)	69028	435	440	460	465	114.4	74.1
SK3-29 Sloped channel - (1m)	69029	440	445	465	470	115.8	74.7
SK3-30 Sloped channel - (1m) ²	69030	445	450	470	475	117.2	75.3
SK3-030 Neutral channel - (1m)²	69046	450	450	475	475	105.5	75.3
SK3-0303 Neutral channel - (0.5m)²	69049	450	450	475	475	52.8	41.8
SK3-31 Sloped channel - (1m)	69031	450	455	475	480	118.6	75.8
SK3-32 Sloped channel - (1m)	69032	455	460	480	485	120.0	76.4
SK3-33 Sloped channel - (1m)	69033	460	465	485	490	121.4	76.9
SK3-34 Sloped channel - (1m)	69034	465	470	490	495	122.7	77.5
SK3-35 Sloped channel - (1m) ²	69035	470	475	495	500	124.1	78.1
SK3-36 Sloped channel - (1m)	69036	475	480	500	505	125.5	78.6
SK3-37 Sloped channel - (1m)	69037	480	485	505	510	126.9	79.2
SK3-38 Sloped channel - (1m)	69038	485	490	510	515	128.2	79.7
SK3-39 Sloped channel - (1m)	69039	490	495	515	520	129.7	80.3
SK3-40 Sloped channel - (1m) ²	69040	495	500	520	525	131.0	80.8
SK3-040 Neutral channel - (1m)²	69048	500	500	525	525	118.3	80.8
SK3-0403 Neutral channel - (0.5m)²	69050	500	500	525	525	59.2	45.5
SK3-903 In-line pit (0.5m)	142549	-	-	954	954	115.1	39.9
Type 903 In-line plastic rubbish basket	98653	-	-	-	-	-	1.6
Optional plastic riser	141729	-	-	300	300	37.1	4.5
Plastic rubbish basket - long	98665	-	-	-	-	-	1.8
End cap	96827	-	-	520	520	-	1.1
Installation device	97479	-	-	-	-	-	2.2
Grate removal tool	01318	-	-	-	-	-	0.1
PowerLok safety clip	10443	-	-	-	-	-	-



The subassembly also optionally includes haunching detail.



Input/Output Parameters			
Name	Type	Direction	Default Value
Side	Side	Input	Right
Channel_Selection	Channel_type	Input	Neutral_Channel
Neutral_channel_height_selection	Neutral_channel_Height	Input	SK3_00_Neutral_channel_1m_69041
Slope_height_Range_Selection	Slope_channel_height_range	Input	Sloped_channel_305_To_350
Slope_Channel_305_to_350	Sloped_Channel_305_to_350	Input	SK3_1_Sloped_channel_1m_69001
Slope_Channel_355_to_400	Sloped_Channel_355_to_400	Input	SK3_11_Sloped_channel_1m_69011
Slope_Channel_405_to_450	Sloped_Channel_405_to_450	Input	SK3_21_Sloped_channel_1m_69021
Slope_Channel_455_to_500	Sloped_Channel_455_to_500	Input	SK3_31_Sloped_channel_1m_69031
Gratings_selection	Gratings	Input	Iron_Slotted_500mm_02445
Haunching	Yes\No	Input	Yes
Haunching_class_selection	Haunch_Class_Selection	Input	Class_E_G
Haunch_Class_C_D_selection	Haunch_Class_C_D	Input	Pavers_to_edge_class_C_D
Haunch_Class_E_G_selection	Haunch_Class_E_G	Input	Pavers_to_edge_class_E_G

All the default values of the parameter can be edited by end-user. User can be able to select their required PowerDrain, Grating and Haunch type.

3.2 PowerDrain SK300 with different Edge rail channel types

User can able to select their required PowerDrain channel by using the parameter. There are 49 different types of PowerDrain channel, which includes Neutral and Slop channel.

initially user needs to select Neutral or Slope channel in Input/Output parameter table. There is channel_selection parameter with drop down menu.

Channel_Selection	Channel_type	Input	Neutral Channel ▾
			Neutral_Channel
			Slop_Channel

If users select Neutral channel for height selection there is parameter Neutral_channel_height_selection using this user can select their required height.

Neutral_channel_height_selection	Neutral_channel_Height	Input	SK3_00_Neutral_channel_1m_69041
Slope_height_Range_Selection	Slope_channel_height_range	Input	SK3_00_Neutral_channel_1m_69041
Slope_Channel_305_to_350	Sloped_Channel_305_to_350	Input	SK3_010_Neutral_channel_1m_69042
Slope_Channel_355_to_400	Sloped_Channel_355_to_400	Input	SK3_0103_Neutral_channel_0_5m_69045
Slope_Channel_405_to_450	Sloped_Channel_405_to_450	Input	SK3_020_Neutral_channel_1m_69044
Slope_Channel_455_to_500	Sloped_Channel_455_to_500	Input	SK3_0203_Neutral_channel_0_5m_69047
Gratings_selection	Gratings	Input	SK3_030_Neutral_channel_1m_69046
Haunching	Yes\No	Input	SK3_0303_Neutral_channel_0_5m_69049
Haunching_class_selection	Haunch_Class_Selection	Input	SK3_040_Neutral_channel_1m_69048
Haunch_Class_C_D_selection	Haunch_Class_C_D	Input	SK3_0403_Neutral_channel_0_5m_69050

If users select Slope channel for height selection there is a parameter Slope_height_Range_Selection using this user needs to select their height range which between 305 to 350, 355 to 400, 505 to 450 and 455 to 500. Which because Autodesk sub assembly composer have enumeration restriction with max 16 nos.

Slope_height_Range_Selection	Slope_channel_height_range	Input	Sloped_channel_305_To_350
Slope_Channel_305_to_350	Sloped_Channel_305_to_350	Input	Sloped_channel_305_To_350
Slope_Channel_355_to_400	Sloped_Channel_355_to_400	Input	Sloped_channel_355_To_400
Slope_Channel_405_to_450	Sloped_Channel_405_to_450	Input	Sloped_channel_405_To_450
Slope_Channel_455_to_500	Sloped_Channel_455_to_500	Input	Sloped_channel_455_To_500

After selecting the height range according to the height there will be a parameter from that user can select the desired height of channel by using drop down menu.

Slope_Channel_305_to_350	Sloped_Channel_305_to_350	Input	SK3_1_Sloped_channel_1m_69001
Slope_Channel_355_to_400	Sloped_Channel_355_to_400	Input	SK3_1_Sloped_channel_1m_69001
Slope_Channel_405_to_450	Sloped_Channel_405_to_450	Input	SK3_2_Sloped_channel_1m_69002
Slope_Channel_455_to_500	Sloped_Channel_455_to_500	Input	SK3_3_Sloped_channel_1m_69003
Gratings_selection	Gratings	Input	SK3_4_Sloped_channel_1m_69004
Haunching	Yes\No	Input	SK3_5_Sloped_channel_1m_69005
Haunching_class_selection	Haunch_Class_Selection	Input	SK3_6_Sloped_channel_1m_69006
Haunch_Class_C_D_selection	Haunch_Class_C_D	Input	SK3_7_Sloped_channel_1m_69007
Haunch_Class_E_G_selection	Haunch_Class_E_G	Input	SK3_8_Sloped_channel_1m_69008
<			SK3_9_Sloped_channel_1m_69009
Create parameter			SK3_10_Sloped_channel_1m_69010

Slope_Channel_355_to_400	Sloped_Channel_355_to_400	Input	SK3_11_Sloped_channel_1m_69011
Slope_Channel_405_to_450	Sloped_Channel_405_to_450	Input	SK3_11_Sloped_channel_1m_69011
Slope_Channel_455_to_500	Sloped_Channel_455_to_500	Input	SK3_12_Sloped_channel_1m_69012
Gratings_selection	Gratings	Input	SK3_13_Sloped_channel_1m_69013
Haunching	Yes\No	Input	SK3_14_Sloped_channel_1m_69014
Haunching_class_selection	Haunch_Class_Selection	Input	SK3_15_Sloped_channel_1m_69015
Haunch_Class_C_D_selection	Haunch_Class_C_D	Input	SK3_16_Sloped_channel_1m_69016
Haunch_Class_E_G_selection	Haunch_Class_E_G	Input	SK3_17_Sloped_channel_1m_69017
<			SK3_18_Sloped_channel_1m_69018
Create parameter			SK3_19_Sloped_channel_1m_69019
			SK3_20_Sloped_channel_1m_69020

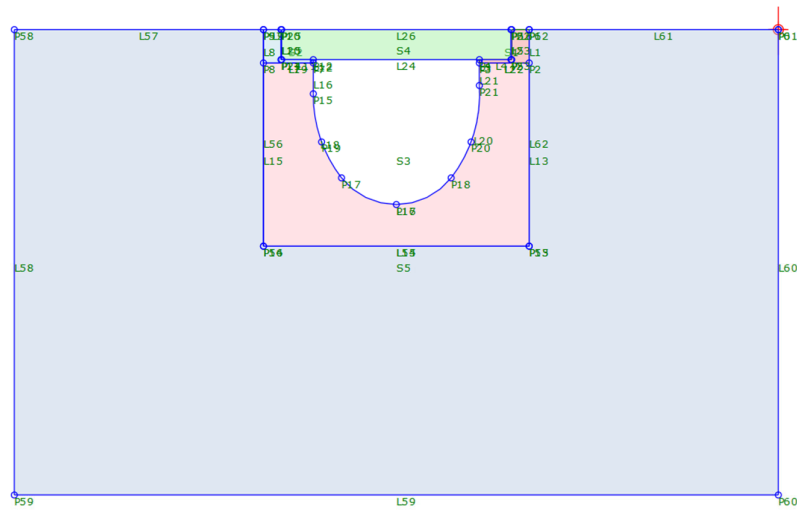
Slope_Channel_405_to_450	Sloped_Channel_405_to_450	Input	SK3_21_Sloped_channel_1m_69021
Slope_Channel_455_to_500	Sloped_Channel_455_to_500	Input	SK3_21_Sloped_channel_1m_69021
Gratings_selection	Gratings	Input	SK3_22_Sloped_channel_1m_69022
Haunching	Yes\No	Input	SK3_23_Sloped_channel_1m_69023
Haunching_class_selection	Haunch_Class_Selection	Input	SK3_24_Sloped_channel_1m_69024
Haunch_Class_C_D_selection	Haunch_Class_C_D	Input	SK3_25_Sloped_channel_1m_69025
Haunch_Class_E_G_selection	Haunch_Class_E_G	Input	SK3_26_Sloped_channel_1m_69026
<			SK3_27_Sloped_channel_1m_69027
Create parameter			SK3_28_Sloped_channel_1m_69028
			SK3_29_Sloped_channel_1m_69029
			SK3_30_Sloped_channel_1m_69030

Slope_Channel_455_to_500	Sloped_Channel_455_to_500	Input	SK3_31_Sloped_channel_1m_69031
Gratings_selection	Gratings	Input	SK3_31_Sloped_channel_1m_69031
Haunching	Yes\No	Input	SK3_32_Sloped_channel_1m_69032
Haunching_class_selection	Haunch_Class_Selection	Input	SK3_33_Sloped_channel_1m_69033
Haunch_Class_C_D_selection	Haunch_Class_C_D	Input	SK3_34_Sloped_channel_1m_69034
Haunch_Class_E_G_selection	Haunch_Class_E_G	Input	SK3_35_Sloped_channel_1m_69035
<			SK3_36_Sloped_channel_1m_69036
Create parameter			SK3_37_Sloped_channel_1m_69037
			SK3_38_Sloped_channel_1m_69038
			SK3_39_Sloped_channel_1m_69039
			SK3_40_Sloped_channel_1m_69040

3.3 PowerDrain SK300 grating types

User needs to select gratings using the parameter Gratings_selection

Gratings_selection	Gratings	Input	Iron Intercept Heelsafe AntiSlip 500mm 142686
Haunching	Yes\No	Input	Iron Intercept Heelsafe AntiSlip 500mm 142686
Haunching_class_selection	Haunch_Class_Selection	Input	Iron Slotted 500mm 02445



3.4 Haunch types

To include Haunching we have provided decision option so user can select Yes/or No from the parameter Haunching. There are two different classes for haunching A-B and C-D

Haunching	Yes\No	Input	Yes
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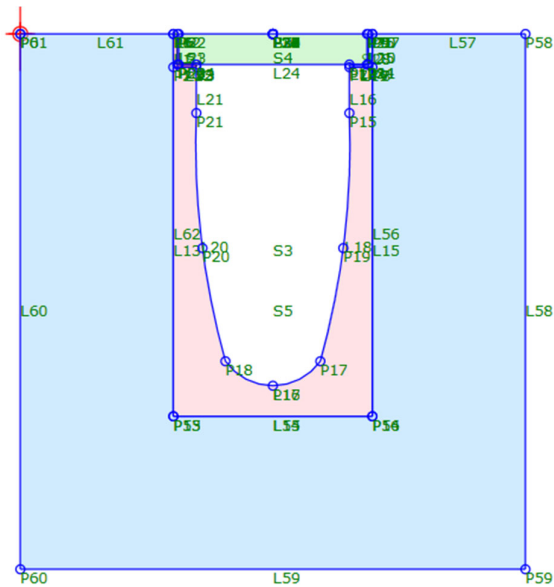
Haunch is divided into cateogart due to enumeration restriction, Haunch classes C,D option and Class E,G. it can be decide by user, using Haunch class parameter drop down menu.

Haunching_class_selection	Haunch_Class_Selection	Input	Class C D
Haunch_Class_C_D_selection	Haunch_Class_C_D	Input	Class_C_D
Haunch_Class_E_G_selection	Haunch_Class_E_G	Input	Class_E_G

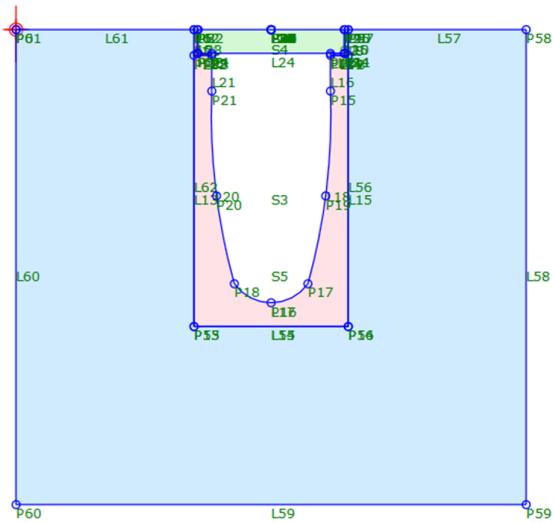
Haunch_Class_C_D_selection	Haunch_Class_C_D	Input	Pavers haunch to top class C D
Haunch_Class_E_G_selection	Haunch_Class_E_G	Input	Pavers_to_edge_class_C_D
<			Pavers_haunch_to_top_class_C_D
Create parameter			Asphalt_sloped_haunch_class_C_D
			Asphalt_haunch_to_top_class_C_D
			Concrete_haunch_to_top_class_C_D

Haunch_Class_E_G_selection	Haunch_Class_E_G	Input	Pavers haunch to top class E G
<			Pavers_to_edge_class_E_G
Create parameter			Pavers_haunch_to_top_class_E_G
			Asphalt_haunch_to_top_class_E_G
			Concrete_haunch_to_top_class_E_G
			Asphalt_sloped_haunch_class_E_G

Haunched Asphalt Pavement



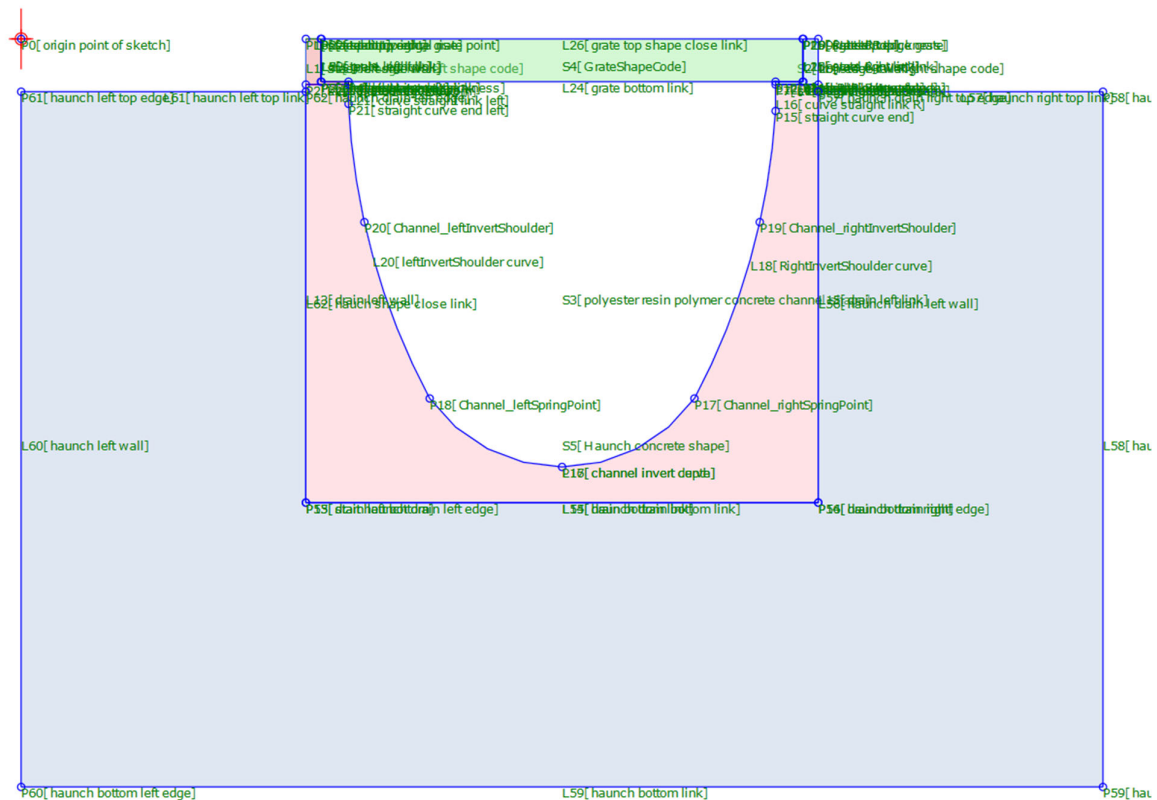
Exposed Concrete Pavement



Exposed Paver Pavement

3.5 Point Codes

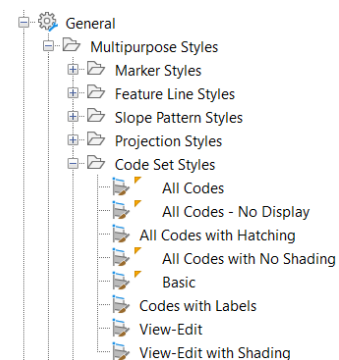
The point codes can be used in the code set styles to generate featurelines at the specific positions on the subassembly. The link codes can be used to display the outline of the subassembly in cross-sections, and also to create surface from the codes. The default values supplied with the subassembly include the standard codes of Top and Formation which are used universally to indicate a Top surface of the corridor model or a Formation surface of the corridor model respectively. The PowerDrain is indicated by the default link code of PowerDrain, and the default shape code of PowerDrain. The grating is indicated by the default link code of edge rail, and the default shape code of edge rail. The haunching is indicated by the default link code of Haunch, and the default shape code of Haunch. All of these codes can be over-ridden by the user. The shape codes are used to enable hatching to be applied in the cross-section views, and also to enable volumes of materials to be generated.



4. Code Set Styles

Code Set Styles are used to control the appearance and labeling of the individual point, link, and shape components of the subassemblies. The many styles required are grouped into Code Sets. Code Set settings are located in the General collection on the Settings tab of the Tool space.

Different code set styles used in the PowerDrain Code set style template as shown here.



4.1 Import Code Set Styles from one drawing to another

Open the drawing in which PowerDrain Code Set style has to be imported.

- Run command `IMPORTSTYLESANDSETTINGS`
- Browse to the location of PowerDrain Code Set Style template
- Select Styles as desired, check "Import Settings" toggle and click OK
- Warning will be displaying informing that duplicates styles may be overwritten
- Drawing will import styles and settings from PowerDrain Code Set Style template to this template