FORMAVOID

PRODUCT INFORMATION

FMVD01001 - Formavoid 100

Formavoid is a plastic void former that encourages fill material into an extremely strong series of columns and catenary arches. Formavoid can be filled with various materials ranging in particle sizes from 1mm - 40mm. Different fills can be used for various characteristics & applications. For example, 30% void type 3 aggregate is optimal when utilising formavoid in a subbase attenuation applications; or soil can be used as fill material for green infrastructure applications.

APPLICATIONS

- Water Attenuation, Conveyance & Infiltration
- Rainwater Harvesting & Recycling
- Subbase Displacement
- Blue/Green Roofs & Podiums
- Sports Facilities
- Urban Overlays

KEY BENEFITS

- Vertical strength >120tons/m²
- Lightweight, shallow & modular
- High water storage capacity
- Nest stacking to achieve 80m² product per pallet space
- Fast installation with integrated clips
- Fill material displacement to reduce imported fill quantities & carbon footprint.

GENERAL

Product Code	FMVD01001
Colour	Black
Material	Recycled Polypropylene
Lifespan	>50 Years
Fill Material Examples	DOT Type 1, Type 2 & Type 3 Aggregates *(SHW 803 -805)*. Uniformly Graded Aggregate *(2m-20mm)* Concrete *(permeable or impermeable)* Coarse Sand Soil

FORMAVOID

PRODUCT INFORMATION

FMVD01001 - Formavoid 100

PHYSICAL

Unit Dimensions	577mm (L) x 577mm (W) x 100mm (D) 3 units per m²
Unit Weight	1.5kg
Void Ratio	75% *When filled with 30% void aggregate with 50mm cover*
Vertical Compressive Strength	>1,200kN/m² *When filled with 30% void aggregate with 150mm cover*

PACKAGING

Pallet Size	1.2m (L) x 1.2m (W) x 1.2m (H)
Pallet Weight	195kg
Packaging	Rigid Card Corners & Shrink Wrap
Pallet Capacity	120nr / 40m²
Storage Guidance	Suitable to be stacked - maximum 4nr pallets high. Where possible prevent direct exposure to sunlight during long periods of storage.

Distributed by SEL Environmental

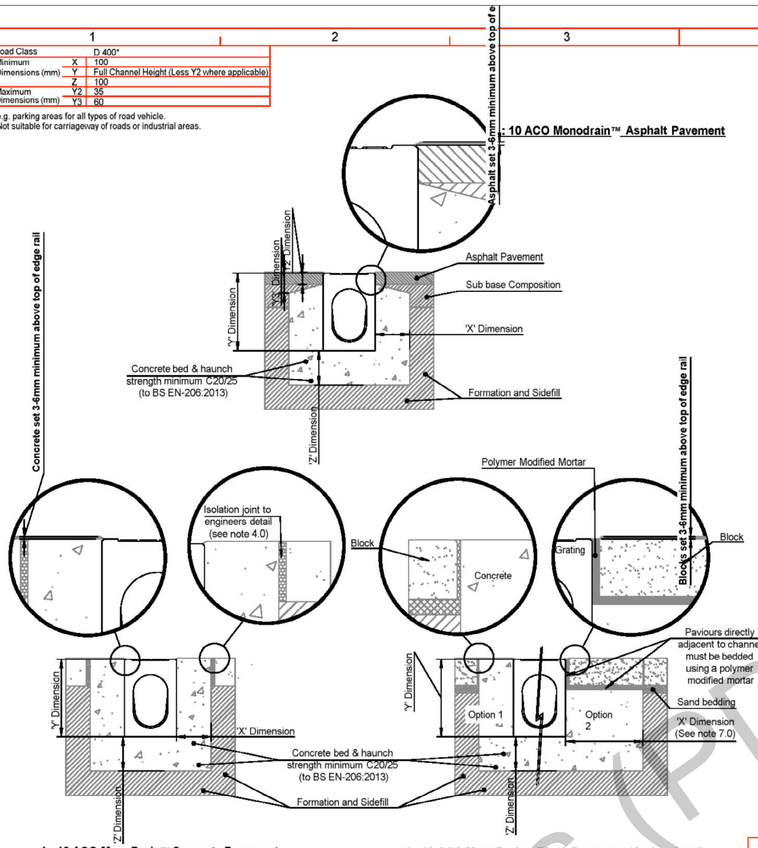
Contact: sales@selenvironmental.com 01254 589987

Or visit www.selenvironmental.com

Last Revised January 2022

Load Class		D 400*
Minimum Dimensions (mm)	X	100
	Y	Full Channel Height (Less Y2 where applicable)
	Z	100
Maximum Dimensions (mm)	Y2	35
	Y3	60

* e.g. parking areas for all types of road vehicle.
Not suitable for carriageway of roads or industrial areas.



1 : 10 ACO MonoDrain™ Asphalt Pavement

1 : 10 ACO MonoDrain™ Concrete Pavement

1 : 10 ACO MonoDrain™ Block Pavement (Option 1 and 2)

NBS Specification:
ACO MonoDrain™ be specified in section Q10:180. Assistance in completing this clause can be found in ACO Technologies product entries in NBS Plus, or a model specification can be downloaded from www.aco.co.uk. For further assistance, contact the ACO Water Management Design Services Team.

Best Practice and Workmanship:
ACO can give guidance with respect to the most suitable methods of installation for each of the products in the ACO MonoDrain™ range. ACO MonoDrain™ should be installed using levels of workmanship that accord with the National Code of Practice (UK: BS8000-0:2014) and in keeping with BS EN 1433:2002 (Drainage channels for vehicular and pedestrian areas).

Detailed installation statements and methodologies will vary for all sites as each will have different aspects deserving particular consideration, consequently the relevant approvals should be sought from the consulting engineer and/or the installer.

1.0 Load Class
Installation recommendations shown are ACO minimum recommendations for BS EN 1433:2002 load class requirements.

2.0 Ground Conditions
The long term performance of a channel installation to sustain vertical and lateral loads depends upon A) ground conditions B) stability of the adjacent pavement and C) a durable concrete bed and surround. The recommended installation detail may require the minimum dimensions to be revised to achieve site specific load class requirements (referred to in 1.0 above).

3.0 Cutting and Jointing
Mitre joints are formed by cutting the channels to the required angle and butting them together with appropriate sealant (e.g. Sikaflex 11FC or similar) or ACO Repair Kit. Where possible 90° joints and T's should be formed so that gratings do not have to be cut. Angles can be formed by connecting them using proprietary PVCu pipework attached to ACO inlet/outlet endcaps. For further details please contact ACO Design Services Team.
Note: For Load Classes higher than C 250, mitred joints are not recommended in vehicular areas. Where requested ACO can custom manufacture angled junctions to order.

4.0 Isolation Joints
The channel must be isolated from the surrounding environment. An isolation joint must be positioned up to 1500mm from the channel wall. Any dowel bars must be located no nearer than 150mm from the channel wall. Other isolation joints in surrounding slab must be continued through the channel. Additional crack control may be required to comply with specifier requirements.

5.0 Installation into in-situ Slab
Where a channel is to be installed into an existing concrete slab it is necessary to cut a suitably sized pocket in the slab. The channel will then need to be bedded in polymer modified mortar of 25mm minimum thickness (this may vary depending on the type of mortar used). Engineering advice may be necessary.

6.0 Temporary Installation
A channel installation is not complete until the final surfacing is laid. In any temporary condition, i.e. with the channel walls projecting above adjacent ground, site traffic should not cross channels. Loose boards, stone fill or cover plates will not protect the channel walls or grating. A temporary channel crossing should be formed by raising the ground level locally, to 3 - 6mm above top of edge rail, either side of a channel for a distance of 750 to 1000mm, to form ramps. Note that the channel load class should be adequate to carry the site traffic.

7.0 Block Pavements
The channel must be supported laterally. Blocks laid directly against a channel must be laid as a soldier course and restrained from movement by bedding securely on the concrete haunch e.g. by using a polymer modified mortar for bed and perpendicular joints (e.g. RONAFIX mortar mix C or similar). The dimension to be a minimum of 100mm or width of block, whichever is larger. Blocks or slabs bedded on sand remote from the channel should be set at a higher level to compensate for possible settlement of the paving in service.

8.0 Grate Locking System
Gratings should be securely fixed to the channel, where required, using an appropriate grate lock system (where available).

9.0 Channel Protection
Avoid contact between compaction equipment and top of ACO channel edge rail. The installer must ensure that the finished surface level lies above the top of the edge rail (by at least 3-6mm). Covering or protecting the grating, before concreting the haunch or laying blocks, removes the time and cost associated with cleaning the channel and grating of cement material and embedded stones. (Please note that ACO channels must be installed with the grating in place to prevent deformation of the channel).

10.0 Watertight Installation to BS EN 1433:2002
Where ACO channel joints/fittings and channel/pavement interfaces are to be sealed, an appropriate sealant should be used (e.g. Sikaflex 11FC or similar). Guidance on the necessary surface preparation and/or priming should be sought from the sealant manufacturer.

For Guidance a typical method of application follows:
- The end faces of the channels are to be sound and free from dust, oil, and grease, with any loose material or dirt removed, e.g. by mechanical wire brush. No water drops should be evident.
- Using a standard cartridge gun, apply the sealant evenly and with no flaws. The detail on the ends of a channel varies from one product to another.
- Products with a basically flat face - apply the sealant in a layer approximately 5mm thick to one face of the joint.
- Products with a sealing groove within the end face - apply the sealant in a bead of approximately 10mm diameter into the sealing groove.
- Products with a sealing groove following the inside shape of the channel - apply the sealant to the end face of the channel and to the sealant groove, such that when the joint is completed, the sealant will both cover the end face and fill the groove.
- The channel unit should be placed on the prepared concrete bedding and pressed against the previously placed channel unit. A sealed joint of approximately 1-2mm width should be formed between adjacent channel units.
- Excess sealant should be wiped from the inside face of the channel to leave a smooth finish.
- The sealant is to be left to cure for 24 hours, during which time the sealant should be kept as dry as possible.

Note: Galvanised steel and iron products have good corrosion resistance to concrete and mortar products but may experience corrosion if high chloride and/or sulphate content is present. Use only good quality concrete and consider using corrosion inhibitors where necessary. The use of protective coatings, such as paint, can minimise the risk of corrosion.

Version	Date	Description	Name
		Drawing Number: 23735	Revision: A
		Title: ACO MonoDrain PD100D 10.0 CHANNEL INSTALLATION DETAIL DRAWING	
		Projection: ISO-A	Units: mm / Format: A3 / Scale: 1 : 10
Created by: WP	Released by: WBP		
Created at: 30.06.2017	Released at: 18.08.2017		
Replacement for: N/A	Replaced by:	Information contained in this drawing is copyright property of ACO Technologies plc. Any reproduction in part or whole without written permission of ACO Technologies plc is prohibited	Sheet: 1 of 1

ACO Technologies plc
ACO Business Park
Hitchin Road
Shefford
Bedfordshire
SG17 5TE, UK
Tel: 01462 816666
www.aco.co.uk

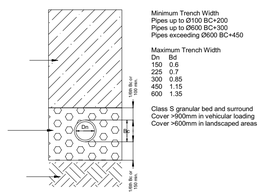
CLASS S BED & SURROUND

Backfill with selected suitable as-dug material up to formation level

Heavy compaction of the main backfill material should be avoided until the pipe has minimum cover to the crown of 250mm. The main backfill material shall be compacted in layers not greater than 250mm thick, unless stated otherwise.

Well compacted pipe bedding material in accordance with the specification.

Any soft spots in trench formation shall be replaced by an additional depth of granular bedding material unless instructed otherwise by the engineer.



Minimum Trench Width
Pipes up to Ø100 BC+200
Pipes up to Ø600 BC+300
Pipes exceeding Ø600 BC+450

Maximum Trench Width

Dn	Bd
150	0.6
225	0.7
300	0.85
450	1.15
600	1.35

Class S granular bed and surround
Cover >900mm in vehicular loading
Cover >600mm in landscaped areas

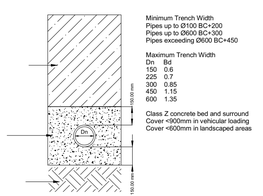
CLASS Z BED & SURROUND

Backfill with selected suitable as-dug material up to formation level

Heavy compaction of the main backfill material should be avoided until the pipe has minimum cover to the crown of 250mm. The main backfill material shall be compacted in layers not greater than 250mm thick, unless stated otherwise.

Sulphate resisting GEN3 concrete bed and surround with flexible joints

Any soft spots in trench formation shall be replaced by an additional depth of granular bedding material unless instructed otherwise by the engineer.



Minimum Trench Width
Pipes up to Ø100 BC+200
Pipes up to Ø600 BC+300
Pipes exceeding Ø600 BC+450

Maximum Trench Width

Dn	Bd
150	0.6
225	0.7
300	0.85
450	1.15
600	1.35

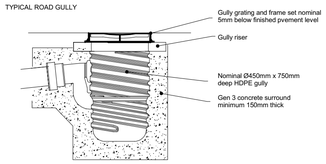
Class Z concrete bed and surround
Cover <900mm in vehicular loading
Cover <600mm in landscaped areas

0 1m 2m
0.5m 1.5m 2.5m

Bedding Details

Nominal Pipe Size Dn	Pipe Bedding Requirement Size of Aggregate mm
150	10 or 14 nominal single size or 14 to 5 graded
225-525	10, 14 or 20 nominal size or 14 to 5 graded or 20 to 5 graded
>525	10, 14, 20 or 40 nominal single crushed rock or 14 to 5 graded or 20 to 5 graded or 40 to 5 graded

TYPICAL ROAD GULLY



NOTES

GENERAL
This drawing is to be read in conjunction with all relevant Engineers and Architects drawings.

For setting out refer to Architects drawings.

All dimensions are in millimetres and levels are in metres unless noted otherwise.

Contractor to take all relevant dimensions on site.

Any discrepancies to be advised to the Engineer.

Contractor to check/scan for services prior to construction to avoid any damage during works.

DRAINAGE
Any information given on this drawing regarding existing services is believed to be correct.

The contractor must check this information and determine the nature and location of other existing services from the various statutory authorities before commencing excavation works.

Drainage works to be constructed in accordance with BS EN 752 and Approved Document H.

All soft spots and unacceptable material encountered in drainage excavations is to be removed and replaced with granular material to the requirements of the building control officer.

Pipes to be installed to manufacturers recommendations.

Pipes under buildings to be laid to a fall of 1:40 minimum unless noted otherwise.

Plastic plain wall pipes to be PVC-U to BS EN 1401-1, class SN4, with flexible joints, Kitemark certified. Structured wall plastic pipes to be to WIS 04-35-01, Kitemark certified

Clay pipes to be vitrified clay to BS EN 295-1, with flexible joints, Kitemark certified. Clayware pipes must be extra strength classification protected in accordance with the specified details.

Bedding of pipes to be in accordance with approved document H1.

Rocker pipes with flexible joints are to be provided at a distance of 150mm and 750mm from the face of construction to manholes, where pipes pass above, below or through ground beams or foundations; at gully connections and soil stack ends.

Manhole access covers are to be located at the outgoing side of manholes.

Cover levels are to be fixed on site to suit finished levels. Covers and frames to BS EN124, Grade D to be used in areas subject to heavy vehicular loading, Grade C in areas subject to light vehicular loading and Grade B to be used elsewhere.

REV.	DESCRIPTION	DATE	DRW.	CHK.
C01	Channel drain updated, generic details removed	18/10/22	MG	JS
P01	First issue	16/05/22	MG	JS

NHS
Manchester University
NHS Foundation Trust

Sel Environmental Ltd
Real Innovation
SEL Environmental Ltd
Canal House
Bonsall Street
Blackburn
BB2 4DD
Tel:01254 589987
www.selel.co.uk

PROJECT
North Manchester General Hospital

TITLE
MSCP SW Drainage Details

STATUS	PURPOSE OF ISSUE
S4	For Construction

DRAWN BY	CHECKED BY	DATE
MG	JS	16/05/2022

SCALE (@A1)	PROJECT NUMBER
NTS	20200 MSCP

FILE DRAWING NUMBER	REV.
20200-SEL-NM110-EX-DR-Y-0011	C01