ACO RoadDrain® 200

Heavy-duty channel drainage system

Product Catalogue

ACO RoadDrain® 200

ACO RoadDrain® is a high strength monolithic channel system which delivers high performance drainage in applications subject to dynamic wheel loads, including motorways, ports, docks and aircraft aprons.

ACO. we care for water

ACO is a Water-Tech company that protects water. Building on our global drainage expertise that protects people from water, we increasingly see our mission as also protecting water from people.

With the ACO WaterCycle, ACO provides systems that collect and channel, clean, retain and ultimately reuse water. In this way, ACO contributes to the preservation of clean groundwater as a vital resource, and makes a contribution to tomorrow's world. In its Agenda 2030, the UN global community set the improvement of water quality as one of 17 sustainable development goals.

Intelligent drainage systems from ACO increasingly use smart technology to ensure that rainwater and wastewater are drained, or temporarily stored. With innovative separation and filter technology, we prevent water contamination by pollutants such as fat and grease, fuels, heavy metals and microplastics.

Today, ACO goes one step further: we accept the challenge of reusing water, and thus establishing a resource-saving cycle. For all products and systems, ACO attaches great importance to durability, reusability and a low carbon footprint. The pursuit of sustainability is an ongoing process that we strive to meet every day.

The ACO Group is a global family business that is one of the world market leaders in the Water-Tech segment. Founded in Schleswig-Holstein in 1946, it operates as a transnational network in over 50 countries. Worldwide, ACO is characterised by a high level of decentralised ownership, and explicit regional market proximity.

www.aco.com

Holder
Iver and Hans-Julius Ahlmann

Headquarters of the ACO Group
in Rendsburg/Büdelsdorf

5,200

employees in more than 47 countries (Europe, North and South America, Asia, Australia, Africa)

1 Billion

Euro Sales in 2021

37

production sites in 18 countries

ACO Academy
for practical training

Water protection and rainwater management

What is ACO RoadDrain® 200?

ACO RoadDrain® 200 is a surface water drainage system, specifically designed for heavy duty and industrial applications.

These channels are fully certified to BS EN 1433:2002 for applications D 400 to F 900. ACO RoadDrain® complies with specification for Highways Works Clause 517.

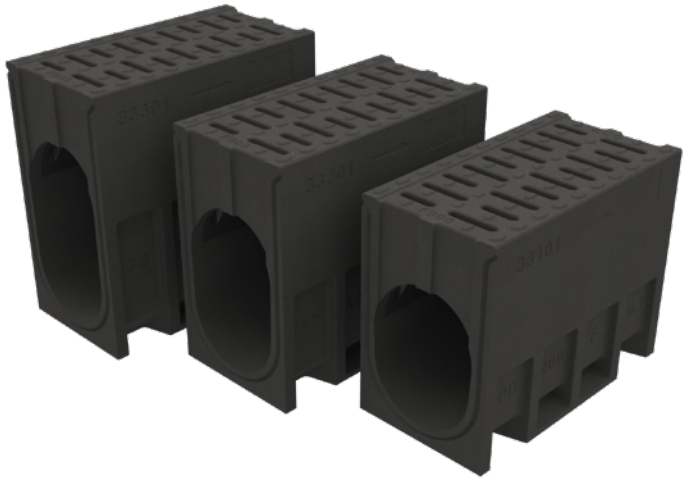
Manufactured from ACO's sustainable high strength material the half metre channels and access units are available in a variety of constant depths.

This enables either flat or stepped installations to be achieved making it ideal for many highways, local authority, commercial or industrial applications requiring positive interception and drainage of surface water.

This keeps the water closer to the surface and reduces the need for costly underground pipe networks.

Why choose ACO RoadDrain® 200

The system provides a range of integrated channels and accessories, ideal for managing surface water in areas subject to extreme wheel loads.



Product features

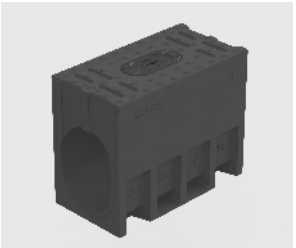
- One piece design means no separate grating specifications
- Caters for extreme wheel loads such as airport aprons, ports and docks
- Strong and robust design
- UKCA & CE Marked, and BS EN 1433:2002 certified Load Class D 400 to F 900
- Caters for a range of catchment depths
- Integral inlets prevent theft
- Polymer concrete construction maintains colour and offers excellent chemical resistance
- Sump and gully outlets available for connection to underground drainage
- ACO RoadDrain® carries the BSI kitemark

ACO RoadDrain® is specifically designed for heavy-duty and industrial applications fully certified to BS EN 1433:2002 for applications D 400 to F 900. The polymer concrete's high strength characteristics means the material is typically four times stronger than traditional C20/25 concrete. It is a robust one-piece drainage channel, which eliminates the risks associated with grated systems used in highways and heavy industrial applications.

Manufactured from ACO's sustainable high strength material, ACO RoadDrain® 200 channels have many benefits including excellent resilience to dilute acids & alkalis, and is unaffected by road salts, fuels & oils typically encountered during service. Having a water absorption level of only 0.01% by weight, ACO's polymeric material ensures watertight* installations can be achieved to prevent unwanted contamination of surrounding soil or ground water.

ACO RoadDrain® 200 has a full range of easy to use accessories including endcaps, outlets and universal gullys, allowing flexibility for installations. ACO RoadDrain® 200 is also compatible with ACO KerbDrain® installations, allowing cross junction areas to connect to kerb side drainage.

* ACO RoadDrain channel are tested to confirm compliance with the water tightness requirements of BS EN 1433.


Access unit


Step connector


Inlet/Outlet
and closing end cap

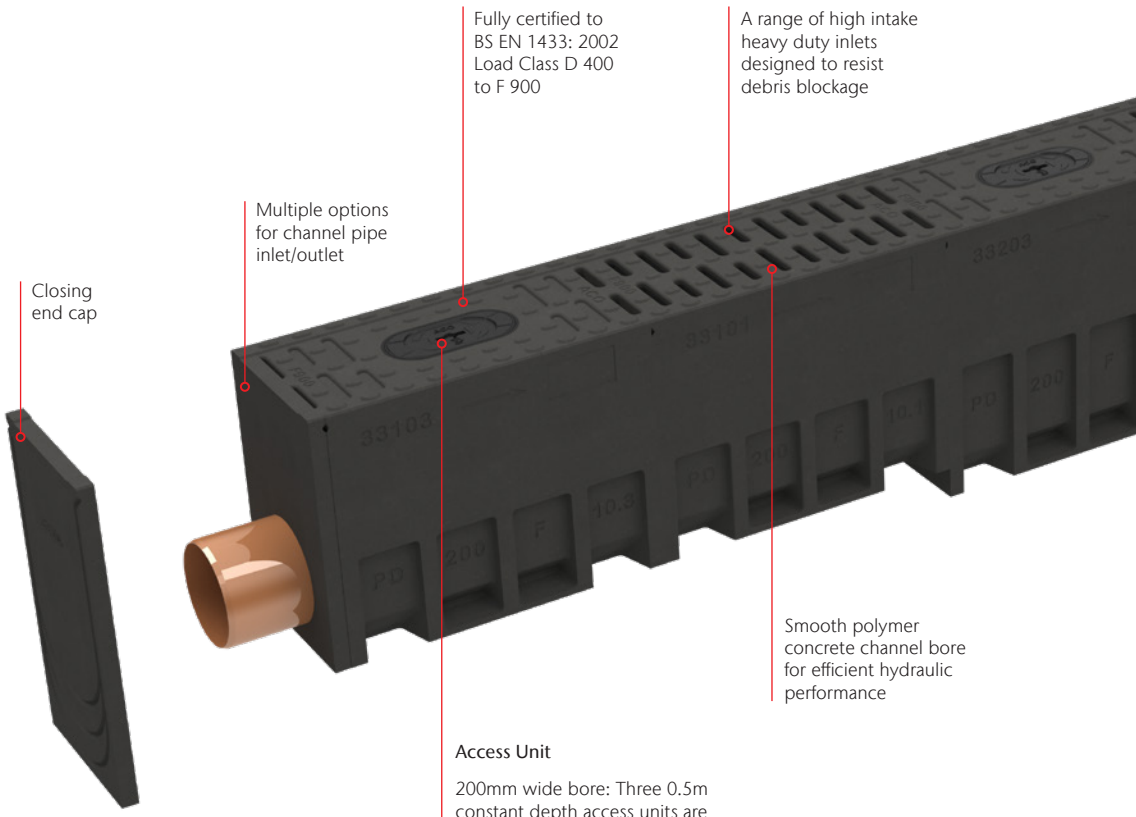

Universal Gully

ACO RoadDrain® 200 features overview

ACO RoadDrain® 200 has a range of constant depth channels to suit drainage design requirements.

The layout below illustrates the channels and accessories available within the range and to aid product selection, a summary of the function and features of each component is provided.

These channels are monolithic making them suitable for public roads and carriageways.



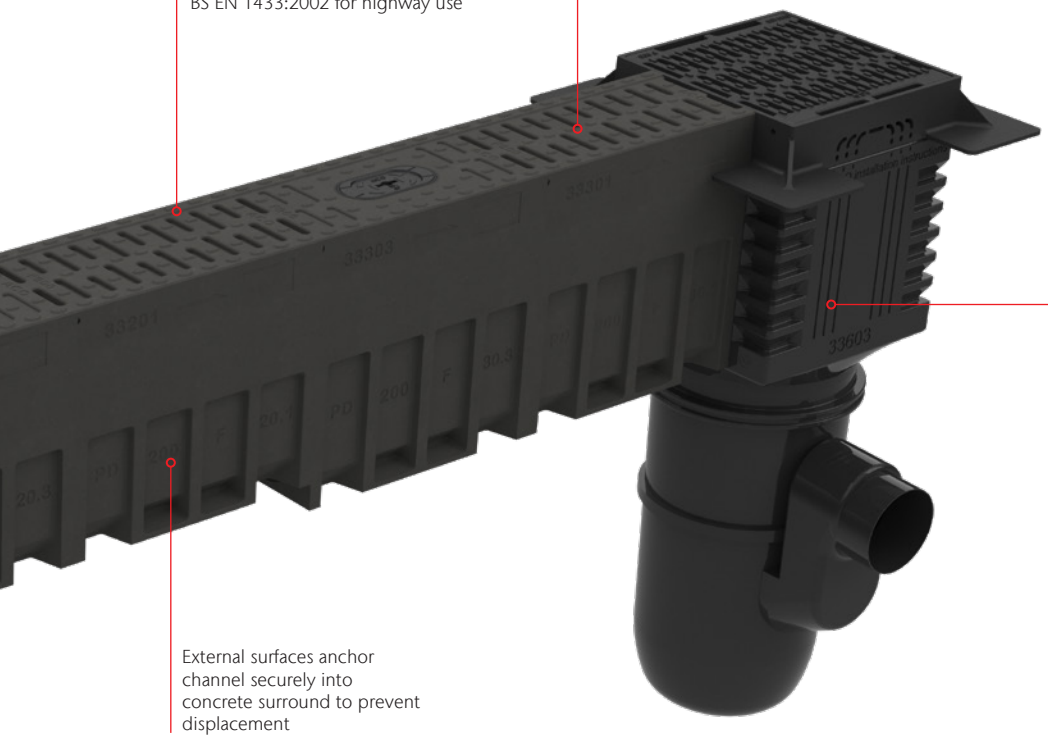
Access Unit

200mm wide bore: Three 0.5m constant depth access units are available with overall depths ranging from 400mm to 500mm

These channels include vertical knockout for connection to Ø160mm (200mm wide bore) pipework.

Manufactured from a polymeric based recycled material that improves stability and anchors product into concrete surround

Highways England Compliant, complies with Clause 517 SWH and is Kitemarked to BS EN 1433:2002 for highway use



Universal Gully

Outlet solution for all channel depths. Can also be used to create 90° angles, 3-way T-junctions and cross junctions

External surfaces anchor channel securely into concrete surround to prevent displacement

Load Classes

D 400
Public highways, parking areas for all types of vehicles, distribution yards

E 600
Industrial areas, heavy wheel loads, slow-moving HGV's and forklifts, service stations

F 900
Airport runways, very heavy industrial and military installations, service yards and lorry parks

A range of solutions with ACO RoadDrain®

T-Junctions

PROBLEM:
Where side roads adjoin the main carriageway, flow of surface water along the gutter can be impeded or prevented leading to standing water and drainage issues. Surface water runoff from side roads entering the main carriageway can also be a hazard to road users.

SOLUTION:
The ACO RoadDrain® range can combine with ACO KerbDrain® to effectively drain the road junction, providing continuous and effective interception and drainage of surface water flows across the junction.

Multi-use car parks

PROBLEM:
Parking areas near industrial sites may be required to take the loading of HGVs as well as lighter commercial vehicles.

SOLUTION:
ACO RoadDrain® offers a robust and effective drainage solution capable of withstanding the heaviest F 900 loads. The channel can be combined with sumps or gullys for full access to the system.

Across roads

PROBLEM:
Channels which cross public carriageways are subjected to continual traffic. RoadDrain is a non-grated system and therefore is not restricted under DMRB HD33/06 Clause 6.17, which restricts the use of grated systems in these types of installations.

SOLUTION:
ACO RoadDrain® units are monocast, they are a one-piece drainage channel providing long term security and robustness. Effective drainage of the carriageway is maintained and the risk of ponding is eliminated.

Protecting the environment

The creation of a new loading yard and terminal to meet the demands of increasing port traffic required a drainage solution that could separate out clean from contaminated water, and meet the point loading demands from the cranes and other heavy traffic. ACO RoadDrain® monocast construction could cope with the turning wheels of the port cranes and an on-site wet test was arranged to show the system could be sufficiently sealed to meet the Environmental Protection Agency regulations to avoid any contaminated liquid being discharged into the sea.

Integrated design

The refurbishment of Michaelwood services involved an update to the car and lorry parking areas to accommodate more vehicles and ease traffic movement. ACO RoadDrain® was chosen to sit across the larger car parking areas to provide optimum removal of surface water. Its easy integration with ACO KerbDrain®, combined kerb and drainage, and the existing sewer connections, allowed an installation with minimal ground infrastructure disruption. This simplified the construction of the hardstanding and improved the integrity of the finished pavement.

Tailored traffic scheme

The regeneration project at Layton District Centre, two miles east of Blackpool, involved the use of ‘shared space’ to create a safe and attractive mixed-use zone of traffic and pedestrians. ACO RoadDrain® was used along the central reservation of these 20mph zones, which were turned into a pedestrian islands, lowered to carriageway level and finished to match the footways. ACO RoadDrain® was used to demark boundaries between this pedestrian island and the vehicle carriageway. A formulated colour additive was put in to the resin concrete base mix to achieve a colour that could clearly demark the two areas.

ACO QuAD Hydraulic Design Software

Try our free design tool

The free-to-use ACO QuAD Hydraulic Design software has unprecedented levels of choice and flexibility built-in, to enable the efficient and accurate hydraulic design of any surface water management scheme. Use the tool today to help you to design schemes using ACO RoadDrain®.

The hydraulic engine has been robustly tested and is the tool used by ACOs internal Design Services Team in modelling surface water solutions for customers.

ACO QuAD Hydraulic Design software uses differential equations for spatially varied flow that online alternative solutions cannot accurately match. For example the Manning's equation for steady uniform flow does not work with level channels and is grossly inaccurate on shallow gradients.

Here are some of the features it includes:

- Powerful project-based software
- Create catchment models that are fully editable
- PDF summary document output
- Cloud based – all designs are stored securely on our server against your login
- Integrated rainfall data for the whole of the UK

QuAD Features Overview

Cloud based

The software means increased efficiency providing the design resources you need when you need it, allowing you to deploy the same design capability consistently, and with the same consistency in results every time.

Flexible catchment design

QuAD supports designers in creating catchment areas. Supplementary catchment areas can be easily added to previously designed channel runs, providing flexibility when designing upstream and downstream features.

Product + value optimiser

Optimising the specific channel runs can be done with the optimiser feature selecting the smallest product suitable. Excavation and concrete requirements are also provided.

Attenuation assessments

Calculate the attenuation required for the project and compare it with the storage available in the channel design. Attenuation volume is presented along with suitable options for storage.

Flexible download format

Output can be generated for all or parts of the project and can be generated in pdf or CSV formats.

Application

Application selection ensure designers are able to get quick and accurate guidance in selection of the most suitable products based on the type of application the catchment is to cater for.

Rainfall assist

Rainfall intensity by location matters in design. QuAD provides a site locator map enabling the most accurate intensity to be input.

Resilience assessment

By inputting anticipated sedimentation rates and sedimentation density the QuAD software enables the designer to test their suggested maintenance schedules.

Secure scheme filing

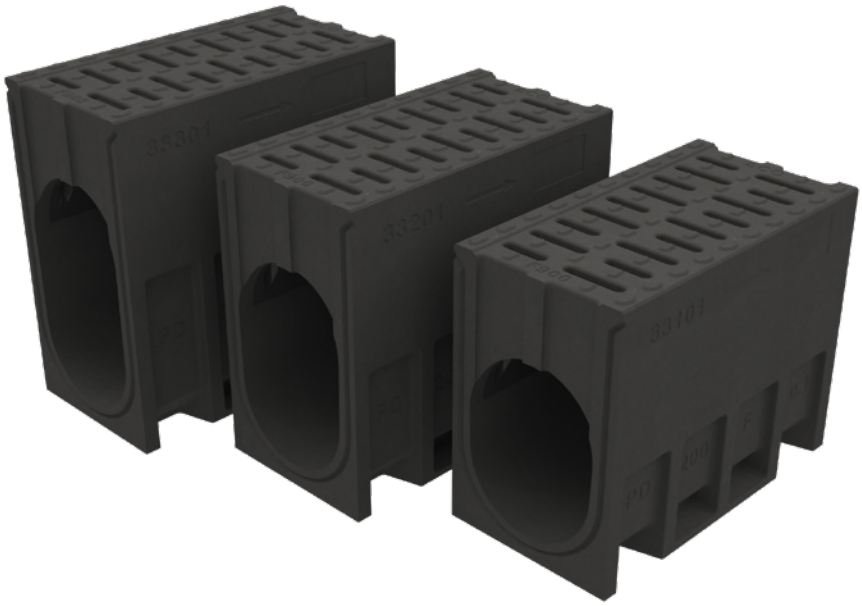
All designs created by registered users are stored on a secure server and are password protected. Past projects are easily retrieved from the personalised menu.

Knowledge + support

Technical and design support is available through the askACO Knowledge Base (self-help), askACO live chat or through a Design submission form.

To use the QuAD Hydraulic Design software visit: **www.aco.co.uk/quad-hydraulic-design-2.0**

ACO RoadDrain® 200

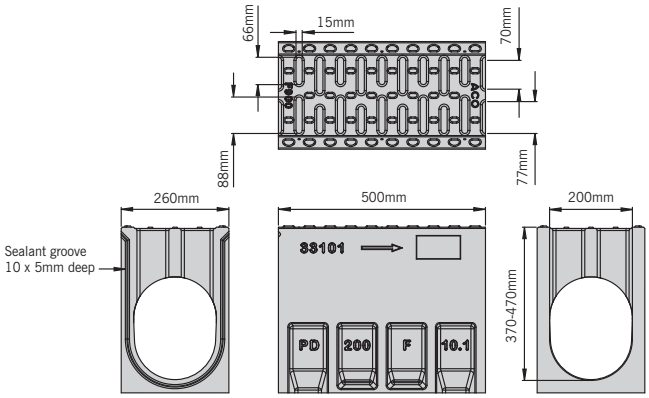


ACO RoadDrain® 200 constant depth channels listed below are constant channels which can be used in a stepped system. Suitable for applications up to and including BS EN 1433:2002 Load Class D 400 to F 900.

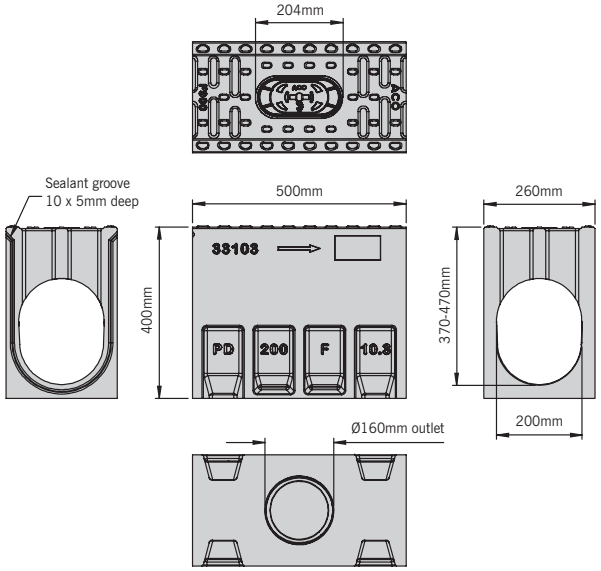
The ACO universal gully can be used with all ACO RoadDrain® 200 channels see page 19 for further details.

ACO RoadDrain® 200

Product Code	Description	Length [mm]	Depth [mm]	Invert Depth [mm]	Weight [kg]	Sump	Gully Unit	End Cap	Inlet/outlet /end cap	Step Connector
Constant depth channels										
33101	PD200 F 10.1	500	400	370	52.0	-	601/602/607	PD200 F 306	PD200 F 108	PD200 F 123
33201	PD200 F 20.1	500	450	420	54.5	-	601/602/607	PD200 F 306	PD200 F 108	PD200 F 123
33301	PD200 F 30.1	500	500	470	58.3	-	601/602/607	PD200 F 306	PD200 F 108	PD200 F 123



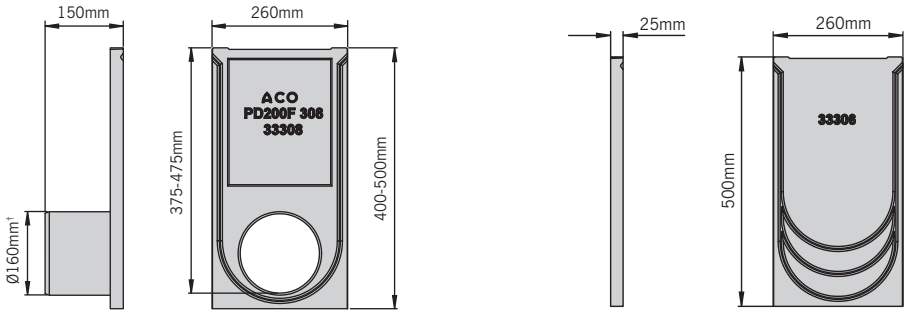
Access Channels										
33103	PD200 F 10.3*	500	400	370	58.9	-	601/602/607	PD200 F 306	PD200 F 108	PD200 F 108
33203	PD200 F 20.3*	500	450	420	61.0	-	601/602/607	PD200 F 306	PD200 F 208	PD200 F 208
33303	PD200 F 30.3*	500	500	470	63.1	-	601/602/607	PD200 F 306	PD200 F 308	PD200 F 308



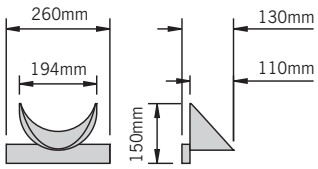
* These Level Invert Channels have a vertical Ø160mm knockout
Note: These products are subject to weight and dimensional tolerances. The dimensions shown on this page are for guidance purposes only.

ACO RoadDrain® 200

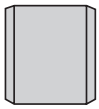
Product Code	Description	Length [mm]	Width Bore [mm]	Width [mm]	Depth [mm]	Invert Depth [kg]	Weight
Accessories							
33306	PD200 F 306 Closing endcap	25	-	260	500	-	4.6
33108	PD200 F 108 Inlet/outlet endcap	25	150	260	400	375	4.3
33208	PD200 F 208 Inlet/outlet endcap	25	150	260	450	425	4.7
33308	PD200 F 308 Inlet/outlet endcap	25	150	260	500	475	5.2



33123	PD200 F 123 Step connector	110	194	260	-	-	1.4



0058	822 Drain union PVC-U Ø160mm	150	150	160	-	-	0.5

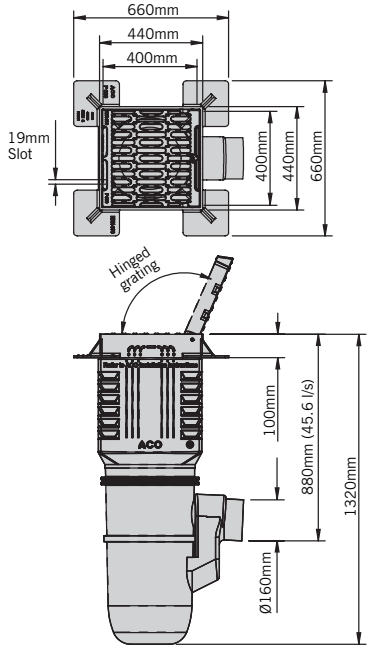


Note: These products are subject to weight and dimensional tolerances. The dimensions shown on these pages are for guidance purposes only.

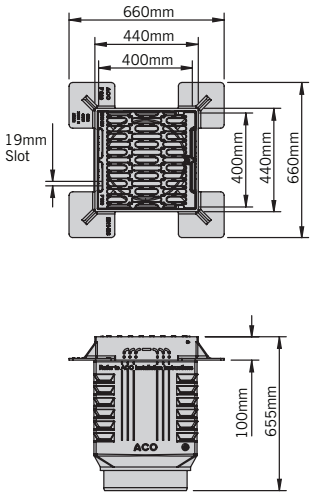
ACO RoadDrain® 200

Product Code	Description	Length [mm]	Width [mm]	Depth [mm]	Invert Depth [mm]	Slot width [mm]	Invert Type	Weight [kg]
ACO Universal Gully for RoadDrain® 200								
33601	Gully assembly and bucket 601F	440	440	1315	870	19	1	78.8
33602	Gully assembly no bucket 602F	440	440	1315	870	19	1	77.4
33607	Gully top assembly only 607F	440	440	655	-	19	1	73.1
33604	Grating and frame 604F	400*	660††	100	-	19	1	69.5

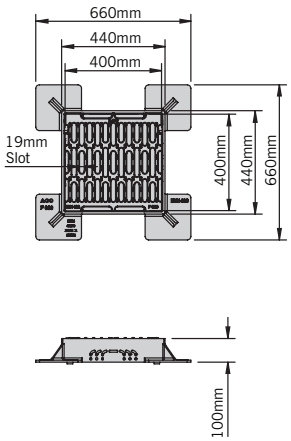
Gully assembly No 601F and No 602F



Gully top assembly No 607F (Gully pot supplied by others)



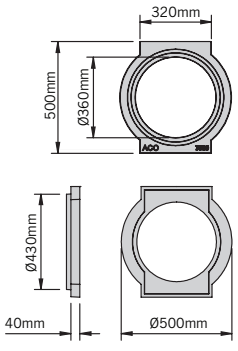
Gully grating and frame only No 604F



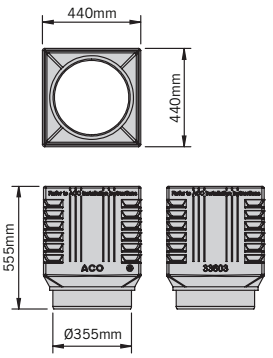
* Clear opening size †† Over frame size

Product Code	Description	Length [mm]	Width [mm]	Depth [mm]	Invert [mm]	Invert Type	Weight [kg]
ACO Universal Gully components							
7060	Gully connector 615	500	Ø500	40	-	1	7.0
33603	Gully intermediate unit 603	440	440	555	-	1	5.1
33605	Gully base unit 605	-	Ø375	750	310	1	4.3
33606	Bucket polyethylene 606	-	Ø275	245	-	1	1.4

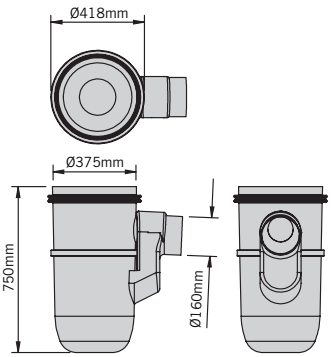
Gully connector No 615



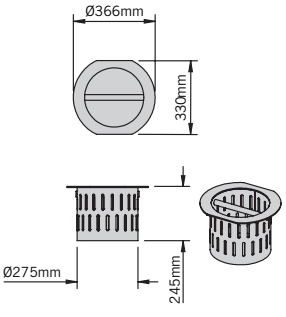
Gully intermediate unit No 603



Gully base unit No 605



Gully bucket No 606



Installation detail

Load class

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

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).

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 pleasecontact 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.

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.

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.

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.

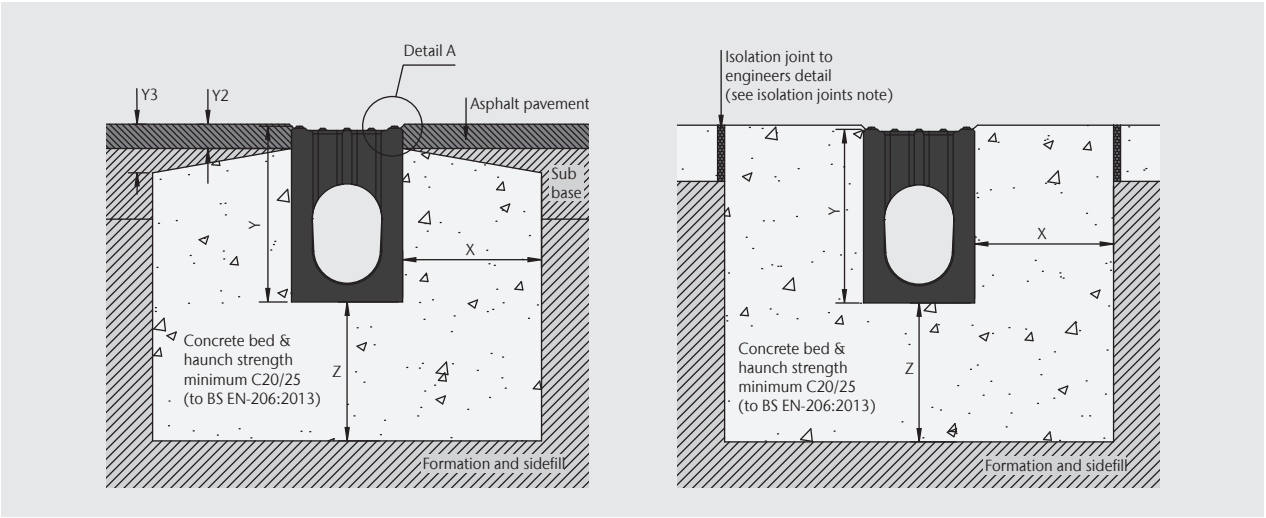
Loose boards, stone fill or cover plates will not protect the channel walls or grating. A temporary channel crossing should be formed by raising the ground level locally, to 3 - 6mm above top of channel, either side of a channel for a distance of 750 to 1000mm, to form ramps. Note that the channel load class should be adequate to carry the site traffic.

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). 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.

Grate locking system

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



Channel Protection

Avoid contact between compaction equipment and top of ACO channel. The installer must ensure that the finished surface level lies above the top of the channel (by at least 3-6mm). Covering or protecting the channel, before concreting the haunch or laying blocks, removes the time and cost associated with cleaning the channel of cement material and embedded stones.

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.

Concrete surround dimensions

		Load Class		
		D 400	**E 600**	**F 900**
Minimum Dimensions (mm)	X	200	200	200
	Y	Full channel height (less Y2 where necessary)		
	Z	200	200	200
Maximum Dimensions (mm)	Y2	35	35	35
Asphalt pavement only	Y3	70	70	70

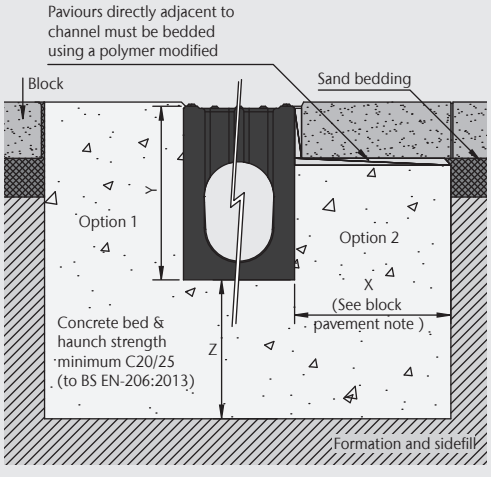
For guidance a typical method of application follows:

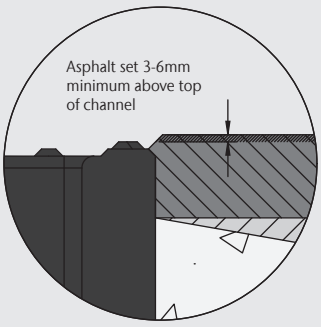
- The end faces of the channels are to be sound and free from dust, oil, and grease, with any loose material or dirt removed, e.g. by mechanical wire brush. No water drops should be evident.
- Using a standard cartridge gun, apply the sealant evenly and with no flaws. The detail on the ends of a channel 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.





Chemical resistance chart

Further details of the chemical resistance can be obtained from the ACO Water Management Design Services team or, for particular chemicals, samples of the polymer concrete can be supplied to customers for their own testing.

The chemical resistance will also depend on the temperature of the effluent. Clean water should not exceed 80°C. This chemical resistance chart refers to chemicals at ambient temperatures (20°C) and the results are for general guidance only.

Chemical medium	% conc	Resistance: Polyester concrete
Acetic acid, glacial	100	No
Acetic acid	10	Yes
Acetic anhydride	100	No
Acetone	10	No
Acetone	100	No
Alum	100	Yes
Aluminium sulphate	100	Yes
Ammonium chloride	100	Yes
Ammonium nitrate	100	Yes
Ammonium phosphate	65	Yes
Ammonium sulphate	100	Yes
Aniline (aminobenzene)	100	No
Barium chloride	100	Yes
Benzaldehyde	100	No
Benzene	100	No
Benzyl alcohol	100	Yes
Benzyl chloride	100	No
Borax	100	Yes
Boric acid	100	Yes
Bromine	100	No
Bromine water	Saturated	No
Butyl acetate	100	No
Butyric acid	100	Yes
Calcium carbonate	100	Yes
Calcium chloride	100	Yes
Calcium chlorate	8	Yes
Calcium hydroxide	100	Yes
Calcium nitrate	100	Yes
Carbon disulphide	100	No
Carbon tetrachloride	100	Yes
Castor oil	100	Yes
Chlorine gas, wet	100	No
Chlorine water	Saturated	No
Chlorobenzene	100	Yes
Chloroform (trichloro-methane)	100	No
Chromic acid	12	Yes
Citric acid	100	Yes
Copper chloride	100	Yes
Copper nitrate	100	Yes

Chemical medium	% conc	Resistance: Polyester concrete
Cyclohexane	100	Yes
Diesel fuel (DERV)	100	Yes
Dimethyl formamide	100	No
Dimethyl phthalate	100	Yes
Dioctyl phthalate	100	Yes
Ethanol	95	No
Ethanolamine	100	Yes
Ethyl acetate	100	No
Ethylene glycol	100	Yes
Ferrous chloride	100	Yes
Ferric chloride	100	Yes
Ferrous sulphate	100	Yes
Formaldehyde	30	Yes
Formic acid	10	Yes
Formic acid	100	No
Fuel oil	100	Yes
Gasoline	100	Yes
Glycerine	100	Yes
Hydrazine	50	No
Hydrobromic acid	48	Yes
Hydrochloric acid	10	Yes
Hydrofluoric acid	10	No
Hydrogen peroxide	30	Yes
Lactic acid	100	Yes
Lead acetate	100	Yes
Magnesium chloride	100	Yes
Magnesium sulphate	100	Yes
Maleic acid	100	Yes
Methyl ethyl ketone (MEK)	100	No
Motor oil	100	Yes
Nickel chloride	100	Yes
Nickel sulphate	100	Yes
Nitric acid	5	No
Nitrobenzine	100	No
Oleic acid	100	Yes
Oxalic acid	100	Yes
Perchloric acid	10	Yes
Perchlorethyline	100	Yes
Phosphoric acid	20	Yes
Phosphorus trichloride	100	No

Chemical medium	% conc	Resistance: Polyester concrete
Potassium carbonate	50	Yes
Potassium chloride	100	Yes
Potassium dichromate	100	Yes
Potassium hydroxide	10	Yes
Potassium nitrate	100	Yes
Potassium permanganate	10	No
Potassium sulphate	100	Yes
Pyridine	100	No
Sodium acetate	100	Yes
Sodium bromide	100	Yes
Sodium carbonate	35	Yes
Sodium chlorate	100	Yes
Sodium chloride	100	Yes
Sodium hydroxide (caustic soda)	50	No
Sodium hypochlorite	18	No
Sodium nitrate	100	Yes
Sodium nitrite	100	Yes
Sodium phosphate	10	Yes
Sodium sulphate	100	Yes
Sodium sulphide	100	Yes
Sodium sulphite	100	Yes
Sodium thiosulphate	100	Yes
Stearic acd	100	Yes
Styrene	100	No
Sulphuric acid	75	No
Sulphuric acid	50	Yes
Sulphuric acid at up to 40°C	10	Yes
Tetachloroethylene	100	Yes
Thioglycolic acid	80	Yes
Thionyl chloride	100	No
Toluene	100	Yes
Toluene sulphonic acid (aqueous solution)	Saturated	Yes
Trichloroacetic acid	50	Yes
Turpentine	100	Yes
Water	100	Yes
Xylene	100	Yes
Zinc sulphate	100	Yes

Specification clause

The surface drainage system shall be ACO RoadDrain® PD200F channel system as supplied by ACO Technologies plc; all materials and components within the scope of this channel system shall be obtained from this manufacturer. The system shall be certificated Load Class D400 to F 900 as defined in BS EN 1433:2002 with Initial Type Test certification issued by a notified body independent of the manufacturer and shall comply with the Manual of Contract Documents for Highway Works: Specification for Highway Works, Clause 517. The linear drainage channel shall be certified by a third party product certification system compliant with BS EN 45011:1998 carried out by an accredited body (UKAS or equivalent), e.g. Kitemark.

Declarations of Performance (DoP) shall be supplied to the Supervising Officer upon request. The system shall be of units 500mm long and 200mm nominal internal width. Manufactured as one piece in polymer concrete, with integral resin concrete grating featuring 15mm downward flared inlet slots to ACO registered pattern providing to minimum inlet area of 44260mm^2 per meter for ACO RoadDrain® 200. All units shall be manufactured from ACO's sustainable, high strength material.

The system shall be installed in accordance with the manufacturer's printed instructions, and the work carried out as specified in drawing no. (*) and in accordance with recognised good practice. Standards of workmanship shall generally be as specified in BS EN 752:2008 and BS 8000:Part 14:1989.

* insert appropriate information.

General information

ACO products are subject to weight and dimensional tolerances. The weights and dimensions shown in this document are for guidance purposes only. ACO products are made from naturally occurring materials and may be subject to variations in colour, texture and marking. These aesthetic variations do not affect the performance or functionality of our Goods. The appearance of products shown in our company documentation are for illustration purposes only.

Highways Specification – Appendix 5/6

The Appendix 5/6 will need to be completed for each project. A model Appendix 5/6 for ACO RoadDrain® is available from the ACO Water Management Design Services Team.

The ACO RoadDrain® system is UKCA and CE marked, and carries the BSI Kitemark in accordance with the construction products regulation.

Declarations of Performance certificates are available to download on our website:
www.aco.co.uk/construction-products-regulation-(cpr)

Please contact ACO Water Management Design Services Team on 01462 816666 for further information.

BS EN 1433:2002

BS EN 1433
KM 538858

Material benefits

The correct material selection for products installed in permanent works is extremely important to assure optimum performance throughout its design life.

ACO RoadDrain® 200 is manufactured from a polymeric material, which offers distinct advantages over other products and materials, addressing key specification and performance requirements for engineers and designers.

Sustainable use of materials

Efficient use of material resources is a key contributor to sustainability in construction. ACO RoadDrain® 200 has been carefully designed to maximise strength while minimising material use.

ACO's polymeric material:

- Combines the mechanical and performance benefits of synthetic resin concrete
- Fully conforms to and exceeds all performance requirements as specified by BS EN 1433:2002
- Is recyclable, i.e. it can be collected, processed and returned for re-use as a raw material

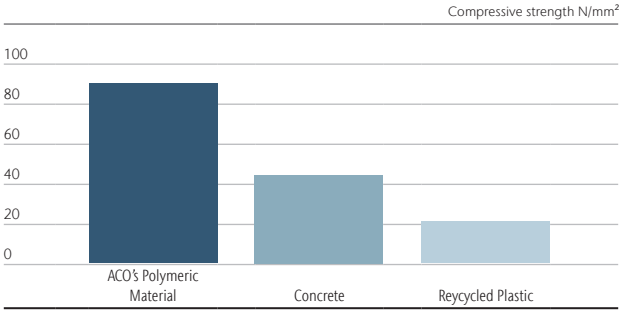
The ACO RoadDrain® 200 range also includes components manufactured from ductile iron and steel which contain between 25% and 90% recycled material.

Mechanical properties of ACO's polymeric material

The following data compares the advantages of ACO's polymeric material used to manufacture ACO RoadDrain® with Ordinary Portland Cement (OPC) concrete and recycled plastic composite materials.

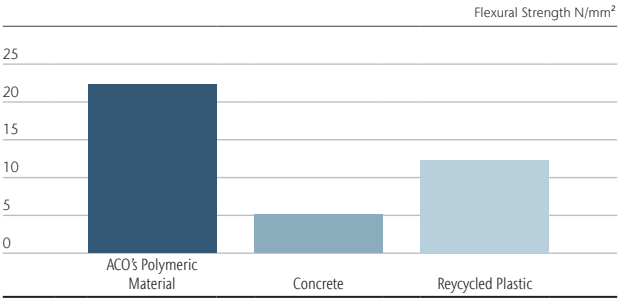
Compressive strength

ACO's polymeric material has high compressive strength is therefore extremely resistant to service loads.



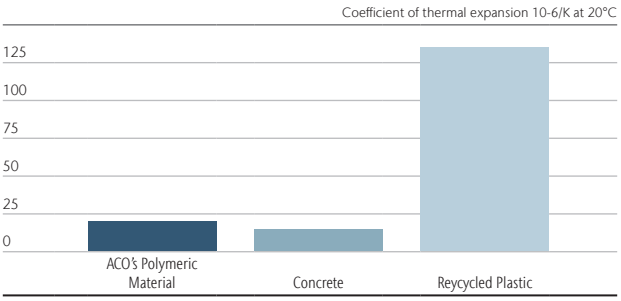
Flexural strength

ACO's polymeric material has excellent flexural strength making the product resistant to side loads typically encountered during surfacing and installation.



Coefficient of thermal expansion

ACO's polymeric material has a low coefficient of thermal expansion making it extremely stable, and unlike some materials it will not buckle or distort if subjected to high or low temperatures during service.



Impact resistance

RoadDrain 200 optimised design combined with the nature of ACO's polymeric material, makes it highly resistance to damage typically caused during installation or from traffic impacts.*.

* Tested by Birmingham City Laboratories (BCL)

Water absorption

ACO's polymeric material has low water absorption of only 0.01% by weight which means surface water or liquids are contained within the product until discharge without contaminating surrounding soil or groundwater.

Coefficient of friction (Mannings)

ACO's polymeric material is extremely smooth having a Mannings coefficient of 0.011 giving enhanced hydraulic performance and resisting the build up of silt and debris.

Chemical resistance

ACO's polymeric material has high resistance to dilute acids and alkalis and is unaffected by road salts, fuels and oils which are typically encountered during service. For a copy of our full chemical resistance chart please see page 22.

Design support services

Surface water management system design can often be a complex task. Success in combining products and processes requires a thorough understanding of how these different elements work together.

The ACO Design Services Team is able to work closely with you through the entire design process to ensure accurate and cost-effective product selection is made.

Services we offer include (free and without obligation):

- Whole system design, from collection to the attenuation of surface water
- Hydraulic calculations and AutoCAD detailing
- Parts schedules
- Conduit files for MicroDrainage

ACO has embraced the concept of value engineering as an approach to on-site construction that saves both time and money.

ACO will review any design to minimise the total scheme and life cost of a proposal. The team can suggest the most appropriate range depending on your requirements.

Some ranges like MultiDrain or MonoDrain allow water to be contained and conveyed close to the surface, which accords with the principles advocated for Sustainable Drainage (SuDS Manual, 2015), by removing the need for pumping. Other ranges like Qmax allow attenuation

– the storage of large volumes of water during storm events, reducing overall site costs.

For detailed designs using the ACO Hydraulic Design Software, please contact the ACO Water Management Design Services Team.

If manual calculations are preferred to using our QUAD software, hydraulic tables and instructions for manual calculations can be provided.

For design enquiries go to
www.aco.co.uk/design-+-support-services

ACO BIM Models

BIM is the process of generating and managing data, and developing collaborative behaviours that will unlock new and more efficient ways of working at all stages of the project life-cycle.

These files will help contractors specify and optimise drainage systems in line with the overall benefits of BIM-enabled working, including faster project delivery, reduced costs, reduced waste and greater project predictability.

Civils3D, IFC or Revit files are available for download.

www.aco.co.uk/aco-bim-models

Further Learning

ACO Professional Development

ACO has recognised that knowledge transfer is fundamental in keeping up-to-date with the latest advancements in surface water management and has a unique training offer that can be accessed online, in-house or at the state-of-art training facility at the ACO Academy.

In Company

ACO offers face-to-face professional development sessions. These are carefully designed to last up to 1 hour, so they can be undertaken across a lunch break.

A member of our team will contact you directly to discuss your requirements and will tailor the session to meet your needs.

ACO Academy Days

ACO's training facility at its UK head office in Bedfordshire has a theatre-style facility that can hold up to 50 people as well as a number of breakout rooms for small groups.

Professional development training can be combined with more in-depth product training at the on-site learning zone.

Webinars

ACO has developed a series of webinars that will keep you up to date, bringing you technical expertise as well as more specific product information. Whatever your involvement from specification to installation, there will be a webinar to meet your needs and further your learning.

Seminars

ACO is bringing the experts to you via our programme of regional events, and by sharing information from key influencers within the industry as well as more specific product information. ACO's seminar events will include opportunities to enhance existing knowledge as well as network and discuss thoughts and ideas with other delegates.

www.aco.co.uk/professional_development | email: ukprofessionaldevelopment@aco.co.uk

Case Studies

ACO has operated in the UK for over 30 years and in this time we have worked on ground breaking projects that have pushed the boundaries of surface water management. Our case studies provide bite sized information that counts towards your professional development and can provide inspiration for future projects.

www.aco.co.uk/case-studies

Colab

Colab is a collaboration of partnerships, bringing together CPD and self-certified content to ensure that knowledge is shared and accessible to the construction industry. Visit our content and CPD partner website: Colab to see more professional development content from partners such as ACO, FutureBuild, CIHT, The Edge, and CIWEM.

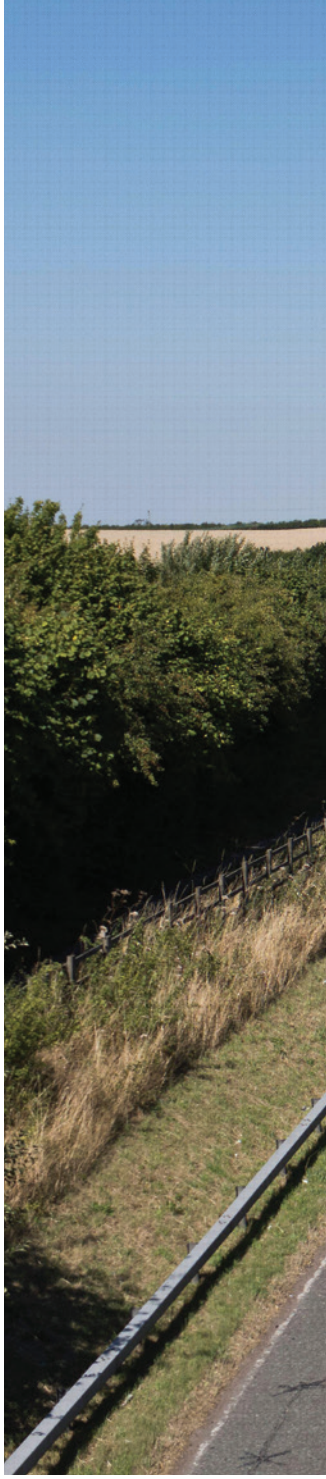
www.colab-cpd.co.uk

askACO

train | design | support | care

Every product from ACO Water Management supports the ACO WaterCycle

- ACO Water Management
  Civils + Infrastructure
  Building + Landscape
- ACO Building Drainage
- ACO Access
- ACO Sport
- ACO Wildlife



ACO Water Management

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www.aco.co.uk

ACO. we care for water

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