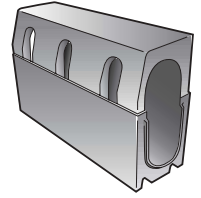




**PIPELINE & DRAINAGE SYSTEMS PLC**

DEVELOPING PIPELINE & DRAINAGE SOLUTIONS



## The recycled composite kerb drain solution



- Available in 305mm and 480mm depths.
- For use on motorways, trunk roads, car parks and most other urban areas.
- Lightweight, making for easy installation.
- High impact resistance.
- Manufactured from recycled materials, and complies to ISO14001
- Conforms to EN1433 linear drainage systems.

Envirokerb

# Reputation built through innovation

## Pipeline and Drainage Systems PLC are the world leaders in the supply of Bridge Drainage Systems

PDS have a reputation built on offering quality solutions to Bridge and Drainage engineers. We are renowned for our progressive innovations in the supply of Civil engineering projects. It is this innovation

that led to the development of ENVIROKERB, a Combined Kerb Drainage System for carriageways and car parks that fully complements our existing range of products.

Over the passed few years the use of Combined Kerb Drainage has grown rapidly, with engineers appreciating the advantages offered over the traditional gully and pipe drainage systems, for car parks and carriageways.

PDS have spent three years developing a totally recycled composite kerb drain solution.



### Combined Kerb Drainage System

Pipeline and Drainage Systems plc (PDS) have spent 3 years developing a totally Recycled Composite Kerb Drain product available in two standard half battered profile depths of 305mm and 480mm. There is also a full range of components providing the engineer with a number of drainage solutions.

## Lightweight

Each ENVIROKERB component has been designed to be under the 25kg one-man lift. The standard 305mm depth weighs only 16.5kgs.

## Strong and Robust

The material used in manufacture is exceptionally strong and complies with BSEN1433 group 3 kerb side installations and DIN 19580 load class D400kn.

## Impact Resistant

The product has the added advantage over traditional materials in being almost unbreakable from on-site handling and installation. The units are impact resistant, and do not suffer with breakages when left exposed prior to pavement and road completion.

## One-piece

Standard kerbs are supplied in 500mm long (drop kerbs and centre stones are 457.5mm long) one-piece units.

This eliminates the secondary operation of jointing two components, as required with some existing systems that are vulnerable to on-site breakage if left exposed.

## Positive Interlock

The units are supplied with a positive interlock between each module with the use of preformed male/female joints providing a method of installing to line and level. A watertight seal is achieved by applying ENVIROKERB sealing compound to the interface.

## Asphalt Adhesion

It is common practice to pre-pitch the face of Kerbs to form a seal with the asphalt construction. ENVIROKERB allows for self-adhesion with hot poured asphalt offering both time and cost savings in installation.

## Aesthetics

Envirokerb through a policy of material and process development has a finish almost identical to a standard concrete kerb.

This ensures aesthetic compatibility with surrounding traditional material.

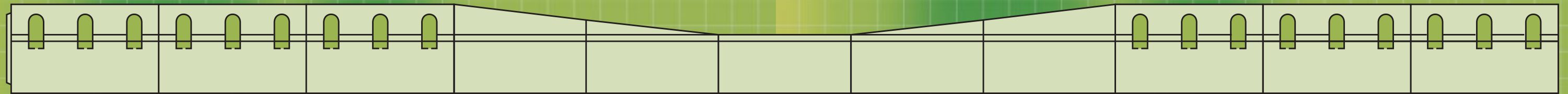
## Chemical Resistance

The product is resistant to all forms of effluents found in highway situations such as road-salts, petrol, diesel etc.

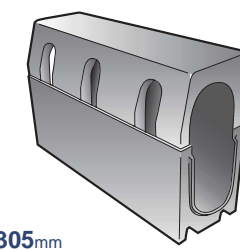
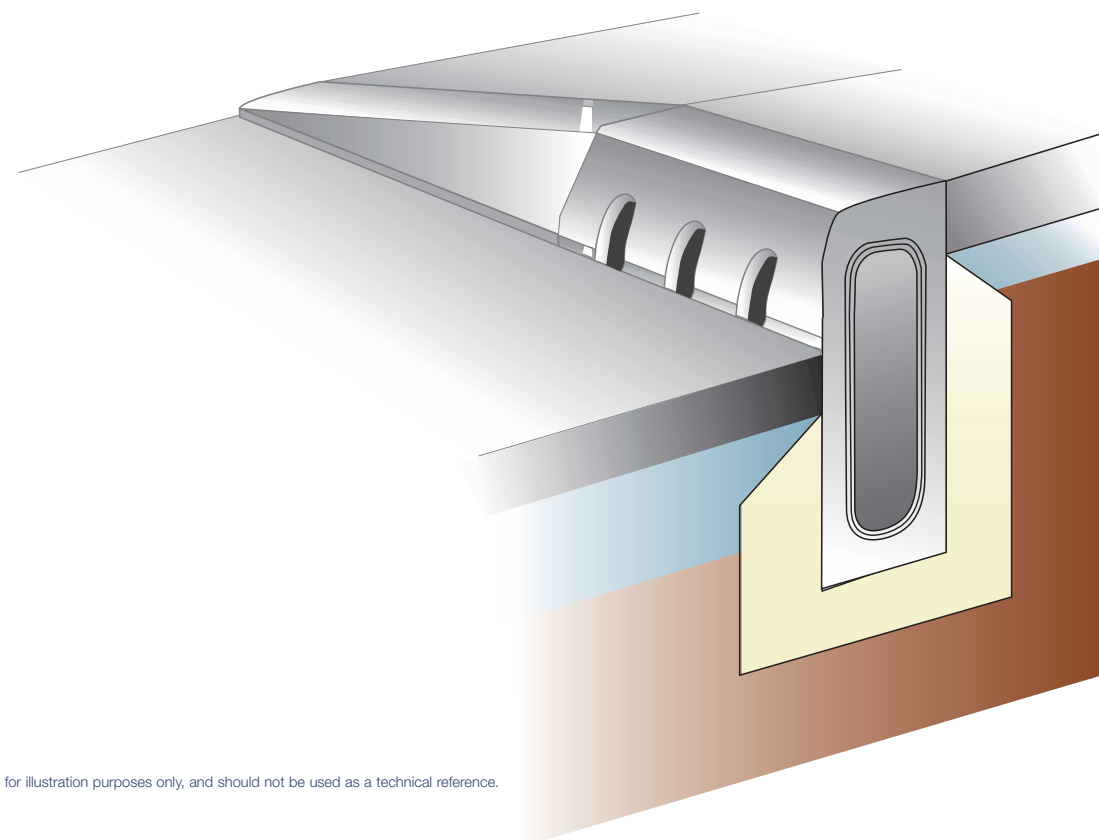
## Quality Assurance

The system is fully compliant with BSEN1433 (Drainage channels for vehicular and pedestrian areas).

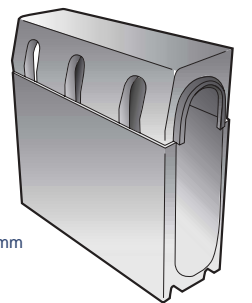
PDS have also been issued with an ISO9001 certificate for the design, manufacture and distribution of specialist Kerb Drainage Systems. The Envirokerb is also ISO14001 compliant



## Applications



305mm



480mm

## Improved hydraulic performance.

Due to the composite material used in the manufacture of ENVIROKERB giving excellent co-efficiency values, the hydraulic performance is improved over traditional materials. We have also incorporated three surface water inlet points offering a higher waterway area, and so designed to restrict the ingress of large debris.

## System components.

The ENVIROKERB system is complemented by a full range of additional components including drop kerbs, centre stones, lightweight gully chamber, rodding access units, radius units and numerous outlet possibilities.

## Envirokerb is made entirely from recycled materials

It is widely acknowledged that the construction industry has a major impact on the earth's already dwindling resources. Existing Combined Kerb Drainage systems manufactured in traditional materials rely heavily on natural resources. There are additional logistical concerns on the transportation of these materials through the smaller countryside communities in the UK. These products are heavy, brittle, difficult to recycle, and carry a number of on-site safety issues associated with their handling and installation.



# Theenvironment

PDS are the first manufacturer to take the initiative in addressing these concerns by developing the ENVIROKERB Combined Drainage Kerb System. ENVIROKERB offers the client a number of environmental benefits. Firstly the product is not reliant on natural resources and aggregates; secondly we utilise a composite of

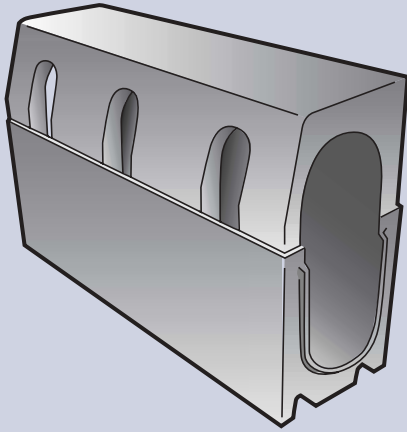
waste materials that would otherwise be destined for landfill sites; and finally, the product can again be recycled in the unlikely event it is no longer required.

ENVIROKERB is lightweight, non-brittle, strong and robust offering distinct advantages for on-site handling and installation.

**Design Features**

A 500mm long one-piece unit designed for ease of installation. At least 34% lighter in weight than conventional combined kerb drainage systems, and yet fully meets the EN1433 load requirements, and has exceptional impact resistance. Applications include trunk roads, car parks, access roads, traffic calming areas and industrial areas. The product is also 100% recycled.

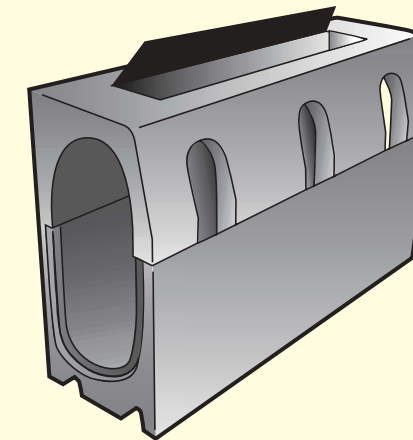
Standard Unit	
305mm standard unit.	
<b>Order Ref.</b>	<b>305SU</b>
Total Depth	305mm
Invert	275mm
Width Bore (nominal)	100mm
Length	500mm
Weight	16.5kg



**Rodding Access and Outlet Unit**

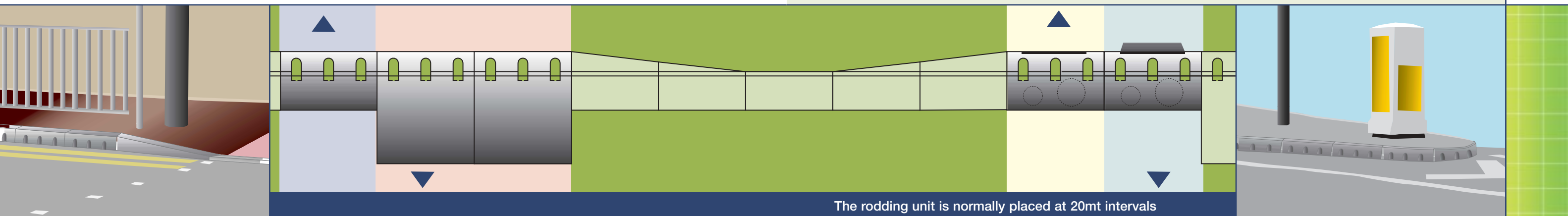
305mm and 480mm outlet unit complete with rodding access. One outlet of both 110mm dia and 160mm dia are supplied as standard.

Order Ref.	305RA	480RA
Total Depth	305mm	480mm
Invert	275mm	450mm
Width Bore (nominal)	100mm	100mm
Length	500mm	500mm
Weight	16kg	24kg



**Design Features**

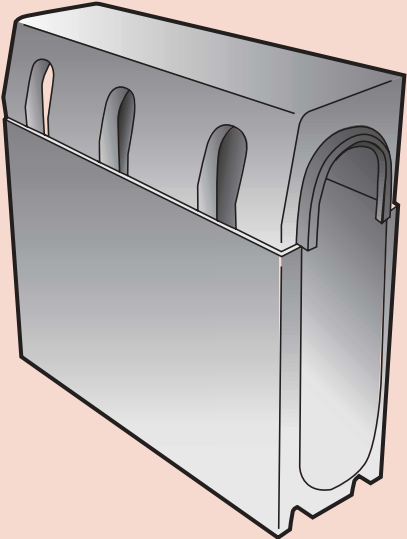
Pipeline and Drainage Systems PLC have introduced a combined outlet unit with rodding access, 500mm long complete with a locking cover. The cover has been designed to increase accessibility to the system to ease maintenance, which has been a problem on more established systems available. The unit is supplied with pre-formed 110mm & 160mm rear outlets (as below), which are supplied with closing caps.



**Design Features**

A 500mm long one-piece unit, designed for ease of installation. At least 25% lighter in weight than conventional combined kerb drainage systems, and yet fully meets the EN1433 load requirements and has exceptional impact resistance. Designed for areas requiring greater hydraulic capacity.

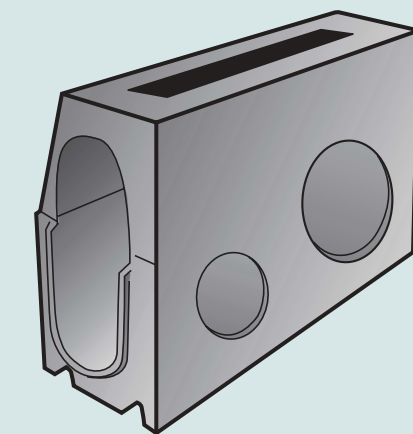
Standard Unit	
480mm standard unit.	
<b>Order Ref.</b>	<b>480SU</b>
Total Depth	480mm
Invert	450mm
Width Bore (nominal)	100mm
Length	500mm
Weight	24kg



**Rodding Access and Outlet Unit (rear view)**

305mm and 480mm outlet unit complete with rodding access. One outlet of both 110mm dia and 160mm dia are supplied as standard.

Order Ref.	305RA	480RA
Total Depth	305mm	480mm
Invert	275mm	450mm
Width Bore (nominal)	100mm	100mm
Length	500mm	500mm
Weight	16kg	24kg



**Design Features**

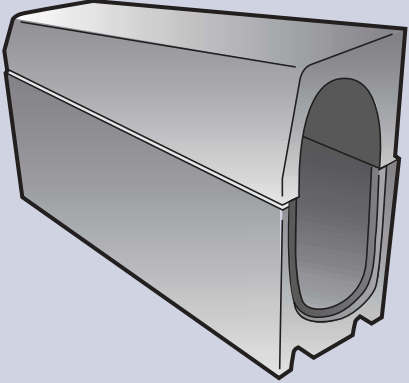
Pipeline and Drainage Systems PLC have introduced a combined outlet unit with rodding access. The site installation process is significantly faster using the pre-formed outlets and closing caps (110mm and 160mm rear outlets offered). Other outlet configurations are available upon request. Outlets suit standard BS4660 pipe, but a number of outlet connections are offered to suit site pipework.

“Due to the nature of material the envirokerb is manufactured from, we can quite easily supply outlets in the front face or base of the unit. Please contact the sales office to discuss your requirements”.

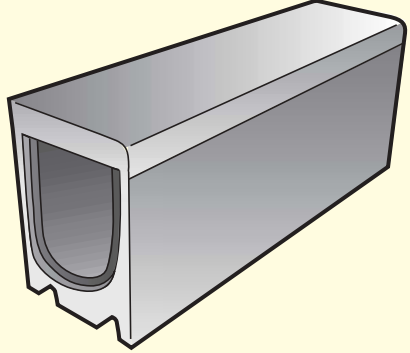
## Design Features

A 457.5mm long outer drop unit is installed alongside a 457.5mm inner drop kerb. These will form a 915mm total length to suit existing openings in footpaths within maintenance contracts. The units have been developed at half the length of existing systems to reduce the weight, and ease general handling to speed the installation process. Units are at least 70% lighter than alternative systems.

Drop Kerb Outer Unit		
305mm and 480mm deep Drop kerb outer unit.		
Order Ref.	305DO	480DO
Total Depth	305-255mm	480-425mm
Width Bore (nominal)	100mm	100mm
Length	457.5mm	457.5mm
Weight	15kg	22kg

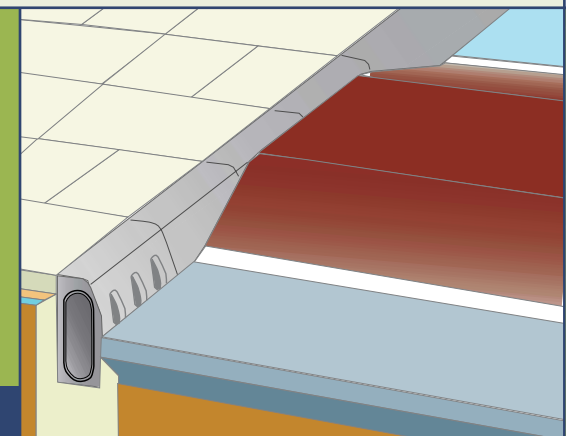
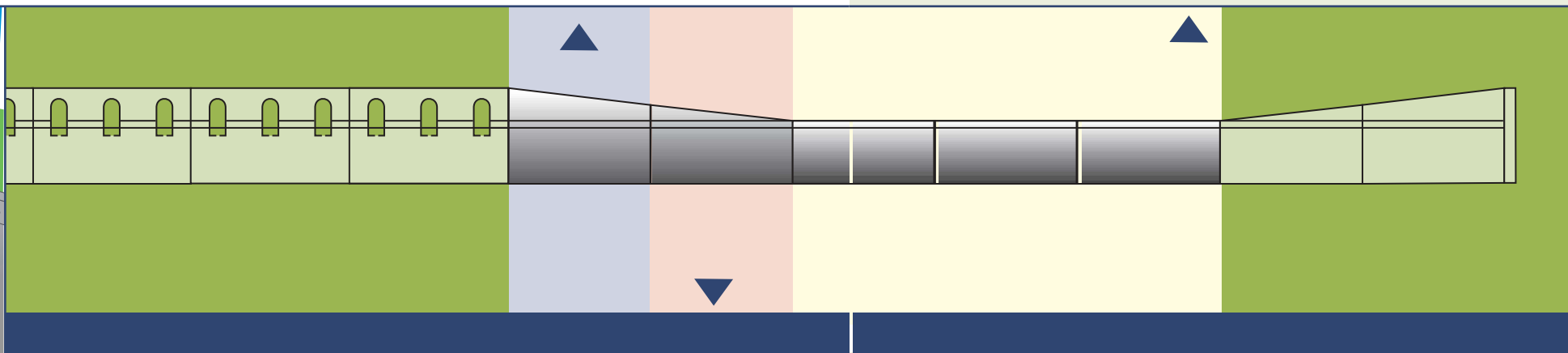
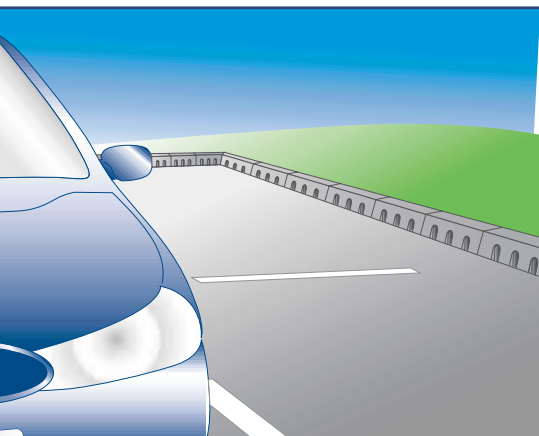


Centre Stone		
305mm and 480mm centre stones.		
Order Ref.	305CS	480CS
Total Depth	205mm	380mm
Width Bore (nominal)	100mm	100mm
Length	457.5mm	457.5mm
Weight	11.5kg	18.5kg



## Design Features

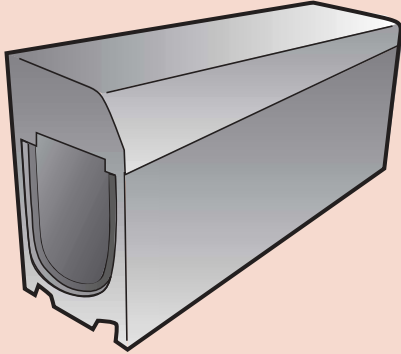
We have developed our centre stones at 457.5mm long to reduce size and weight. This greatly increases installation time. The units when placed together form a 915mm length to suit traditional footpath openings. The units are installed with a positive interlock, with the drainage area mirroring the standard units, so that flows are not reduced or restricted. Weights are at least 65% lighter than existing systems. Units are available with drainage holes if required.



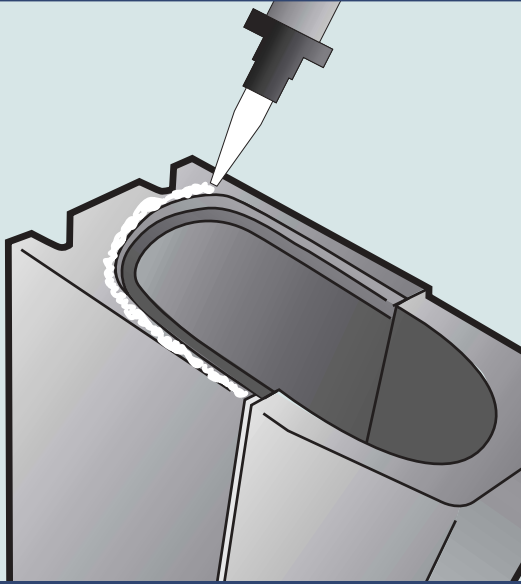
## Design Features

A 457.5mm long inner drop unit is installed alongside a 457.5mm outer drop kerb. These will form a 915mm total length to suit existing openings in footpaths within maintenance contracts. The units have been developed at half the length of existing systems to reduce the weight, and ease general handling to speed the installation process. Units are at least 70% lighter than alternative systems.

Drop Kerb Inner Unit		
305mm and 480mm deep Drop kerb inner unit.		
Order Ref.	305DI	480DI
Total Depth	255-205mm	425-375mm
Width Bore (nominal)	100mm	100mm
Length	457.5mm	457.5mm
Weight	13kg	20kg



Gun & Sealant	
High performance one part Polyurethane Sealant.	
Order Ref.	Product
ENVSEAL	Sealant
APPGUN	Applicator gun



## Design Features

EN1433 states that combined kerb drainage should be durably sealed. Even though the Envirokerb has a positive interlock that provides the most effective seal available on combined kerb drainage systems, we also supply the 'Envirokerb Sealant' for a 100% watertight seal.

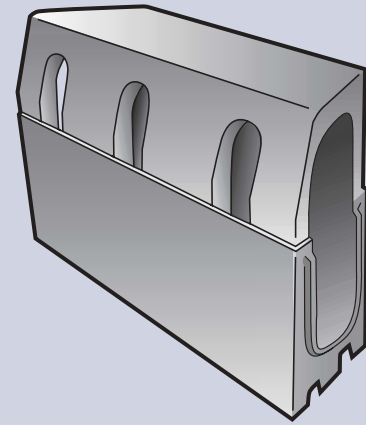
**Design Features**

The units are available in three separate external radius. Sizes are suitable for roundabouts, access roads and car parks. The units are lightweight, one-piece and supplied with a positive interlock to allow manipulation of the radius when the standard units will not suffice. Up to 34% lighter in weight than alternatives.

**External Radius Units**

305mm and 480mm external radius units. 6-7mt, 8-10mt and 11-25mt radius available.  
\*effective length along centre line.

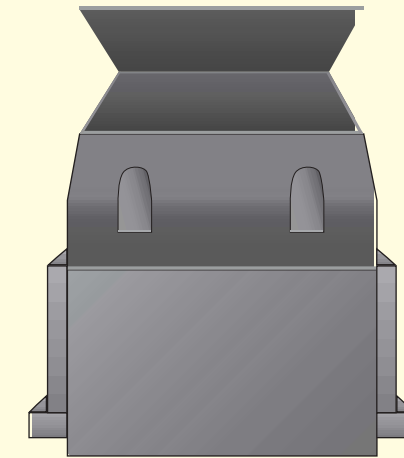
Order Ref.	305ER	480ER
Total Depth	305mm	480mm
Invert	275mm	450mm
Width Bore (nominal)	100mm	100mm
Length	*500mm	*500mm
Weight	16.5kg	24kg



**Gully Top Cover and Base**

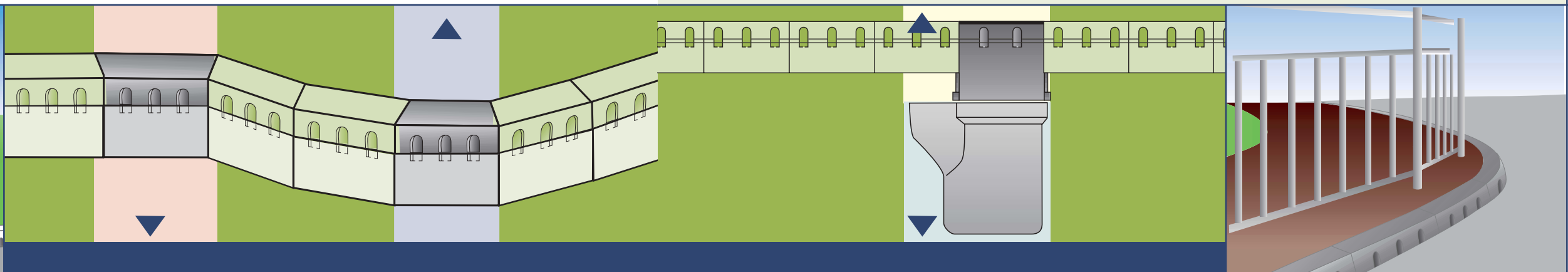
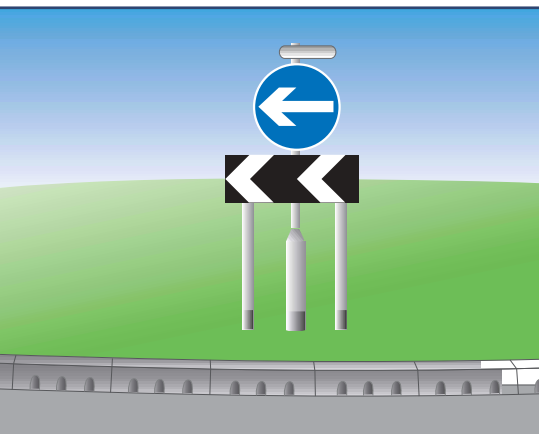
305mm and 480mm Gully cover and frame with top section.

Order Ref.	305GMT	480GMT
Total Depth	505mm	505mm
Invert	275mm	450mm
Width overall	390mm	390mm
Length	500mm	500mm
Weight	47kg	47kg



**Design Features**

The Gully top section is manufactured in Ductile Iron to comply with the EN124 loading of C250KN for kerb side covers and frames. The cover is hinged and locking to ease maintenance, and gully cleaning. The base section is rotationally moulded lightweight yet strong and robust recycled product. The gully will accept the standard Envirokerb, access units and radius units. The weight of the Gully is 40kg, and the gully top section weighs 7kg. The weight saving over existing systems is approx 40%.



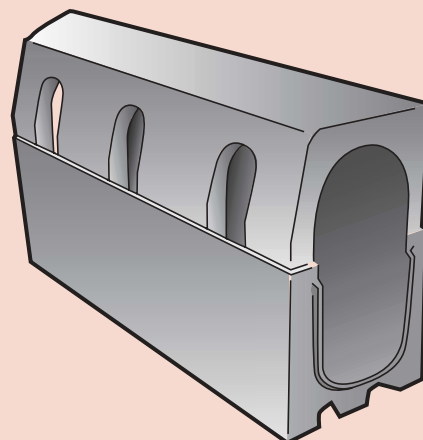
**Design Features**

The units are available in one internal radius. The units are lightweight, one-piece and supplied with a positive interlock to allow manipulation of the radius when the standard units will not suffice. Up to 34% lighter in weight than alternatives.

**Internal Radius Units**

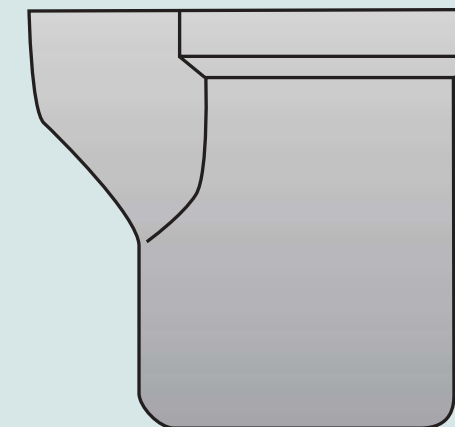
305mm and 480mm internal radius units. 11-25mt available.  
\*effective length along centre line.

Order Ref.	305IR	480IR
Total Depth	305mm	480mm
Invert	275mm	450mm
Width Bore (nominal)	100mm	100mm
Length	*500mm	*500mm
Weight	16.5kg	24kg



**Gully Unit (Concrete or Plastic)**

A range of gullies are available ex-stock. Sizes are subject to hydraulic requirements. Please contact sales office for more information.



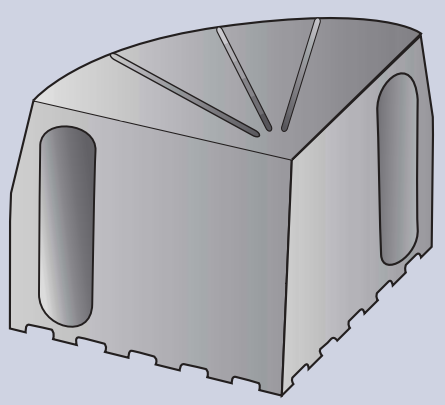
**Design Features**

Envirokerb is supplied with the adaptability of either a concrete, plastic or existing gully pot. Site feedback would suggest that this is the preferred gully detail as it allows the use of existing gullies when maintenance or upgrade contracts allow. It also enables the outlet from the gully to be placed in the most efficient position to suit existing, or new pipework. The gully top cover and base will sit directly onto the gully.

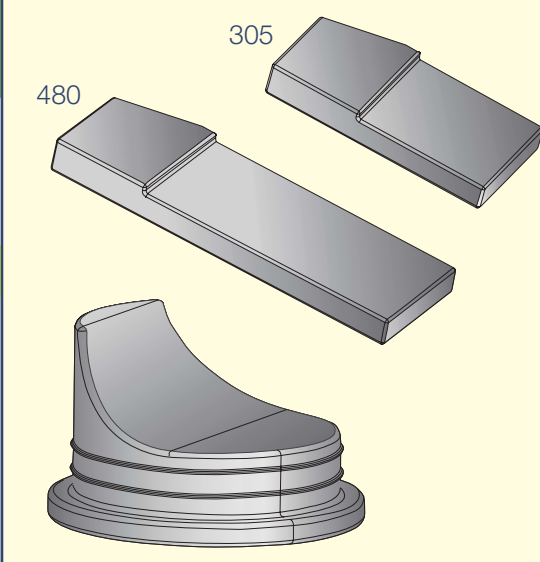
**Design Features**

Enables continuation of hydraulic flow around 90° external angles - we suggest that a rodding access unit (305RA) is installed alongside this product. The top surface has been designed to be slip resistant, and the base has an in-built 'key' for the concrete bed.

305 90° Quadrant	
305mm 90° Quadrant - for external angles rounded for safety reasons.	
Order Ref.	305QUAD
Total Depth	305mm
Invert	275mm
Width Bore (nominal)	100mm
Length	500mm
Weight	16.5kg (approx)

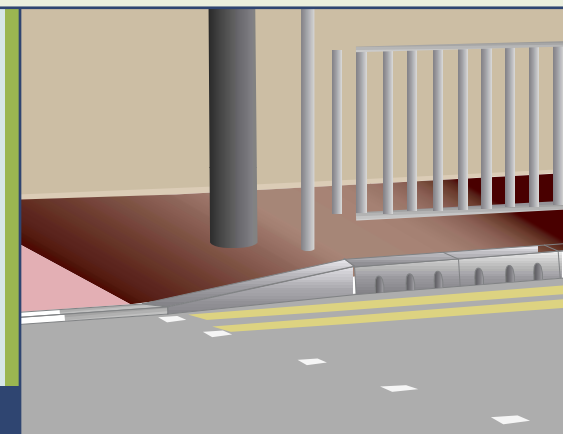
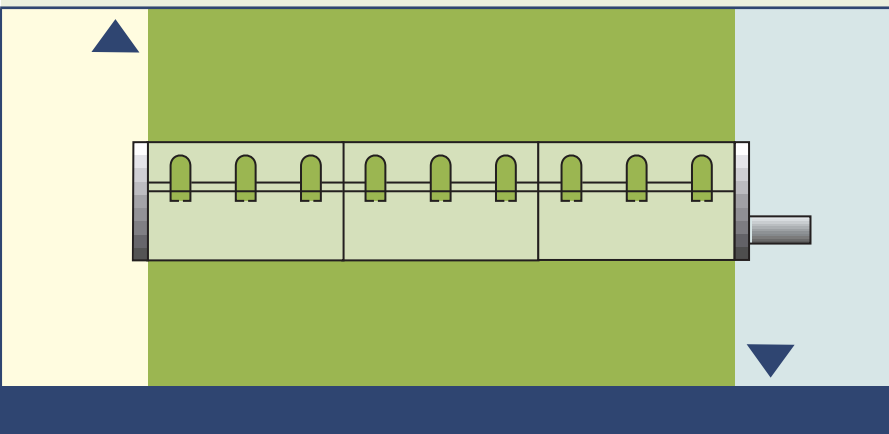
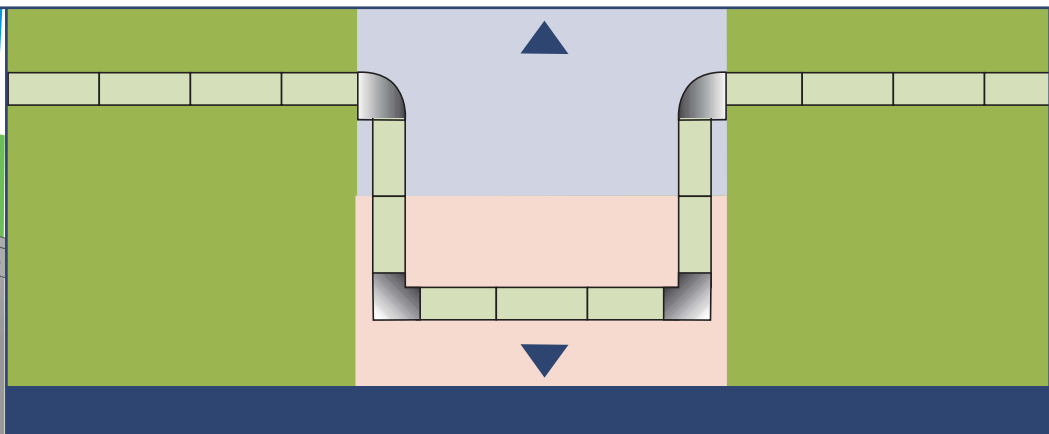
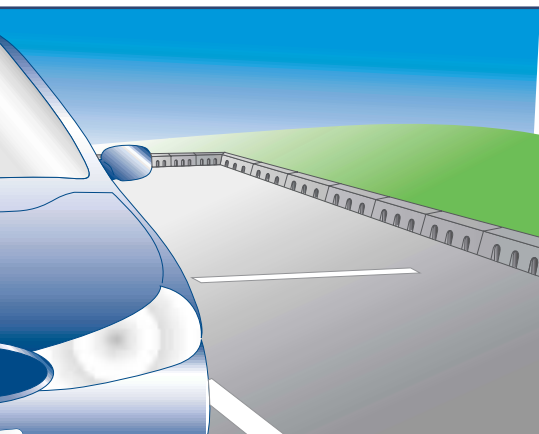


End Caps and Rear Outlet Plugs	
End Caps and Rear Outlet Plugs	
Order Ref.	Description
305CC	305 end cap
480CC	480 end cap
110BP	110 Back outlet plug
160BP	160 Back outlet plug



**Design Features**

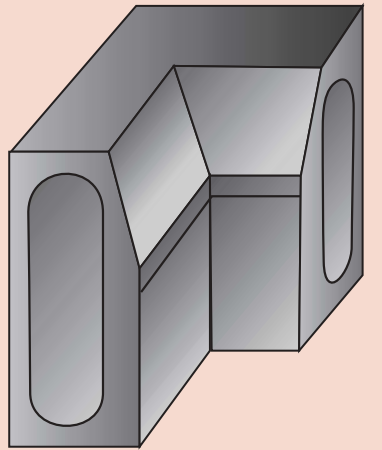
A series of end caps, and rear outlet plugs. End caps are to suit both the male and female ends. They are reversible to cap both ends of runs. The back outlet plugs are supplied with the rodding access units (305/480RA) but additional ones can be ordered.



**Design Features**

Enables continuation of hydraulic flow around 90° internal angles - we suggest that a rodding access unit (305RA) is installed alongside this product.

305 90° Internal Angle	
305mm 90° Internal angle	
Order Ref.	305ANG
Total Depth	305mm
Invert	275mm
Width Bore (nominal)	100mm
Length	305mm
Weight	19kg (approx)



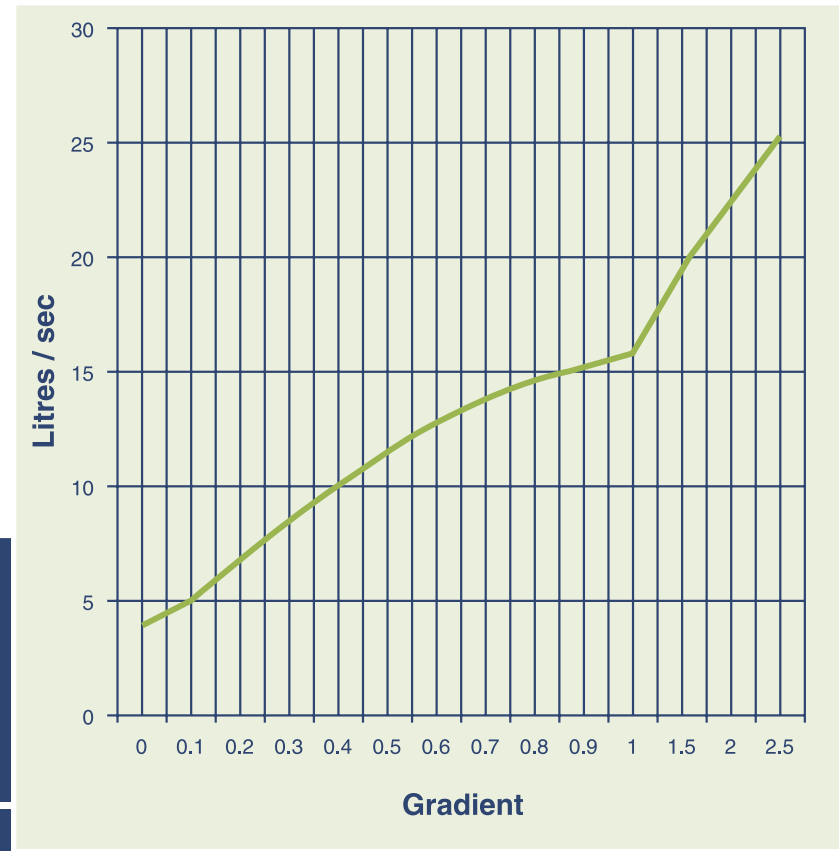
End/Back Outlets and Drain Unions	
End/Back Outlets and Drain Unions	
Order Ref.	Description
305DOC 110	305-110mm end outlet cap
480DOC 160	480-160mm end outlet cap
PSC110	110mm Drain union 150mm long
PSC160	160mm Drain union 150mm long
160AD	160 oval to round union



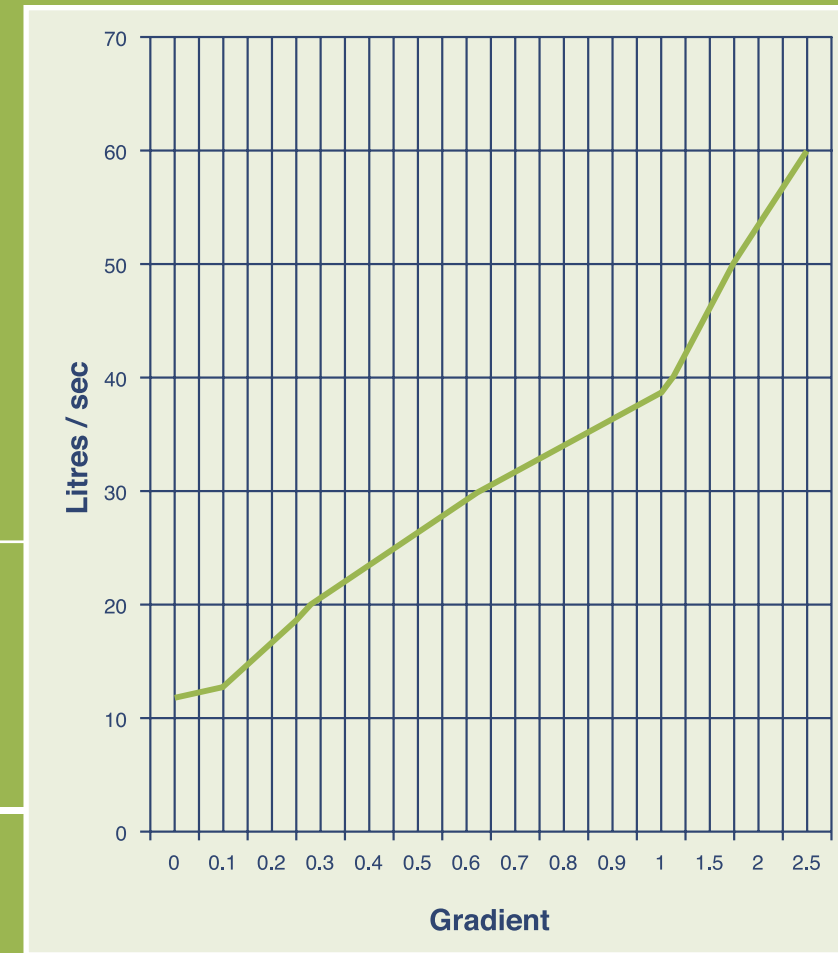
**Design Features**

A series of end outlets and rear outlets. End outlets suit both the male and female ends. The end outlets require either a 160mm oval to round or 110mm drain union. Standard 110 and 160 unions are available for the rear outlets.

# Envirokerb305hydraulicflowchart



# Envirokerb480hydraulicflowchart

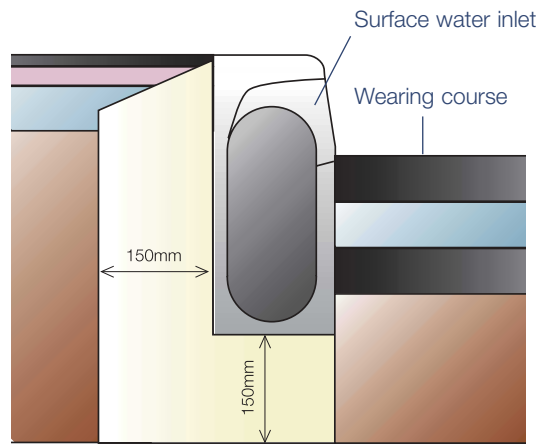


- All Hydraulic calculations are based on 50mm/hr rainfall levels. This is an excepted intensity to use in surface water drainage design. Even though the UK has consistent rain, it very rarely hits levels above 35mm/hr. On the occasions that we experience higher levels than 35mm/hr, they are of very short duration, and the system will quickly drain all areas.
- It is a common misconception that larger channels and systems well over capacity will be more effective in draining rainfall. The above figures will enable the product to produce self-cleansing velocities.

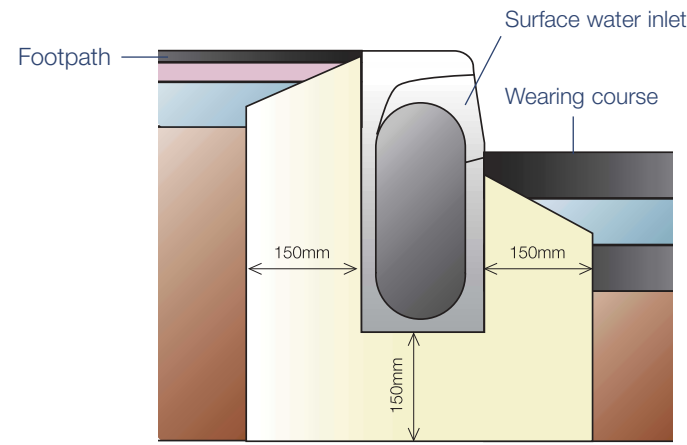
- Figures allow for 100% of rainfall in a given area to reach the channel. In reality there will always be absorption into the hard standing or wearing course material, especially as surfacings become aged and worn.
- The charts are for standard layouts. For complicated run layouts, or for any clarification please contact our sales office.
- All hydraulic designs can be carried out by our sales office  
- if any doubt - Please Ask.

# Typical installation details

## C250kn



## D400kn



This detail is the most applicable installation. Due to the high impact resistance of Envirokerb - side loadings will have less of an effect than on more established kerb drainage.

The above detail is rarely required with Envirokerb. The haunch of the front elevation is sometimes advisable where fast-moving traffic is present.

# Specification clause

The combined kerb drainage system shall be as 'Envirokerb' 305/480 one-piece monolithic unit. All system components will also be from the Envirokerb system.

The system shall be manufactured to DIN 19580 class D400kn and EN1433 class 3 for combined kerb drainage systems. The product will also be compliant with ISO 14001.

The combined kerb drain will be manufactured from recycled material, and the standard 305/480 units will have safe one-man handling weights of 16.5kg/24kg to comply with health and safety regulations.

The system shall be of units 100mm nominal internal width, and 150mm external width, to match the standard HB1 kerb profile.

The system shall be supplied with a positive interlock to aid installation and offer a surface water seal.

(if a fully watertight seal is required then 'Envirokerb' sealing compound shall be applied to the full invert depth. It shall be applied along the female joint, and the male joint butted to it).

# Installation guide

- 1) Excavate through to line and level.
- 2) Lay out units prior to installation to ensure all rodding access units and outlets are positioned correctly.
- 3) Start at outfall and work away, finished line and level should be pre-determined.
- 4) If sealant is to be applied please apply to unit not yet laid then butt together - keep joints clean of concrete bedding material.
- 5) A 2mm gap should be left between units (Trowel thickness) to allow for contraction and expansion.
- 6) The male/female joint will ease installation procedure as line will be easier to achieve.
- 7) Asphalt can be laid to the pre-marked line shown on units to offer a 125mm kerbface, or to the watermark for 100mm kerbface. Asphalt will adhere to the face so pre-pitching is not required.
- 8) Units should be cleaned prior to hand over.

### PLEASE NOTE:

Traditionally, Combined Kerb Drainage System failures are due to side wheel loads, irrespective of the compressive loading capabilities of the product, but EN1433 and DIN19580 do not specify a test for side impact loads.

However, Pipeline and Drainage Systems PLC design and manufacture the Envirokerb product to have a high impact resistance to side wheel loads therefore we recommend the C250KN installation detail with a well compacted road construction.

Pipeline and Drainage Systems PLC are proud of the fact that they are able to offer bespoke, cost effective solutions to client's individual projects. We are able to do this through a policy of continuous development, research and gaining customer feedback wherever possible.

We invite customers and clients to consult our Technical team to discuss all your design requirements. PDS PLC are able to offer full Hydraulic calculations, CAD detailing on products and site layouts, and CPD seminars to groups who are involved in the Design and Procurement of Combined Kerb Drainage Systems.



## PIPELINE & DRAINAGE SYSTEMS PLC

DEVELOPING PIPELINE & DRAINAGE SOLUTIONS

### PIPELINE & DRAINAGE SYSTEMS PLC

Sales and Distribution Centre  
12A, Flanshaw Way, Flanshaw  
Wakefield WF2 9LP, UK  
Tel: +44 (0)870 754 1200  
Fax: +44 (0)870 754 1201  
[www.pds-plc.com](http://www.pds-plc.com)

Registered No: 3787712 (England)

Accounting and Finance Department  
12 Whitbarrow Road, Lymm  
Cheshire WA13 9AF, UK  
Tel: +44 (0)870 754 1300  
Fax: +44 (0)870 754 1301

**Envirokerb**



Printed on 80% recycled fibre. The remaining 20% virgin pulp is T.C.F. (Totally Chlorine Free).

P.D.S. operates a policy of continuous development and whilst the enclosed specification is correct at time of publication, we reserve the right to change it without notice.



Design, Manufacture and Distribution of Specialist Bridge and Kerb Drainage Products.