
**Mini Beany, Conservation,** Bedford

Conservation Silver Grey

Standard Grey

# Mini Beany®

**Combined Kerb and Drainage System**


Mini Beany is a low to medium capacity combined kerb and drainage system which evolved from the successful Beany range. The robust concrete construction makes this the ideal choice for areas of heavy or abnormally heavy wheel loads. Available in a choice of top finishes to complement a wide range of projects, from urban to rural.

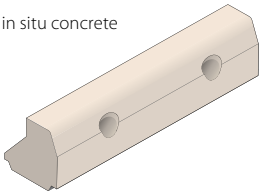
NBSPlus
Q10 190

# Mini Beany®

**Combined Kerb and Drainage System**

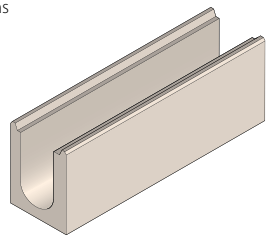
## Mini Beany® Top Blocks

- Mini Beany carries the British Standard Kitemark
- Top Blocks available in 500mm & 1000mm lengths
- 500mm long radius top blocks are available
- Half battered profile suitable for use with tarmac, in situ concrete and concrete block paving
- Reduces mechanical lifts per metre from 2 to 1 for top unit.



## Mini Beany® Pressed Base

- Increased strength of channel bases, resulting in improved installation with no requirement for front haunching, just bedding and backing concrete
- Available in 1000mm lengths in four invert depths
- 500mm long radius bases are available
- Fully compatible with Traffic drain and the current range of trapped outfalls and ancillary items
- Quicker to install with significant savings on installation.

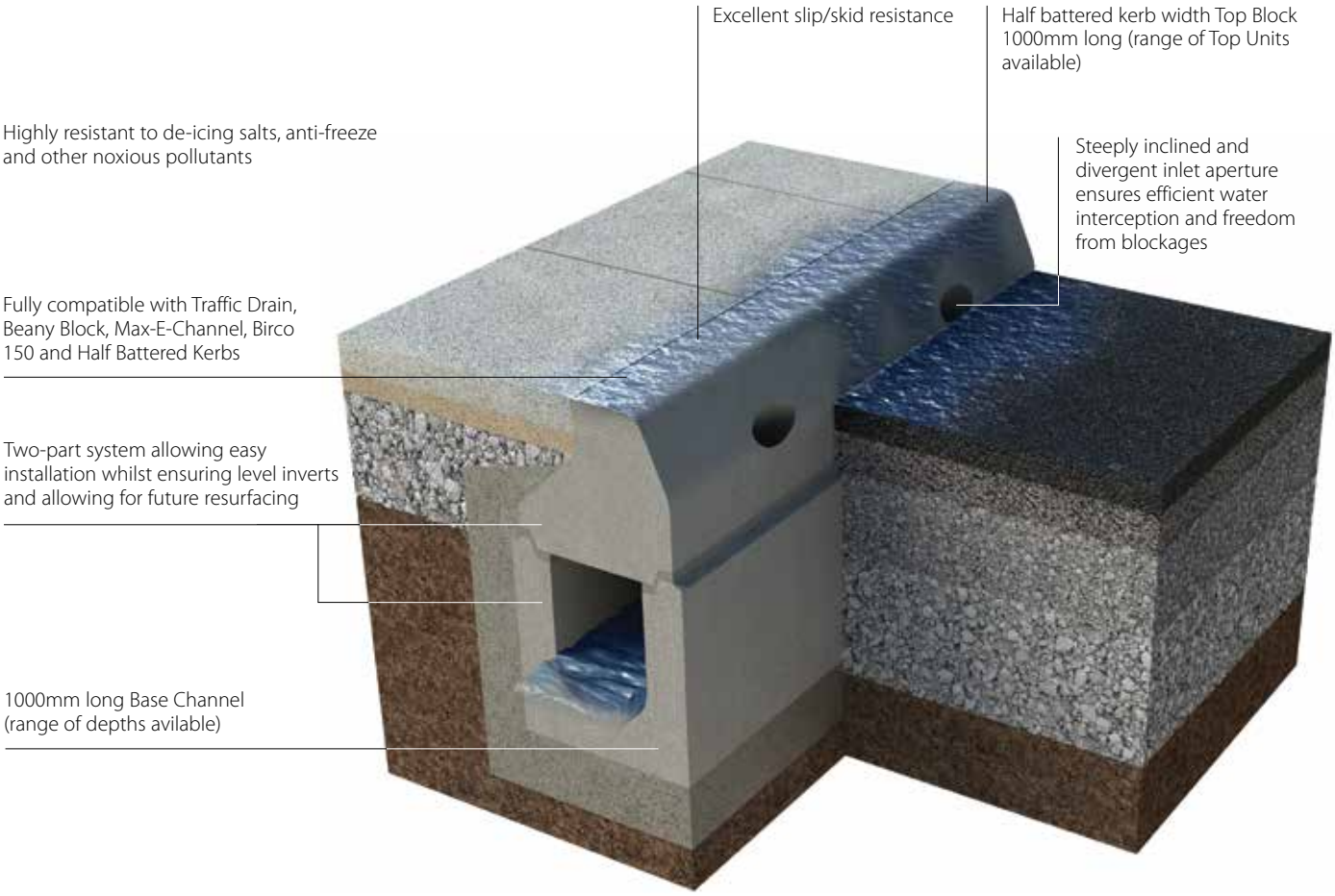


**Special Finishes**

**Conservation Mini Beany**

A silver-grey coarse textured finish top unit, manufactured with granite aggregate, complements perfectly areas of high architectural, historical and scenic value. This product profile complements Conservation Kerb 205 x 255mm. Marshalls Silver Grey Conservation Paving, Kerb and Edging along with Mistral Concrete Block Paving and Conservation Setts, are ideally suited to complement this surface finish.

Conservation Mini Beany (205 x 255mm) is available with coarse texture to two faces and is available from stock.

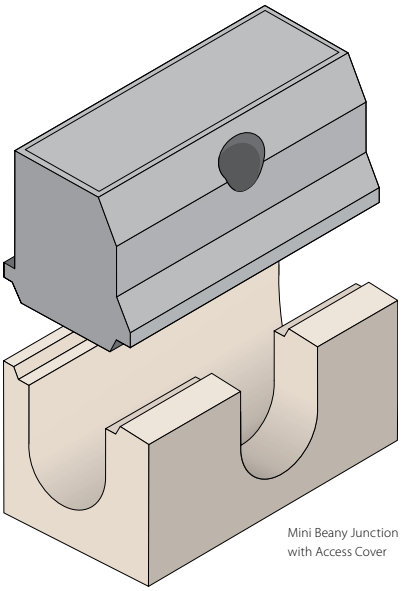


# Engineering Benefits

**Mini Beany Versatility**

Mini Beany is totally compatible with the rest of the Marshalls range of commercial linear drainage systems.

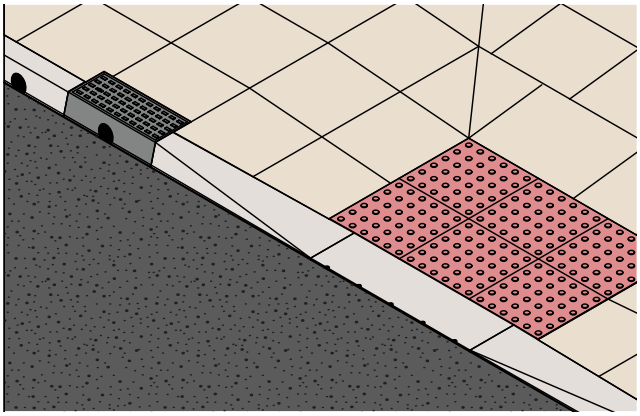
The addition of traffic drain further extends the use of the Mini Beany system, allowing for flows at locations such as across junctions, entrances or at nosing – in fact anywhere that requires vehicle access.



Mini Beany Junction with Access Cover

**Mini Beany Drop Crossing Detail**

Mini Beany drop crossing detail now has centre stones with inlet holes to allow drainage at drop crossing applications, with options for a 6-25mm upstand.



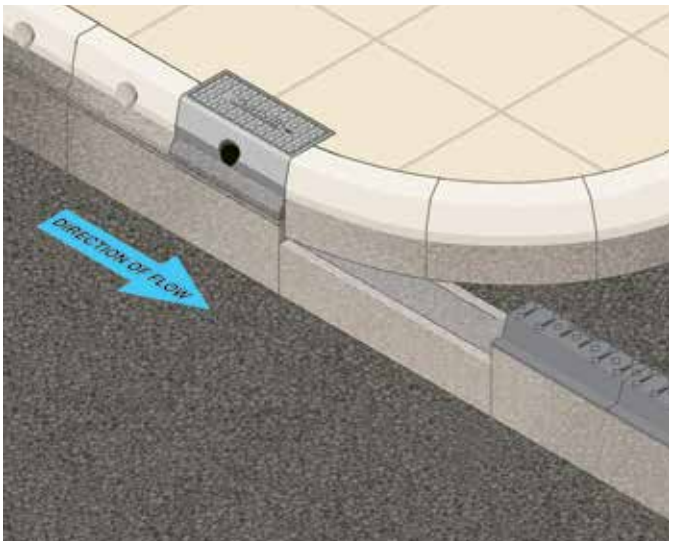
Mini Beany Drop Crossing Detail

**Mini Beany Junction Detail**

The T Junction unit is used where there is a requirement to form a T junction with the base channels.

**Mini Beany to Traffic Drain**

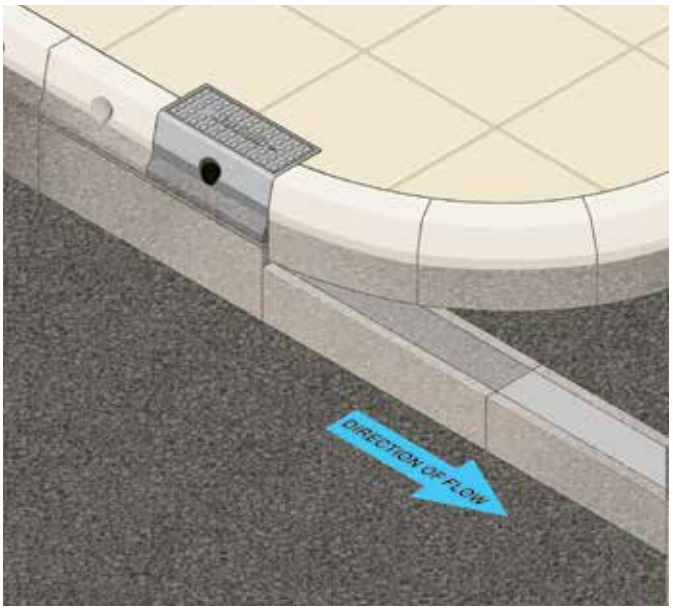
Mini Beany can be used with Traffic Drain where the drainage run continues but the kerb line finishes. A smooth channel invert ensures uninterrupted flow.




Mini Beany to Traffic Drain

**Mini Beany to Cover Plate**

The system has been specifically designed so where base units and cover plates are used to carry flows under carriageways or vehicular crossings, a minimum of 150mm of road material can be laid above the units to prevent damage and reflective carriageway surface cracking.




Mini Beany to Cover Plate

# Cost Advantages

Mini Beany is ideal where specific problems would arise with conventional drainage methods for example:

- Where there is insufficient fall to the outfall point.
- Where, in flat areas, either numerous, closely spaced gullies or false falls would be required in the carriageway.
- Where long gully connections would be needed.
- Where surface water drainage pipes would conflict with service mains and cables.
- Where ponding would occur at low points.
- Where traffic safety and control measures would be required when widening existing carriageway.

Mini Beany is likely to be more economical than conventional kerb/point drainage where carriageways have crossfall, few vehicular crossings or where a surface water drain would be required for highway drainage purposes. Cost savings have been significant on highway and non-highway schemes incorporating lengths of the Mini Beany System. For comparison purposes, conventional methods should include the following as appropriate:

- Surface water drain (including reinstatement).
- Gullies.
- Gully connections.
- Manholes.
- Kerbs.
- Channel Blocks.
- Extra 200mm width of footway plus a small amount of carriageway.
- Service diversions.
- Traffic safety and control (existing carriageways).

**Construction Savings**

- Mini Beany System combines water interception and transportation in one system. This minimises or eliminates the need for carrier drains, gullies and manholes, reducing construction costs and saving time.
- Simple two-part system – straightforward to design and detail, reducing design times and cost. Easy to set out and straightforward to install.
- The overall construction period can be reduced as carriageway materials may be laid in a continuous sequence. Unlike laying conventional drainage, excavations are kept to a minimum without exposing the formation and sub-base surfaces to possible periods of adverse weather.
- Underground cables and services can be avoided so contractual/ insurance claims are likely to be much less than when laying conventional drainage.

**Low Maintenance**

- Mini Beany will require periodic inspection and emptying of Silt Traps, Outfalls and Catchpits. The number of Silt Traps and Outfalls are likely to be fewer than in a conventional drainage systems*. If a blockage does occur, it can easily be located and rectified by rodding or jetting from an access point or through a top block aperture adjacent to the blockage.

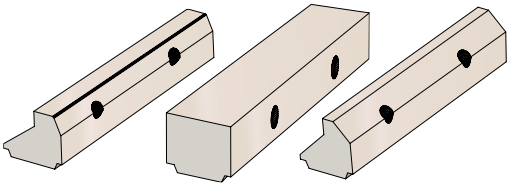
**It is reccommended to have an access point at the head of the run and every 50m and a Silt Trap every 100m*

**Conservation Mini Beany**

- A silver grey coarse textured finish top unit, manufactured with granite aggregate, complements perfectly areas of high architectural, historical and scenic value. This product complements Marshalls Silver Grey Conservation Paving Kerb and Edging along with Mistral Concrete Block Paving and Conservation Setts. Beany Block and Mono Beany is also available in Conservation.
- Conservation Mini Beany is available with coarse texture to 2 or 3 faces and manufactured to order for an agreed quantity.

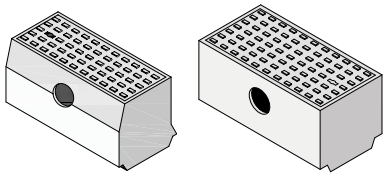
# Components

## TOP COMPONENTS



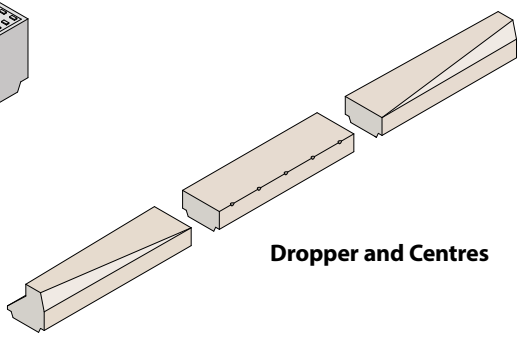
### Top Blocks

Half Battered, 45º Splayed, and Conservation Bullnose Tops in 500mm & 1000mm lengths.



### Access Cover and Frames

Half Battered, Conservation Bullnose Access Covers (nearside or offside hinged) 500mm in length. All now lockable for improved security.

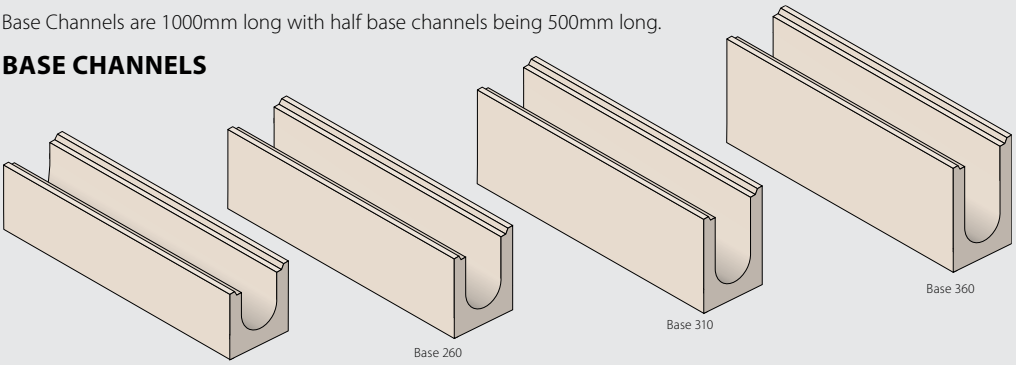


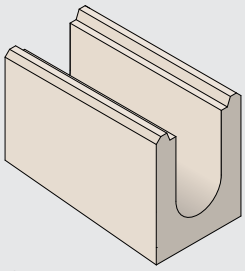
### Dropper and Centres

## BASE COMPONENTS

Base Channels are 1000mm long with half base channels being 500mm long.

### BASE CHANNELS



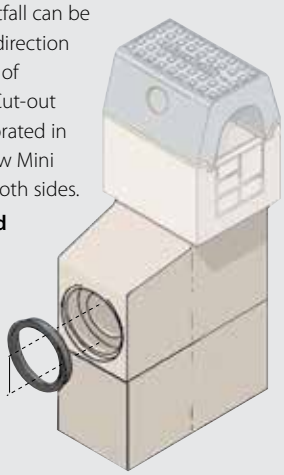
Base Transitions
210-260, 260-310, 310-360

## OUTFALLS

### High Capacity Outfall

Comprising a two section concrete trapped Outfall, Silt Box and cast iron Beany Access Cover. Outlet for 225mm or 150mm diameter pipework with universal seals. The bottom two sections of the outfall can be orientated in any direction allowing flexibility of pipework layout. Cut-out panels are incorporated in the Silt Box to allow Mini Beany runs from both sides.

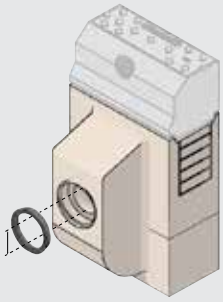
**Note: Silt Box and Beany cast iron Access Cover and Frame available separately.**



### Inline Side Outlet Outfall

Comprising a two section concrete trapped Outfall, with cast iron Mini Beany Access Cover and Frame. Side outlet for 150mm diameter pipework with universal seal. Cut-out panels to allow Mini Beany Runs from both sides.

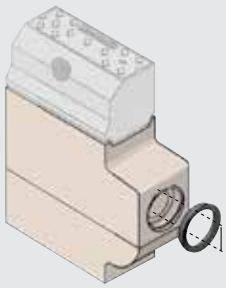
**Note: Cast iron Access Cover and Frame available separately.**



### Inline End Outlet Outfall

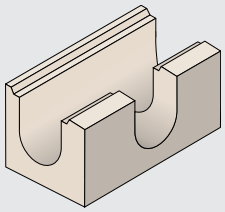
Comprising a two section concrete trapped Outfall, with cast iron Mini Beany Access Cover and Frame. End outlet for 150mm diameter pipework with universal seal. Cut-out panel to allow Mini Beany run from one side only.

**Note: Cast iron Access Cover and Frame available separately.**



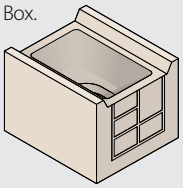
### Mini Beany T Junction

Available in all 4 base channel depths. 500mm in length.



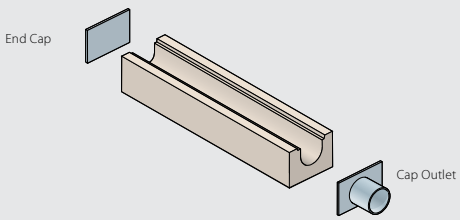
### Silt Box

Transition between Mini Beany and Beany Block or Max-E-Channel systems. If required, it can also be used at the location of silt traps in the Mini Beany run. It has cut-out panels to allow for Mini Beany runs from two sides, or, Mini Beany and Beany Block from each side. There is a hole in the base of the Silt Box.



### Base End Caps And Cap Outlets

Base end caps and cap outlets are available for 210, 260, 310 and 360 base units. The galvanised steel plates act as permanent formwork to a concrete surround. This is an optional detail to the use of engineering bricks.



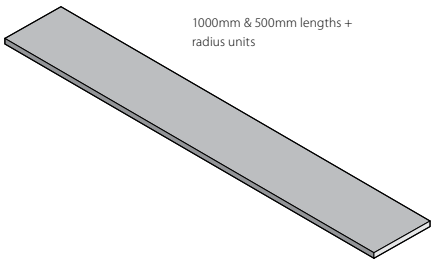
## RADIUS BLOCKS

| Top Components | Radius | Unit Reference |
|---|---|---|
| | Greater than 56m | 1000mm |
| | 30.1 - 56 External | 500mm |
| | 30.1 - 56 Internal | 500mm |
| | 30.0 - 10.0 External | 30/10 External |
| | 30.0 - 10.0 Internal | 30/10 Internal |
| | 9.9 - 6.0 External | 9/6 External |
| | 9.9 - 6.0 Internal | 9/6 Internal |
| | 45° Bend External | 45° External |
| | 45° Bend Internal | 45° Internal |

| Base Components | Radius | Unit Reference |
|---|---|---|
| | Greater than 56m | 1000mm |
| | 30.1 - 56 External or Internal | 500mm |
| | 30.0 - 10.0 External or Internal | 30/10 |
| | 9.9 - 6.0 External or Internal | 9/6 |
| | 45° Bend External or Internal | 45° Bend |

**Cover Plates**

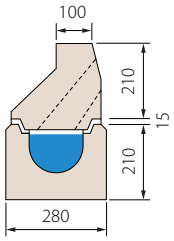
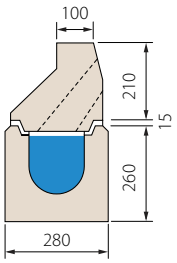
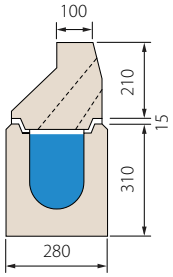
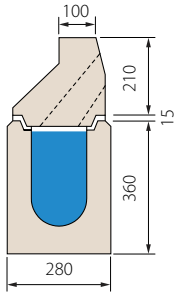
Galvanised steel Cover Plates for use with Mini Beany Base Units where a Top Unit is not required, such as drop crossings.



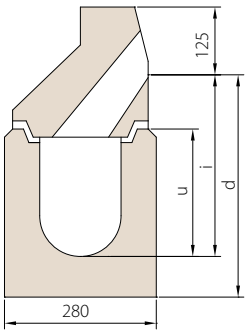
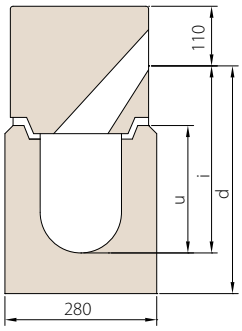
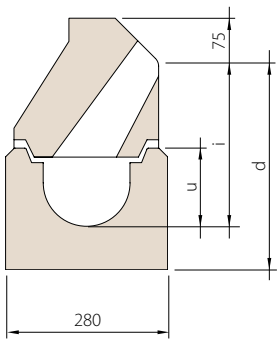
1000mm & 500mm lengths + radius units

# Hydraulic Data

## FLOW CAPACITY

| Mini Beany with 210 Base Unit | Mini Beany with 260 Base Unit | Mini Beany with 310 Base Unit | Mini Beany with 360 Base Unit |
|---|---|---|---|
|  |  |  |  |
|  |  |  |  |
| Equivalent Pipe Diameter (mm) 140 | Equivalent Pipe Diameter (mm) 170 | Equivalent Pipe Diameter (mm) 190 | Equivalent Pipe Diameter (mm) 210 |

**Note:** 1. Flow figures, l/s, are derived from spatially varied flow work carried out by HR Wallingford

| | Mini Beany Half Battered | | | Conservation | | | Mini Beany 45 Splayed | | |
|---|---|---|---|---|---|---|---|---|---|
| |  | | |  | | |  | | |
| ref. | d | i | u | d | i | u | d | i | u |
| **Base 210** | 310 | 235 | 135 | 320 | 245 | 135 | 360 | 285 | 135 |
| **Base 260** | 360 | 285 | 185 | 370 | 295 | 185 | 410 | 335 | 185 |
| **Base 310** | 410 | 335 | 235 | 420 | 345 | 235 | 460 | 385 | 235 |
| **Base 360** | 460 | 385 | 285 | 470 | 395 | 285 | 510 | 435 | 285 |

# Hydraulic Data

The Mini Beany hydraulic data stated in the following tables comprises of flow capacity, in litres per second (l/s) and velocity in metres per second (m/s). This data has been calculated using spatially variable flow design principles.

**Base 210**

| Gradient | Zero | | 1 in 1000 | | 1 in 500 | | 1 in 400 | | 1 in 300 | | 1 in 200 | | 1 in 100 | | 1 in 50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Length(m) | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s |
| 10 | 6 | 0.38 | 7 | 0.44 | 7 | 0.44 | 8 | 0.50 | 8 | 0.50 | 9 | 0.56 | 9 | 0.56 | 13 | 0.81 |
| 20 | 6 | 0.38 | 7 | 0.44 | 7 | 0.44 | 8 | 0.50 | 8 | 0.50 | 10 | 0.63 | 11 | 0.69 | 14 | 0.88 |
| 30 | 5 | 0.31 | 7 | 0.44 | 8 | 0.50 | 8 | 0.50 | 9 | 0.56 | 10 | 0.63 | 12 | 0.75 | 14 | 0.88 |
| 40 | 5 | 0.31 | 6 | 0.38 | 8 | 0.50 | 8 | 0.50 | 9 | 0.56 | 11 | 0.69 | 13 | 0.81 | 15 | 0.94 |
| 50 | 5 | 0.31 | 6 | 0.38 | 8 | 0.50 | 9 | 0.56 | 9 | 0.56 | 11 | 0.69 | 13 | 0.81 | 15 | 0.94 |
| 75 | 4 | 0.25 | 6 | 0.38 | 8 | 0.50 | 9 | 0.56 | 10 | 0.63 | 13 | 0.81 | 14 | 0.88 | 17 | 1.06 |
| 100 | 3 | 0.19 | 6 | 0.38 | 8 | 0.50 | 9 | 0.56 | 11 | 0.69 | 14 | 0.88 | 17 | 1.06 | 19 | 1.19 |

**Base 260**

| Gradient | Zero | | 1 in 1000 | | 1 in 500 | | 1 in 400 | | 1 in 300 | | 1 in 200 | | 1 in 100 | | 1 in 50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Length(m) | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s |
| 10 | 10 | 0.42 | 11 | 0.46 | 12 | 0.50 | 13 | 0.54 | 14 | 0.58 | 15 | 0.63 | 17 | 0.71 | 22 | 0.92 |
| 20 | 9 | 0.38 | 11 | 0.46 | 12 | 0.50 | 13 | 0.54 | 14 | 0.58 | 16 | 0.67 | 18 | 0.75 | 22 | 0.92 |
| 30 | 9 | 0.38 | 11 | 0.46 | 12 | 0.50 | 13 | 0.54 | 14 | 0.58 | 16 | 0.67 | 18 | 0.75 | 24 | 1.00 |
| 40 | 9 | 0.38 | 11 | 0.46 | 13 | 0.54 | 13 | 0.54 | 14 | 0.58 | 17 | 0.71 | 19 | 0.79 | 24 | 1.00 |
| 50 | 8 | 0.33 | 11 | 0.46 | 13 | 0.54 | 13 | 0.54 | 15 | 0.63 | 17 | 0.71 | 20 | 0.83 | 25 | 1.04 |
| 75 | 8 | 0.33 | 10 | 0.42 | 13 | 0.54 | 14 | 0.58 | 16 | 0.67 | 19 | 0.79 | 22 | 0.92 | 26 | 1.08 |
| 100 | 7 | 0.29 | 10 | 0.42 | 14 | 0.58 | 14 | 0.58 | 16 | 0.67 | 21 | 0.88 | 26 | 1.08 | 29 | 1.21 |
| 150 | 5 | 0.21 | 9 | 0.38 | 15 | 0.63 | 15 | 0.63 | 18 | 0.75 | 24 | 1.00 | 27 | 1.13 | 31 | 1.29 |

**Base 310**

| Gradient | Zero | | 1 in 1000 | | 1 in 500 | | 1 in 400 | | 1 in 300 | | 1 in 200 | | 1 in 100 | | 1 in 50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Length(m) | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s |
| 10 | 13 | 0.42 | 16 | 0.52 | 17 | 0.55 | 18 | 0.58 | 18 | 0.58 | 20 | 0.65 | 24 | 0.77 | 30 | 0.97 |
| 20 | 13 | 0.42 | 15 | 0.48 | 17 | 0.55 | 18 | 0.58 | 19 | 0.61 | 21 | 0.68 | 25 | 0.81 | 30 | 0.97 |
| 30 | 13 | 0.42 | 15 | 0.48 | 17 | 0.55 | 18 | 0.58 | 19 | 0.61 | 21 | 0.68 | 25 | 0.81 | 32 | 1.03 |
| 40 | 13 | 0.42 | 15 | 0.48 | 17 | 0.55 | 18 | 0.58 | 19 | 0.61 | 22 | 0.71 | 26 | 0.84 | 32 | 1.03 |
| 50 | 12 | 0.39 | 15 | 0.48 | 17 | 0.55 | 18 | 0.58 | 20 | 0.65 | 23 | 0.74 | 27 | 0.87 | 33 | 1.06 |
| 75 | 11 | 0.35 | 15 | 0.48 | 17 | 0.55 | 19 | 0.61 | 21 | 0.68 | 25 | 0.81 | 28 | 0.90 | 34 | 1.10 |
| 100 | 10 | 0.32 | 14 | 0.45 | 17 | 0.55 | 19 | 0.61 | 22 | 0.71 | 26 | 0.84 | 30 | 0.97 | 36 | 1.16 |
| 150 | 9 | 0.29 | 14 | 0.45 | 18 | 0.58 | 20 | 0.65 | 23 | 0.74 | 30 | 0.97 | 34 | 1.01 | 39 | 1.26 |
| 200 | 7 | 0.23 | 13 | 0.42 | 18 | 0.58 | 21 | 0.68 | 25 | 0.81 | 33 | 1.06 | 37 | 1.19 | 43 | 1.39 |

**Base 360**

| Gradient | Zero | | 1 in 1000 | | 1 in 500 | | 1 in 400 | | 1 in 300 | | 1 in 200 | | 1 in 100 | | 1 in 50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Length(m) | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s | l/s | m/s |
| 25 | 18 | 0.46 | 21 | 0.54 | 23 | 0.59 | 24 | 0.62 | 25 | 0.64 | 28 | 0.72 | 33 | 0.85 | 40 | 1.03 |
| 50 | 17 | 0.44 | 20 | 0.51 | 23 | 0.59 | 24 | 0.62 | 26 | 0.67 | 30 | 0.77 | 35 | 0.90 | 42 | 1.08 |
| 75 | 16 | 0.41 | 20 | 0.51 | 23 | 0.59 | 25 | 0.64 | 27 | 0.69 | 32 | 0.82 | 36 | 0.92 | 44 | 1.13 |
| 100 | 15 | 0.38 | 19 | 0.49 | 23 | 0.59 | 25 | 0.64 | 28 | 0.72 | 34 | 0.87 | 38 | 0.97 | 46 | 1.18 |
| 125 | 14 | 0.36 | 19 | 0.49 | 23 | 0.59 | 25 | 0.64 | 29 | 0.74 | 35 | 0.90 | 40 | 1.03 | 48 | 1.23 |
| 150 | 13 | 0.33 | 19 | 0.49 | 24 | 0.62 | 26 | 0.67 | 30 | 0.77 | 37 | 0.95 | 42 | 1.08 | 50 | 1.28 |
| 175 | 12 | 0.31 | 18 | 0.46 | 24 | 0.62 | 26 | 0.67 | 31 | 0.79 | 39 | 1.00 | 44 | 1.13 | 52 | 1.33 |
| 200 | 11 | 0.28 | 18 | 0.46 | 24 | 0.62 | 27 | 0.69 | 32 | 0.82 | 41 | 1.05 | 46 | 1.18 | 54 | 1.38 |
| 225 | 10 | 0.26 | 18 | 0.46 | 24 | 0.62 | 27 | 0.69 | 32 | 0.82 | 43 | 1.10 | 48 | 1.23 | 55 | 1.41 |
| 250 | 9 | 0.23 | 17 | 0.44 | 24 | 0.62 | 28 | 0.72 | 33 | 0.85 | 45 | 1.15 | 50 | 1.28 | 57 | 1.46 |
| 275 | 8 | 0.21 | 17 | 0.44 | 25 | 0.64 | 28 | 0.72 | 34 | 0.87 | 47 | 1.21 | 51 | 1.31 | 59 | 1.51 |

**Theoretical Outfall Capacities**

| Outfall Type | Outlet Pipe Diameter (mm) | l/s | m/s |
|---|---|---|---|
| Mini Beany High Capacity Outfall | 150 | 40 | 3.67 |
| Mini Beany High Capacity Outfall | 225 | 91 | 3.75 |
| Mini Beany Inline End Outlet Outfall | 150 | 29 | 2.67 |
| Mini Beany Inline Side Outlet Outfall | 150 | 29 | 2.67 |

# Mini Beany Component Codes

## A Top Blocks

| Top Blocks | Length (mm) | Width (mm) | Height (mm) | Unit Weight (kg) | Item Code |
|---|---|---|---|---|---|
| HB Standard Grey | 1000 | 250 | 240 | 95 | **DR672010** |
| HB Standard Grey | 500 | 250 | 240 | 48 | **DR672020** |
| 45° SP Standard Grey | 1000 | 250 | 240 | 98 | **DR672040** |
| 45° SP Standard Grey | 500 | 250 | 240 | 49 | DR672050 |
| Bull Nose Conservation | 1000 | 250 | 240 | 139 | DR931210 |
| Bull Nose Conservation | 500 | 250 | 240 | 69.5 | DR931211 |

***Special finishes may be available upon request**

## A1 Dropped Crossing Accessories

| Dropped Crossing Accessories | Length (mm) | Width (mm) | Height (mm) | Unit Weight (kg) | Item Code |
|---|---|---|---|---|---|
| Drop Kerb LH | 1000 | 250 | 240/135 | 82 | **DR689920** |
| Drop Kerb RH | 1000 | 250 | 240/135 | 82 | **DR689930** |
| Centre Stone | 1000 | 250 | 135 | 70 | **DR689940** |
| Conservation Centre Stone | 1000 | 250 | 135 | 70 | DR931450 |
| Conservation Drop Kerb LH | 1000 | 250 | 240/135 | 82 | DR931400 |
| Conservation Drop Kerb RH | 1000 | 250 | 240/135 | 82 | DR931401 |

## B Base Channels

| Base Channels | Length (mm) | Width (mm) | Invert Width (mm) | Depth (mm) | Invert Depth (mm) | Unit Weight (kg) | Item Code |
|---|---|---|---|---|---|---|---|
| 210 Channel | 1000 | 280 | 150 | 210 | 135 | 102 | **DR696010** |
| 260 Channel | 1000 | 280 | 150 | 260 | 185 | 109 | **DR697010** |
| 310 Channel | 1000 | 280 | 150 | 310 | 235 | 122 | **DR698010** |
| 360 Channel | 1000 | 280 | 150 | 360 | 285 | 144 | **DR699010** |
| 210 Channel | 500 | 280 | 150 | 210 | 135 | 51 | **DR696020** |
| 260 Channel | 500 | 280 | 150 | 260 | 185 | 55 | **DR697020** |
| 310 Channel | 500 | 280 | 150 | 310 | 235 | 61 | DR698020 |
| 360 Channel | 500 | 280 | 150 | 360 | 285 | 77 | DR699020 |

## B1 Radial Top

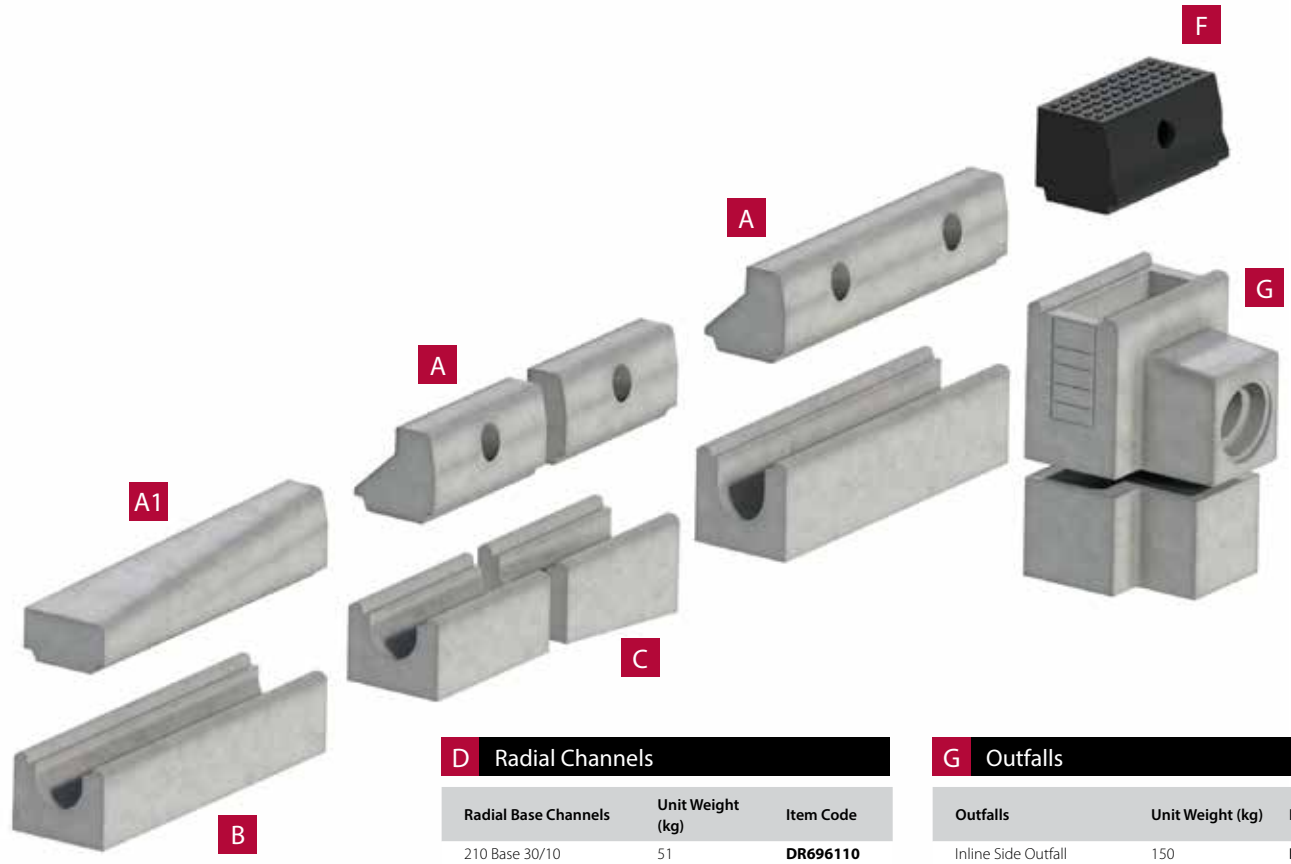
| Radial Tops | Unit Weight (kg) | Item Code |
|---|---|---|
| HB Cut 30/10 Ext Rad | 44 | **DR672310** |
| HB Cut 30/10 Int Rad | 44 | DR672311 |
| HB Cut 9/6 Ext Rad | 44 | DR672320 |
| HB Cut 9/6 Int Rad | 44 | DR672321 |
| HB 9/6 Ext Cons Tex | 35 | DR931620 |
| BN 9/6 Int Cons Tex | 35 | DR931230 |
| BN 30/10 Ex Cons Tex | 35 | DR931215 |
| BN 9/6 Ext Cons Tex | 35 | DR931225 |
| BN 30/10 Int Cons Tex | 35 | DR931220 |
| BN 9/6 Int Cons Tex | 35 | DR931230 |

## C Transition Channels

| Transition Channels | Length (mm) | Width (mm) | Invert Width (mm) | Depth (mm) Upsteam/ Downstream | Invert Depth (mm) Upsteam/Downstream | Unit Weight (kg) | Item Code |
|---|---|---|---|---|---|---|---|
| 210 - 260 | 500 | 280 | 150 | 210/260 | 135/185 | 54 | DR696330 |
| 260 - 310 | 500 | 280 | 150 | 260/310 | 185/235 | 61 | DR697330 |
| 310 - 360 | 500 | 280 | 150 | 310/360 | 235/285 | 77 | DR698330 |

**More radius and corner units can be made available upon request**

Mini Beany with reference numbers indicated in **bold** black are available ex-stock.
Mini Beany with reference numbers indicated in light are manufactured to order.
Contact our sales office to discuss your requrements.




## D Radial Channels

| Radial Base Channels | Unit Weight (kg) | Item Code |
|---|---|---|
| 210 Base 30/10 | 51 | **DR696110** |
| 210 Base 9/6 | 51 | DR696120 |
| 260 Base 30/10 | 55 | **DR697110** |
| 260 Base 9/6 | 55 | DR697120 |
| 310 Base 30/10 | 61 | DR698110 |
| 310 Base 9/6 | 61 | DR698120 |
| 360 Base 30/10 | 77 | DR699110 |
| 360 Base 9/6 | 77 | DR699120 |

## E End Cap/Cap Outlets

| End Cap/Cap Outlets | Unit Weight (kg) | Item Code |
|---|---|---|
| 210 End Cap | 1 | **DR696310** |
| 260 End Cap | 1 | **DR697310** |
| 310 End Cap | 1 | **DR698310** |
| 360 End Cap | 1 | **DR699310** |
| 210 Cap Outlet | 2 | DR696320 |
| 260 Cap Outlet | 2 | DR697320 |
| 310 Cap Outlet | 2 | DR698320 |
| 360 Cap Outlet | 2 | DR699320 |

## F Access Covers

| Access Covers | Unit Weight (kg) | Item Code |
|---|---|---|
| 45 SP Near Side Access Cover | 40 | **DR691015** |
| 45 SP Offside Access Cover | 40 | **DR691025** |
| HB Universal Access Cover | 40 | DR691022 |
| Bull Nose Near Side Access Cover | 40 | **DR691027** |

## G Outfalls

| Outfalls | Unit Weight (kg) | Item Code |
|---|---|---|
| Inline Side Outfall | 150 | **DR689000** |
| Inline End Outfall | 142 | DR689010 |
| Silt Box | 72 | **DR689910** |

## H Cover Plates

| Cover Plates | Unit Weight (kg) | Item Code |
|---|---|---|
| Cover Plate 500 mm | 12 | DR691030 |
| Cover Plate 1000 mm | 6 | **DR691040** |
| Cover Plate 30/10 | 6 | DR691050 |
| Cover Plate 9/6 | 6 | DR691060 |

## I Cable Duct Blocks

| Cable Duct Blocks | Unit Weight (kg) | Item Code |
|---|---|---|
| HB Cable Duct Block | 3 | DR689900 |
| 45° SP Cable Duct Block | 3 | DR689905 |

# Standard Details

**Drawing 1 of 6**




Mini Beany Splayed Top Block With Base 210, 260, 310 or 360

| Base Unit | A HB (mm) | A SP (mm) | A BN (mm) | B HB (mm) | B SP (mm) | B BN (mm) | C HB (mm) | C SP (mm) | C BN (mm) | D HB (mm) | D SP (mm) | D BN (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base 210 | 210 | 210 | 210 | 235 | 285 | 245 | 435 | 435 | 430 | 410 | 460 | 420 |
| Base 260 | 260 | 260 | 260 | 285 | 335 | 295 | 485 | 485 | 480 | 460 | 510 | 470 |
| Base 310 | 310 | 310 | 310 | 335 | 385 | 345 | 535 | 535 | 530 | 510 | 560 | 520 |
| Base 360 | 360 | 360 | 360 | 385 | 435 | 395 | 585 | 585 | 580 | 560 | 610 | 570 |



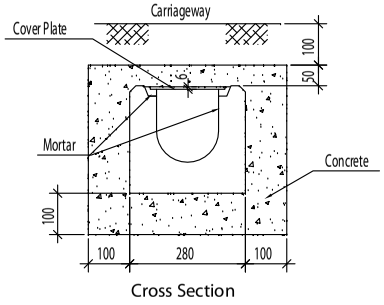
Top Block/Base Channel Joint Detail




Mini Beany Half Battered Top Block With Base 210, 260, 310 or 360

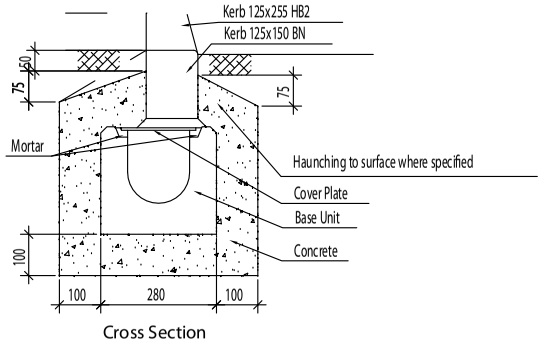



Mini Beany Bullnosed Top Block With Base 210, 260, 310 or 360



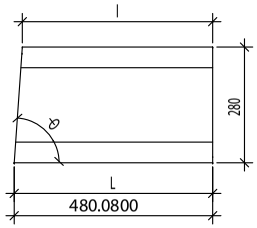

Cross Section

**Base Unit & Cover Plate**

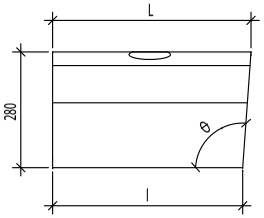



Cross Section

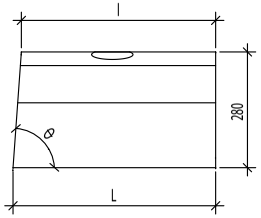
**Base Unit & Cover Plate**



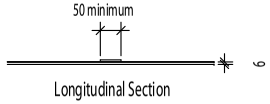

**Base Units 210, 260, 310, 360**
(External or Internal Radius)



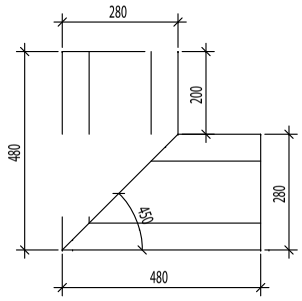

**Top Unit**
(External Radius)



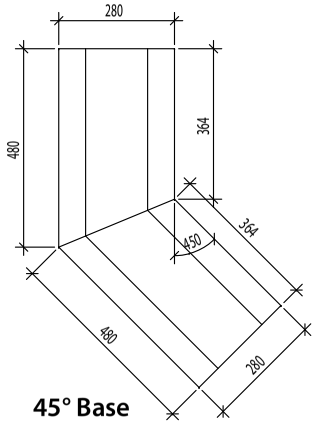

**Top Unit**
(Internal Radius)



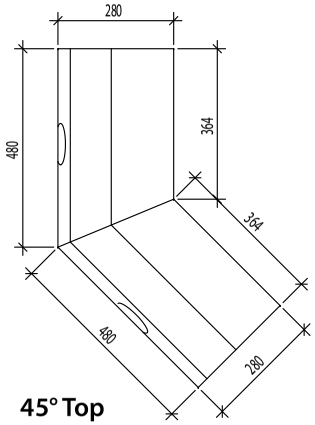

**Cover Plate & Jointing Tape**




**90° Base**




**45° Base**




**45° Top**
(External Shown)

| Type of Block | Radius | L | l | θ |
|---|---|---|---|---|
| 30/10 (External & Internal Radius) All base units | 30.00m-10.00m | 480 | 470 | 88° |
| 9/6 (External & Internal Radius) All base units | 9.90m-6.00m | 480 | 460 | 86° |
| 30/10 (External Radius) Top Unit | 30.00m-10.00m | 480 | 472 | 92° |
| 9/6 (External Radius) Top Unit | 9.90m-6.00m | 480 | 460 | 94° |
| 30/10 (Internal Radius) Top Unit | 30.00m-10.00m | 480 | 470 | 88° |
| 9/6 (Internal Radius) Top Unit | 9.90m-6.00m | 480 | 460 | 86° |

Cover Plate Dimensions

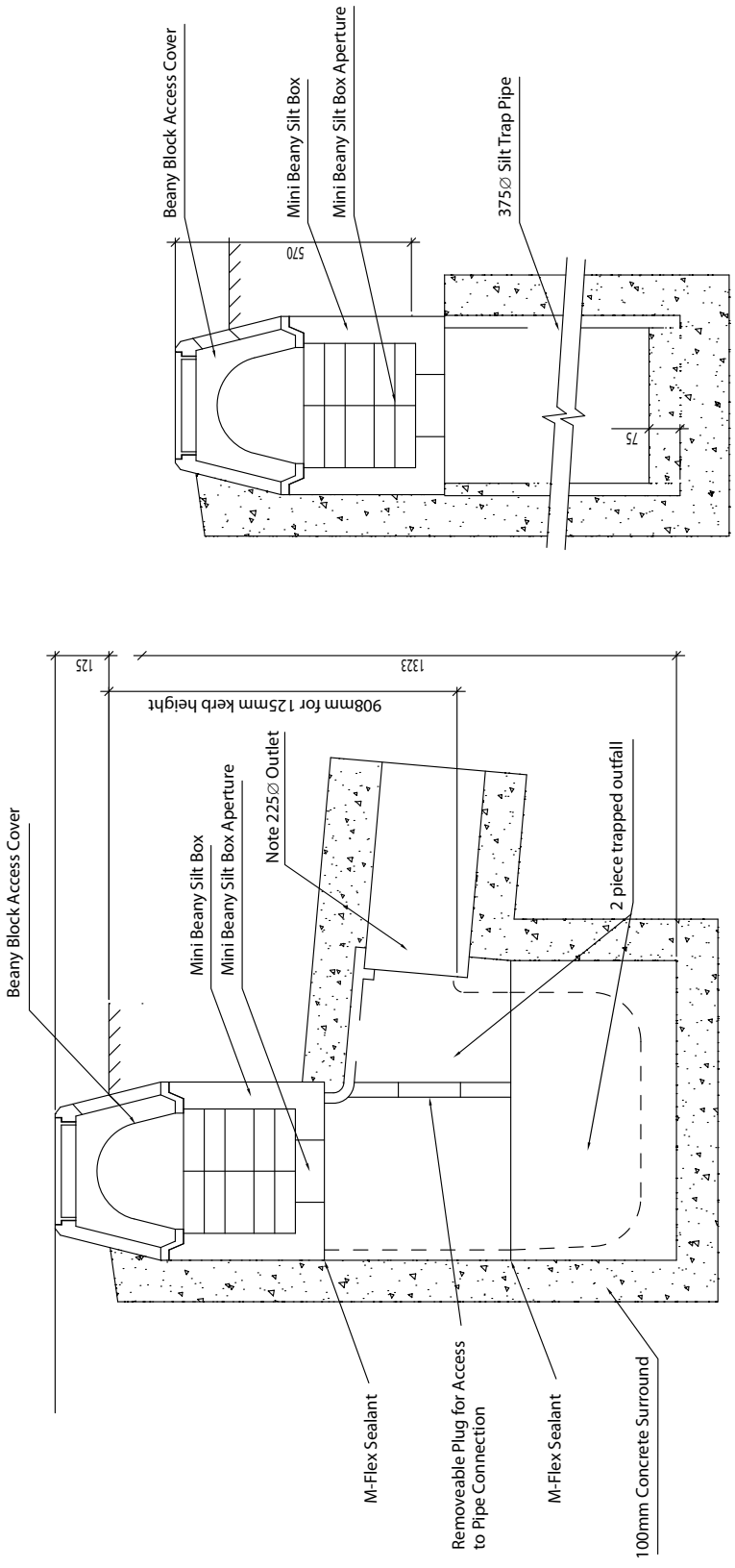
-Straight : 500 x 185 x 6 & 1000 x 185 x 6
-30/10, 9/6 & 90° supplied to match respective bases
-all 6.0 mm thick

# Standard Details

**Drawing 3 of 6**

# Standard Details

**Drawing 4 of 6**



# Standard Details

**Drawing 5 of 6**

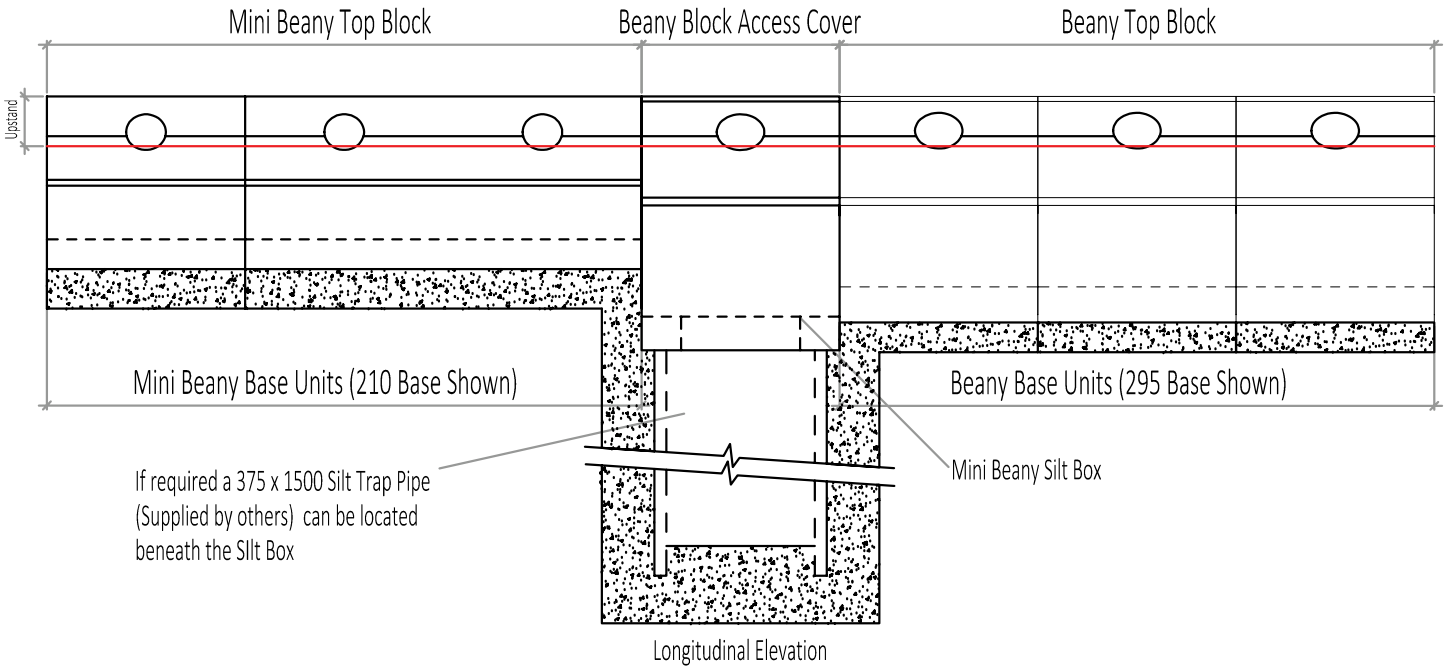
| Base Depths | |
|---|---|
| Base Depth A | Base Depth B |
| 260 | 210 |
| 310 | 260 |
| 360 | 310 |

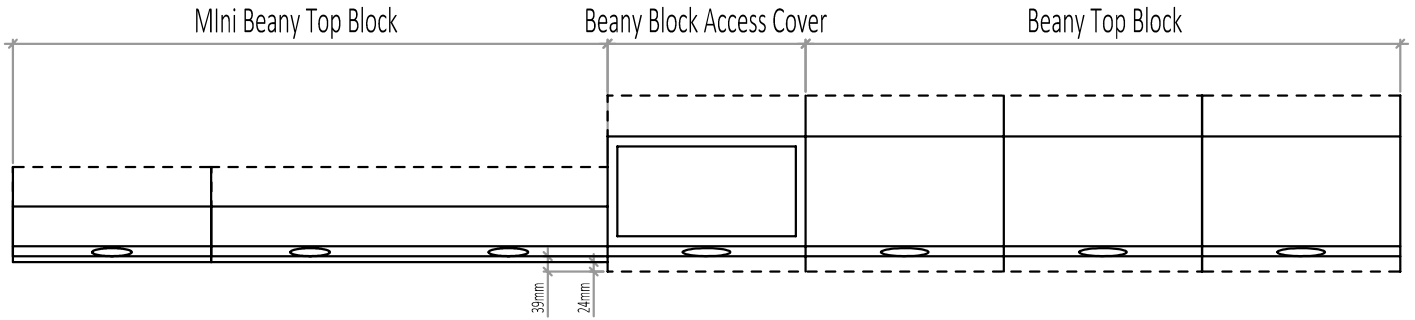






**Mini Beany Vehicle Crossing Transition**




Mini Beany to Beany - On-line Block Transition

# Standard Details

**Notes For Mini Beany**

**Drawings 1 to 6**

**1.** Mortars shall be;

i) A Mortar class 12 cement mortar to BS EN 998-2 for bedding the Top Blocks

ii) Marshalls' M-Flex for bedding Silt Boxes onto the Beany Trapped Gully Unit

iii) Marshalls' M-Flex for bedding the sections of the Marshalls' Trapped Gully Unit sections

**2.** Concrete bed, haunch and surround shall be;

i) A mix ST1 concrete to BS 8500-1&2 and BS EN 206-1 for Base Units used in the normal kerb application

ii) A mix ST4 concrete to BS 8500-1&2 and BS EN 206-1 for Base Units used within the carriageway (i.e. where Base Units are used with cover plates and are trafficked)

iii) A mix ST4 concrete to BS 8500-1&2 and BS EN 206-1 for Beany Trapped Gully, Silt Traps, Catch Pits and outfall details

iv) The specification for carrier pipe concrete surround is by others

**3.** Marshalls' vertical joint sealant, M-Seal, shall be applied to all Base Units.

**4.** Mini Beany Access Covers and Frames are hinged and handed to the direction of the traffic, specified "nearside" and "offside".

**5.** Movement joint details that fully isolate the Mini Beany whilst maintaining restraint shall be provided adjacent to all concrete slabs, even when the slab is covered by other materials.

**6.** For Mini Beany with cover plate applications, a minimum of 50mm of concrete cover above the cover plate will be required.

**7.** All dimensions are in millimetres.

# Specification

**Introduction**

The following specification covers the complete Mini Beany system including ancillary fittings and is compatible with the Standard Detail Sheets.

Where the Manual of Contract Documents for Highway Works is used, information for 'Appendix 5/5: Combined Drainage and Kerb systems' is available on request.

**Mini Beany**

1. The combined kerb and drainage system shall be Mini Beany, manufactured in pre-cast concrete, with the exception of certain fitments which are manufactured in cast iron as supplied by Marshalls, Halifax HX5 9HT in accordance with Standard Detail Sheets.

2. The combined kerb and drainage shall consist of a two part system consisting of top blocks with a ***straight backed half battered/straight backed 45º splayed*/conservation BN profile*** together with constant depth base units that are ***210/260/310/360**** deep. The overall width of the system shall be not less than 280mm.

3. All components of the Mini Beany system shall comply with the British Standard BS EN1433:2002, load classification E600 and the following:

   (i) The water inlet aperture shall increase in size towards the inside of the unit with a minimum divergence angle of 5°

   (ii) The angle of incline of the water inlet aperture shall be at least 30° to the horizontal

   (iii) Water inlet apertures shall be wholly within individual units and not within 100mm of the end of each unit

   (iv) When installed, the depth of construction from the top of the base channels to the drained area surface shall be not less than 100mm

   (v) The Top Block shall have an Unpolished Skid Resistance Value (USRV) in excess of 70 when tested in accordance with BS 7263:Part 3

   (vi) The system shall have a minimum of 12,850mm$^2$/m water inlet aperture area

4. The combined kerb and drainage system comprising straight top and base units, splay cut top and base units for radius use, straight and radius cover plates, outfalls, silt traps, junctions, access covers, end caps, cap outlets and sealant shall be installed to the line and levels indicated in the contract documents and in accordance with the manufacturers instructions and Standard Details.

Note: * delete as required

# Construction



**Introduction**
Installation of the Mini Beany Combined Kerb and Drainage System should be carried out in accordance with the Specification and Standard Detail Sheets. The following method of installation is recommended.

**Excavation**
Sufficient material should be excavated to accommodate Top Block and Base Units, concrete bedding and haunching, any 'soft spots' or poorly compacted formation should be made good.

Where Base Units and Cover Plates are to be installed beneath new pavements, the pavements shall be completed to top of roadbase level for flexible construction, or to top of sub-base level for rigid construction, before excavation for the Units commences.

**Setting Out**
Setting out pins should be accurately located, with a string line level with the top front corners of the Base Units. Line and level will depend on the kerb upstand. Pins can be located to the rear of the Units to avoid having to lift the Units over the string line.

Plenty of setting out pins should be inserted where Mini Beany is laid on horizontal curves (e.g. every 5m for radius of 30m) and the appropriate 'splay' Units used for radii of 30m or less.

The various radius units are:-

| Type of Unit | Radii | L (mm) | I (mm) |
|---|---|---|---|
| 50/30.1 (External & Internal Radius) All base units | 50.0m to 30.0m | 500 | 500 |
| 30/10 (External & Internal Radius) All base units | 29.9m to 10.0m | 480 | 470 |
| 9/6 (External & Internal Radius) All base units | 9.9m to 6.0m | 480 | 460 |
| 50/30.11 (External Radius) Top Block | 50.0m to 30.0m | 500 | 500 |
| 30/10 (External Radius) Top Blocks | 29.9m to 10.0m | 480 | 470 |
| 9/6 (External Radius) Top Blocks | 9.9m to 6.0m | 480 | 460 |
| 30/10 (Internal Radius) Top Blocks | 29.9m to 10.0m | 480 | 470 |
| 9/6 (Internal Radius) Top Blocks | 9.9m to 6.0m | 480 | 460 |

| Radius For Zero Gap | |
|---|---|
| **Product Type** | **Radius (m)** |
| 30/10 | 15.2 |
| 9/6 | 7.6 |

**Radius Units**
The theoretical maximum gap between adjacent Top Block corners when laid to horizontal curves is 4mm .

Top Blocks and 480mm long Base Units are available for either external or internal horizontal curves.

In practice, gaps between Base Units may be slightly greater due to laying tolerances and application of vertical joint sealant.

The approximate number of radius Top Blocks and Base Units required for a quarter circle (external radius) is 3.21 x horizontal radius e.g. for a 15m radius, 48 No.

**Base Units**
Base Units shall be laid to correspond to carriageway channel levels, or where beneath the carriageway, be laid to a straight grade. Starting at the Outfall, i.e. working uphill, the Units should be bedded on to a freshly mixed foundation of the appropriate grade and thickness of concrete (refer to Standard Detail Sheet).
Concrete bed, haunch and surround shall be:

i) A mix ST1 concrete to BS 8500-1&2 and BS EN 206-1 for Base Units used in the normal kerb application

ii) A mix ST4 concrete to BS 8500-1&2 and BS EN 206-1 for Base units used within the carriageway (i.e. where Base units are used with cover plates and are trafficked)

iii) A mix ST4 concrete to BS 8500-1&2 and BS EN 206-1 for Beany Trapped Gully, Silt Traps, Catch Pits and outfall details

iv) The specification for carrier pipe concrete surround is by others

Alternatively, the Units may be bedded on to a layer of cement mortar 10-40mm thick on a previously prepared concrete foundation.

The joint sealant is applied during installation of the base units, prior to installation of the top blocks. Sufficient M-Seal joint sealant should be trowel applied to one end face of the bases. Surplus sealant shall be removed from the inner surface of the Units.

1 drum of M-Seal should be sufficient for the following length of Mini Beany:

| M-Seal Requirement | |
|---|---|
| **Base Type** | **Coverage (m/18l)** |
| 210 | 240 |
| 260 | 185 |
| 310 | 150 |
| 360 | 125 |

Where cutting is necessary, one or two Units shall be cut so that no single Unit is less than 200mm in length. All cutting and trimming of the Units shall be carried out with a concrete saw or disc cutter. Cutting of Base Junctions or Outfall Units is not recommended.

At the termination of any Mini Beany runs, not located at outfalls, the base units shall be closed using galvanised steel end caps as detailed in the Standard Detail Sheets.

**Top Blocks**
The string line should be set to the level of the top corner of Units.

Again, starting at the Outfall, the Units should be set directly onto a liberal quantity of stiff, cement mortar to completely fill the whole of the joint. Cement mortar shall be Class 12 in accordance with BS EN 998-2. These should be tamped into position close to previously laid Units and the alignment checked. The levels should be checked using the string line and a spirit level. In addition, the general alignment should be checked from all directions as each Block is laid. Surplus mortar shall be removed from the units as work proceeds.

Top Blocks shall be close jointed with adjacent top and front faces corresponding and any Unit deviating by more than 3mm in 3m from line and level shall be made good by lifting and relaying.

# Construction

The inside and outside of the joints between Base and Top Units should be pointed and cleaned out with a brush or rag as work proceeds.

Where cutting is necessary, one or two Units shall be cut so that no single Unit is less than 200mm in length. All cutting and trimming of the Units, other than cast iron or steel, shall be carried out with a concrete saw or disc cutter.

**Cover Plates**

Cover Plates should be bedded on cement mortar to the specified thickness, pointed inside and outside of the joints with the inside of the Base Units being cleaned out as work proceeds. The Cover Plates should be close jointed and the joints sealed with 50mm wide M-Tape. Cover Plates shall be suitably protected before and during installation in order that the protective coating is not damaged.

Where cutting is necessary, one or two plates shall be cut so that no single plate is less than 250mm. Cut or damaged plates shall be renovated using Defcon Z or similar approved in accordance with BS 729: 1971 (1986).

**Top Units**

1. In order to obtain a 'good line', it is very important to lay the Top Units on the specified thickness of compacted mortar using the string line and Base Units as a guide. Too thin a layer of mortar will not allow sufficient sideways movement of the units to achieve an acceptable alignment.

2. It is not necessary for Top and Base Unit vertical joints to line up although there will be more tolerance for adjustment of the Tops, if the joints are close together on curves of 10m radius or less.

3. Where Mini Beany is laid on or adjacent to existing or proposed concrete slabs, transverse joints shall be formed within the units and haunching adjacent to the slab joints and also longitudinal movement joints between the haunching and the slabs. Where necessary, Top Unit drainage openings shall be protected against the ingress of material during concreting operations by covering with Waterproof Cloth Tape.

4. Outfalls, Silt Traps and Access Covers shall be constructed in accordance with the Standard Detail Sheet using the appropriate type of Base Unit. Units shall be bedded on sufficient M-Flex sealant over a gully pot, Outfall Unit or vertical pipe, to make a watertight joint. Where necessary in situ smooth concrete benching shall be shaped to the full depth of the Base Unit. In Silt Traps, the pipe shall be bedded into mix ST4 concrete which shall be fully compacted to make a watertight seal.

5. Cable Duct Blocks shall be bedded on cement mortar in accordance with the Standard Detail Sheet.

6. In situ concrete haunching or surround should not be placed until the installed blocks have been inspected and approved by the Engineer. The haunching/surrounding should be carried out as one operation to complete lines of Top and Base Units/Cover Plates in accordance with the Standard Detail Sheet. The top of the concrete surround for Base Units and Cover Plates under new carriageways shall be finished level with the top of the roadbase for flexible construction or top of sub-base level for rigid construction. Construction plant or vehicles crossing the Units shall be suitable in relation to thickness of concrete cover so that damage is not caused to the Units, Cover Plates, concrete bedding or haunching.

7. Adjacent carriageway and/or footway construction shall not be commenced within 3 days of any jointing or haunching/surrounding concrete being placed. Base Units, Outfalls, Junctions or Bends not covered by fully bedded Top Units, Cover Plates or covers and frames, shall be adequately supported against loadings imposed by construction traffic.

8. Where flexible surfacing is laid greater than 15mm above the bottom of the drainage aperture, it shall be cut and shaped after rolling when partially cooled at each Top Unit, to form a smooth chamfer.

9. On completion of the works, the Mini Beany System shall be cleaned out by high pressure water jetting (100-150 bar at 200 l/min minimum) and left free from obstructions and all Outfalls and Silt Traps shall be emptied. Top Unit drainage apertures shall be covered by timber boards or other approved method, during jetting operations. The cleaning process shall be repeated where necessary after the completion of any remedial works.

10. When used in conjunction with the Manual of Contract Documents for Highway Works, reference should be made to Appendix 5/5.

    For works not carried out under the above specification, it may be necessary to clarify cement mortar in accordance with BS EN 998-2 and concrete ST1, ST4 and grade C25/30 as specified in BS 8500-1 & 2 and BS EN 206-1.

11. Installation operations should be discontinued if weather conditions are such that the performance of the Mini Beany may be jeopardised.

    Installation should not be undertaken when the temperature is below 3°C on a falling thermometer and below 1°C on a rising thermometer.

12. All necessary Personal Protective Equipment (PPE) should be worn on site, as the site rules dictate. Goggles, ear protection, dust masks and protective footwear must always be worn whenever cutting operations are undertaken.