DRAINAGE AND WATER MANAGEMENT

CONCRETE PIPES

STORM-CHANNEL™
HEAVY DUTY PRECAST DRAINAGE CHANNEL

EASI-BASE™ MANHOLE SYSTEM

STORM-BRAKE™
VORTEX FLOW CONTROL CHAMBER UNIT

STORM-HOLD™
STORM WATER MANAGEMENT SYSTEM

STORM-STORE™
TANK & CHAMBER SYSTEMS
DRAINAGE AND WATER MANAGEMENT

With one of the largest drainage and water management product ranges in the UK and Ireland, FP McCann has become the first choice for all of our customers.

8 good reasons why you should use Concrete Drainage

- Spigot & Socket Pipes
- Oblique Tumbling Junction
- Square Tumbling Junction
- Pipe Handling/Laying Instructions
- Anchor System
- Pipe Lifting Instructions
- One Piece Integral Rubber Seal
- Air Test Only (A.T.O.) - Inflatable Pipe Stopper

DN1050 Highways Agency Catchpit
- Catchpit
- Valve Chamber
- StormBrake™ - Vortex Flow Control Unit
- StormCleanse™ - Hydrodynamic Separator
- StormChannel™ - Heavy Duty Precast Drainage Channel
- House Inspection Chambers
- Guilles and Slabs Range
- Fall Arrest System
- Rain Harvesting Chambers
- Add-A-Step® Modular Ladder System
- Plastic Encapsulated Ladders & Rungs
- Handhold Entry Pole System
- Headwall
- Mechanical Concrete Pipe Litter
- Know Your Litters
- StormStore™ Range of Tanks & Chamber Systems
- Parametric Design
- StormChamber™ - Multipurpose Chamber System
- StormTank™ - Multipurpose Panel System
- Modular Tank System
- StormHold™ - Storm Water Management System
- Dry Weather Flow Channels
- Box Culverts

FP McCann is the UK’s market leader in the manufacture, supply and delivery of precast concrete solutions. Our comprehensive precast concrete business extends to include:

AGRICULTURE | ARCHITECTURAL PRECAST | BOX CULVERTS | BUILDING PRODUCTS
DOCK LEVELLER PITS | DRAINAGE | FENCING | FILTER BED SYSTEMS | FLOORING
POWER & INFRASTRUCTURE | RAIL | SPECIALIST PRECAST | STRUCTURAL PRECAST
TANKS & CHAMBERS | TUNNELS & SHAFTS | WALLING

Modern manufacturing plants at Alnwick (Northumberland), Armagh (Northern Ireland), Byley (Cheshire), Cadeby (Warwickshire), Ellistown (Leicestershire), Grantham (Lincolnshire), Lisnaskea (Northern Ireland), Littleport (Cambridgeshire), Lydney (Gloucestershire), Kilrea (Northern Ireland), Magherafelt (Northern Ireland), Uddingston (Lanarkshire) and Weston Underwood (Derbyshire) incorporate the latest computerised batching, distribution, casting, curing and handling systems and are operated by skilled and experienced workforces to ensure consistency of quality. Their geographical spread gives us an unrivalled ability to serve the construction industry throughout the UK and Ireland.

By applying the DFMA principles, FP McCann’s design engineers are able to evaluate individual precast concrete products part by part, in addition to documenting the assembly process step by step. This allows them to generate the cost, part count and assembly time to provide a benchmark to measure its success and identify the parts and process improvement opportunities. In turn, this has allowed FP McCann to design and manufacture more cost-effective and efficient high-quality precast concrete products with less wastage and greater on-site recycling. As a result, increased productivity, combined with a reduction in production time and costs, allows FP McCann to be more competitive within the marketplace.

Please note: all information is correct at time of going to print.
The rigidity and mass of concrete pipes (both within the pipe and pipe joints) allows it to retain its shape over its long service life, preserving structural integrity and hydraulic efficiency, by minimising the resistance to water flow that often occurs when the shape or integrity of a flexible pipe is compromised through deformation.

The superior strength of concrete pipes enables recycled aggregate to be used as a bedding material, thus reducing costs and environmental impact during installation. Since a full trench depth of granular material can actually be more expensive than the pipe, significant pipe bedding savings can be achieved when using a concrete pipe instead. FP McCann can advise on the optimum soil and ground conditions from geotechnical reports, to establish when this sustainable and cost-efficient solution can be deployed.

Concrete pipes and manholes are resistant to sulphate and chemical attack. Concrete pipeline products with higher design chemical classes of DC3 and DC4 are capable of withstanding attack from the vast majority of aggressive ground environments in the UK.

Due to its amazing structural properties and functional benefits, precast concrete pipes tend to attract lower insurance premiums than those built from other construction materials. The natural strength of precast concrete pipes enables recycled aggregate to be used as a bedding material, significantly reducing installation costs and the elimination of waste disposal costs.

Being naturally fire-resistant, concrete forms a highly effective barrier to fire spread and it does not emit any toxic fumes when affected by fire. It will not produce smoke or drip molten particles. Therefore, in the majority of applications, concrete can be described as virtually “fireproof”. Due to its inbuilt fire resistant properties, concrete not only maintains an airtight construction that stops smoke spreading, but also has the ability to keep its strength during a fire.

Concrete pipes outperform other types of pipeline solutions in a number of the environmental impact categories, such as human toxicity levels and chemical / hazardous waste generated. The CO2 emissions from concrete and cement production are relatively small compared to other building materials. Some 95 to 99% of ingredients used in the production of concrete pipes are sourced locally, so a considerable positive impact on the carbon footprint and fuel consumption associated with transporting these materials can be achieved.

Concrete is much more durable than any other kind of pipe. Hence, it can carry more load at any given time and gains strength over time. It cannot be weakened by heat, moisture, mould or pests, nor will it rust. Underground concrete pipes have the ability to resist chemical attacks and massive impacts such as jetting, so blockages can be cleared easily.

Since precast concrete pipes are produced in highly controlled plant environments under rigid production standards and testing specifications, they achieve consistent high quality levels of performance. The pipe production process will normally include computer-controlled mixing systems, computer-controlled weighing and proportioning systems, absorption testing and automated recording systems. FP McCann’s concrete pipes are manufactured in accordance with BS EN 1916 and BS 5911, and certified by Quality Assessment under the Kitemark Scheme and ISO 9001.
**SPIGOT AND SOCKET PIPES**

All of our spigot and socket pipes are manufactured and CE marked in accordance with European Standard BS EN 1916, the specification for unreinforced and reinforced concrete pipes (including jacking pipes) and fittings with flexible joints. They are also designed to meet BS 5911 for concrete pipes and ancillary products.

### STANDARD PIPES

<table>
<thead>
<tr>
<th>Nominal Size (DN)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>375</td>
<td>450</td>
<td>600</td>
<td>675</td>
<td>750</td>
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</table>

### PIPE LUBRICANT

Pipes should only be joined using an FP McCann lubricant.

#### POLYPipe Adaptor

<table>
<thead>
<tr>
<th>Nominal Size (DN)</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>375</td>
<td>450</td>
<td>600</td>
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</tbody>
</table>

### PIPE JOINTING

- All junctions are to be fitted on their side. Junctions are not designed for vertical surface compaction and need to be surrounded in concrete.

**SPIGOT BUTT PIPES**

<table>
<thead>
<tr>
<th>Nominal Size (DN)</th>
<th>Length (mm)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>375</td>
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### ONE PIECE BEND

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<tr>
<th>Degree</th>
<th>11.25°</th>
<th>22.5°</th>
<th>45°</th>
<th>90°</th>
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<tr>
<td>Nominal size (DN)</td>
<td>Length (mm)</td>
<td>Weight (kg)</td>
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<tr>
<td>300</td>
<td>375</td>
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### TWO PIECE BENDS - 11.25°, 22.5° & 45°

<table>
<thead>
<tr>
<th>Nominal Size (DN)</th>
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<tbody>
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### THREE PIECE BENDS - 90°

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**FASTFIT JUNCTIONS**

<table>
<thead>
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<th>Nominal Size (DN)</th>
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<th>Weight (kg)</th>
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**ROCKER PIPES**

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**SOCKET BUTT PIPES**

<table>
<thead>
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<th>Nominal Size (DN)</th>
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<td>300</td>
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</table>

* Lifting anchors available
**OBLIQUE (45°) TUMBLING JUNCTION (SPIGOT)**

**INSTRUCTIONS FOR USE**

Please supply pipe diameter and invert levels only. FP McCann will complete the remaining details and return by email for customer approval.

All bends are manufactured to ±4° tolerance.

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### OBLIQUE (45°) Socket Tumbling Bay Junction

<table>
<thead>
<tr>
<th>Main Pipe</th>
<th>Nominal Size</th>
<th>A</th>
<th>300</th>
<th>375</th>
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<tbody>
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</table>

**Oblique (45°) Spigot Tumbling Bay Junction**

<table>
<thead>
<tr>
<th>Main Pipe</th>
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<td>2400</td>
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### SQUARE (90°) TUMBLING JUNCTION (SPIGOT)

**INSTRUCTIONS FOR USE**

Please supply pipe diameter and invert levels only. FP McCann will complete the remaining details and return by email for customer approval.

All bends are manufactured to ±4° tolerance.

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### SQUARE (90°) Socket Tumbling Bay Junction

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</table>

**Oblique (45°) Spigot Tumbling Bay Junction**

<table>
<thead>
<tr>
<th>Main Pipe</th>
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### Square (90°) Spigot Tumbling Bay Junction

<table>
<thead>
<tr>
<th>Main Pipe</th>
<th>Nominal Size</th>
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<th>300</th>
<th>375</th>
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<th>2500</th>
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<tbody>
<tr>
<td>Branch Pipe</td>
<td>Nominal Size</td>
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<td>450</td>
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<td>2400</td>
<td>3050</td>
<td>3685</td>
</tr>
</tbody>
</table>
3. Pipes should be inspected before off-loading to ensure that materials delivered correspond with the order placed.

4. Pipes should be carefully checked during off-loading to ensure no units are damaged. Any discrepancies should be recorded on the delivery docket.

5. Where stacking is necessary, this should be done on level ground and the bottom layer of pipes securely chocked to prevent the stack from collapsing. Pipes should be supported under the barrel so that the socket is free of load and to prevent the jointing faces from getting damaged. Preferably, they should be stacked barrel to barrel with sockets hanging over alternative sides.

6. For safety reasons and to prevent damage to the lower layers of pipe in the stack, pipes should not be loaded or stacked in a greater number of layers than is shown in the table below.

7. Avoid damage when handling, especially to ends of concrete pipes. Never drop or roll pipes over the ground.

Note: FP McCann’s spigot and socket pipes from DN1350 can be cast into pipes at manufacture. A Universal Head Link (available from FP McCann) can then be hooked onto the exposed anchor heads to lift the pipe.

HANDLING & STORING PIPES

1. Time and place of off-loading should be agreed before the units arrive at site. The contractor should provide suitable equipment for off-loading, stacking and stringing out of pipes on-site.

2. Off-loading should take place at the nearest hard road to the point of installation. To ensure the safety of all personnel, units must be left in a stable position, well clear of the edge of the trench.

3. Pipes should be inspected before off-loading to ensure that materials delivered correspond with the order placed.

4. Pipes should be carefully checked during off-loading to ensure no units are damaged. Any discrepancies should be recorded on the delivery docket.

5. Where stacking is necessary, this should be done on level ground and the bottom layer of pipes securely chocked to prevent the stack from collapsing. Pipes should be supported under the barrel so that the socket is free of load and to prevent the jointing faces from getting damaged. Preferably, they should be stacked barrel to barrel with sockets hanging over alternative sides.

6. For safety reasons and to prevent damage to the lower layers of pipe in the stack, pipes should not be loaded or stacked in a greater number of layers than is shown in the table below.

7. Avoid damage when handling, especially to ends of concrete pipes. Never drop or roll pipes over the ground.

FP McCann’s pipes from DN1350 should be handled using our purpose-built Anchor System. Special lifting anchors are cast into pipes at manufacture. A universal head link (available from FP McCann online) can then be hooked onto the exposed anchor heads to lift the pipe.

Use the equal lengths (A & B) for lifting the pipe. Join the longer chain (C) onto the pipe already laid and place the shorter length (B) onto the hook. The pipe can then be jointed without moving the jib of the crane.

www.fpmccann.co.uk/anchor-system

LAVING PIPES

1. Trench Excavation
   - The trench should be excavated to the line, gradient and width, as indicated in the contract documents or as agreed with the engineer. The safety of the public and site personnel is of paramount importance. Care should be taken to ensure personal safety at all times.

2. Trench Width
   - Any increase in trench width above that specified could increase the load on the pipe, increasing the quantity of excavation and the bedding material required. A trench narrower than the specified width may impede the proper placing of bedding or backfill material, or the correct jointing of pipes.

3. Formation Support
   - Uniform support along the pipeline is essential. Rock outcrops and soft zones, which can cause differential settlement, should be dug out and replaced with compacted specified backfill material. De-watering may be necessary during pipe laying and subsequent backfilling operations. The specified bedding material should be placed as detailed in the contract specification, and trimmed to ensure uniform support of the pipe throughout the length of its barrel. Recesses should be prepared for the pipe sockets.

4. Pipe Laying
   - Before being lowered into the trench, pipes and fittings should be inspected to ensure that they have not been damaged during handling and storage on-site. Units should be lowered carefully into the trench using a recognised lifting tackle, such as a concrete mechanical pipe lifter.

5. Jointing
   - Using our pipe jointing instruction guide, all pipe spigots must be fully lubricated with the pipe lube supplied, just prior to being lowered into the trench. Please note: pipes should only be jointed using a FP McCann lubricant. The socket of the laid pipe should, at this stage, be prepared by removing the polystyrene forming ring to leave a clean seal, free from debris. The adjoining pipe should be lowered into position, as level as possible, centring the pipe spigot with the seal of the laid pipe so that the pipes are in line. On achieving this, apply pressure to the socket end of the adjoining pipe using a substantial piece of timber to protect the pipe from damage when pushing the pipe home. (see page 47 for detail)

6. Testing
   - Acceptance tests on the completed pipeline give an indication of the level of control of workmanship and materials during construction.

7. Visual Testing
   - Check for obstructions and debris within the pipe, the structural soundness of pipes, that joints are properly sealed and that the pipe invert is even. Note: pipes smaller than DN750 may be inspected from manholes or by means of TV cameras.

8. Watertightness
   - The watertightness of a pipeline may be checked using a water or air test. Such tests will reveal the existence of cracked or porous pipes or faulty joints. These tests should be made during and after laying and before backfilling. The test method will be detailed in the contract specification or referenced to an appropriate code of practice. In certain circumstances (e.g. where the distance between manholes is great, or when site conditions are such that backfilling must take place immediately or when laying small diameter pipelines), it is recommended that the pipeline is tested at regular intervals (say every 2-3 pipes) during construction (see page 47).

9. Backfilling
   - This should take place after inspection and testing. The attention given to the backfill selection is of great importance. The placing and compaction of inappropriate backfill may cause damage to a new pipeline. The structural strength of the completed pipeline depends as much on good site workmanship as on the strength of individual pipes. Consequently, all backfill material must be selected and placed as detailed in the contract specification or recognised code of practice.

Note: For additional information on laying and testing pipes, please refer to the BPDA website: www.bpda.co.uk/engaging-and-deseing-the-eye

3.4.0.3.0 M Max

NOTES:

1. All dimensions are in mm.

2. Weights in kg are based on a concrete density of 2500kg/m³.

3. Where relevant, pipes are manufactured in accordance with BS EN1916.

4. Normal practice is to determine left or right branch laterals to the main line by looking up the flow i.e. from the socket end.

5. Right hand or left hand junctions (viewed socket to spigot) should be specified when ordering reduced junctions in pipe diameters DN1350 and above.

6. Lifting chains are not suitable for jointing purposes in pipes of diameter DN2400. Joint in the traditional method.

7. Do not install vertical junctions.

Chocks

Anchor Availability N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A

Anchor system available from 1350mm diameter upwards (Available in DN1200 in NI only) / * Lift only not jointing

3.8.0.3.0 M Max

1. All dimensions are in mm.

2. Weights in kg are based on a concrete density of 2500kg/m³.

3. Where relevant, pipes are manufactured in accordance with BS EN1916.

4. Normal practice is to determine left or right branch laterals to the main line by looking up the flow i.e. from the socket end.

5. Right hand or left hand junctions (viewed socket to spigot) should be specified when ordering reduced junctions in pipe diameters DN1350 and above.

6. Lifting chains are not suitable for jointing purposes in pipes of diameter DN2400. Joint in the traditional method.

7. Do not install vertical junctions.

4.0.0.3.0 M Max

1. All dimensions are in mm.

2. Weights in kg are based on a concrete density of 2500kg/m³.

3. Where relevant, pipes are manufactured in accordance with BS EN1916.

4. Normal practice is to determine left or right branch laterals to the main line by looking up the flow i.e. from the socket end.

5. Right hand or left hand junctions (viewed socket to spigot) should be specified when ordering reduced junctions in pipe diameters DN1350 and above.

6. Lifting chains are not suitable for jointing purposes in pipes of diameter DN2400. Joint in the traditional method.

7. Do not install vertical junctions.

4.0.0.3.0 M Max

1. All dimensions are in mm.

2. Weights in kg are based on a concrete density of 2500kg/m³.

3. Where relevant, pipes are manufactured in accordance with BS EN1916.

4. Normal practice is to determine left or right branch laterals to the main line by looking up the flow i.e. from the socket end.

5. Right hand or left hand junctions (viewed socket to spigot) should be specified when ordering reduced junctions in pipe diameters DN1350 and above.

6. Lifting chains are not suitable for jointing purposes in pipes of diameter DN2400. Joint in the traditional method.

7. Do not install vertical junctions.
**ONE PIECE INTEGRAL RUBBER SEAL**

FP McCann now provide a new type of integral seal for their precast concrete pipes. This new integrated seal is a simple, one-piece rubber compression connector which is embedded in the concrete when the pipe is cast. The seal is compressed between the pipe and the concrete, creating a flexible watertight seal.

**FEATURES**
- The seal complies with all relevant European standards, including EN 681-1, ISO 90001 and QR 4060
- Durable synthetic EPDM rubber seal with over 100 years shelf life
- Seal is cast accurately and stable at the precast factory
- Pipe is cast with numerous holding parts to keep the seal in place
- Clean, high quality sockets
- Ideal for use with mechanical laying techniques such as pipelift
- Pipes arrive at site ready to be connected

Please note: During the changeover phase, our new integral seal is fully compatible with our current seal

**NOTES:**
1. All dimensions are in mm.
2. Weights in kg are based on a concrete density of 2500kg/m³
3. Where relevant, pipes are manufactured in accordance with BS EN 1916.
4. Normal practice is to determine left or right branch laterals to the main line by looking up the flow i.e. from the socket end.
5. Right hand or left hand junctions (viewed socket to spigot) should be specified when ordering reduced junctions in pipe diameters DN1350 and above.
6. Lifting chains are not suitable for joining purposes in pipes of diameter DN2400. Joint in the traditional method.
7. Do not install vertical junctions.
8. In-wall pipes do not require lubrication.

**INFLATABLE PIPE STOPPER**

Air testing is a quick and easy way of checking a pipeline following installation. Correct assembly of joints, workmanship and the prevention of site handling damage can be identified by this test. FP McCann recommends the use of inflatable stoppers when air testing concrete pipes. Associated test equipment should be in good condition and in full working order. FP McCann recommends that this test is done every 2-3 pipes before backfilling, regularly following backfill during the installation and then at the finish; preferably before both manholes have been constructed.

The pipeline should be pressurised with air until the ‘U’ gauge (manometer) indicates 100mm. Allow a minimum of 5 minutes for stabilisation of the air pressure, longer may be needed in cold or very hot weather. Observe the fall in indicated pressure over a 5 minute test period. The test is successful if the residual pressure does not fall below 75mm within the 5 minute test period.

If the pressure falls sharply and the pipeline appears to have failed, the following checks should be carried out:
- Inspect the seal of the inflatable stopper against the inside of the pipe using soapy water. Use pipe lubricant or industrial soap to assist in providing a seal where necessary
- Inspect the seal of the inflatable stopper against the inside of the pipe using soapy water. Use pipe lubricant or industrial soap to assist in providing a seal where necessary

**BENEFITS**
- Requires low insertion force
- Seal not sensitive to weather
- No clamps required to tighten or forget
- Fast and easy installation
- Pipes may be backfilled immediately
- Less time in excavation
- Durable, reusable casting forms

**HANDLING/LIFTING INSTRUCTIONS**

DN1800 to DN2400 pipes are designed and manufactured to incorporate FP McCann’s jointing and lifting systems.

**LIFT SYSTEM**

To lift the pipes, select the two short legs A and B on the chain set. Place the spherical coupling over the cast-in anchor and engage by turning the tail of the head link down to the concrete. The pipe is fully supported along its length. Recommended method of joining pipes is shown below.

Ensure each pipe to be laid is aligned with the laid pipeline and is fully supported along its length. Recommended method of joining pipes is shown below.

Ensure each joint is checked by reference to the joint gap.

When joining, ensure that there is no excessive slew or misalignment, this can easily be increased by turning the upward force to joint the pipes. When jointed, ensure that there is no excessive slew or misalignment, this can easily be checked by reference to the joint gap.

**LIFTING CHAINS**

<table>
<thead>
<tr>
<th>Nominal Size (mm)</th>
<th>1800</th>
<th>2100</th>
<th>2400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Duty Chain Set</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Heavy Duty Chain Set</td>
<td>X</td>
<td>X</td>
<td>*3</td>
</tr>
</tbody>
</table>

*Only suitable for Lifting not Jointing

**NOTES:**
- Inspect the seal of the inflatable stopper against the inside of the pipe
- Clean, high quality sockets
- Requirements for mechanical laying techniques such as pipelift
- Pipes arrive at site ready to be connected

Please note: During the changeover phase, our new integral seal is fully compatible with our current seal

**INSTRUCTIONS**

**PIPE LIFTING**

Never pass slings or other lifting appliances through the barrel and never lift more than one pipe at a time.

**JOINTING**

Ensure pipe sockets and spigots are not damaged. Ensure that integral seals are not damaged and apply the approved lubricant. For pipes without an integral seal, ensure the seal is of the correct size and is not damaged. Position the rubber ring on the end of the spigot. Under no circumstances use lubricants when using integral seals are not damaged and apply the approved lubricant.

**AIR TEST ONLY (A.T.O.)**

Air testing is a quick and easy way of checking a pipeline following installation. Correct assembly of joints, workmanship and the prevention of site handling damage can be identified by this test. FP McCann recommends the use of inflatable stoppers when air testing concrete pipes. Associated test equipment should be in good condition and in full working order. FP McCann recommends that this test is done every 2-3 pipes before backfilling, regularly following backfill during the installation and then at the finish; preferably before both manholes have been constructed.

The pipeline should be pressurised with air until the ‘U’ gauge (manometer) indicates 100mm. Allow a minimum of 5 minutes for stabilisation of the air pressure, longer may be needed in cold or very hot weather. Observe the fall in indicated pressure over a 5 minute test period. The test is successful if the residual pressure does not fall below 75mm within the 5 minute test period.

If the pressure falls sharply and the pipeline appears to have failed, the following checks should be carried out:
- Inspect the seal of the inflatable stopper against the inside of the pipe using soapy water. Use pipe lubricant or industrial soap to assist in providing a seal where necessary

**FEATURES**
- Integriti cast into the structure of the pipe
- Environmentally friendly as it eliminates the need for the polyethylene strip
- Reduction in waste on site
- No cavities or steps in joints
- Almost zero push back

**BENEFITS**
- Requires low insertion force
- Seal not sensitive to weather
- No clamps required to tighten or forget
- Fast and easy installation
- Pipes may be backfilled immediately
- Less time in excavation
- Durable, reusable casting forms

**Important Jointing Information**

The integral pipe-seal jointing system used in FP McCann’s drainage products requires the use of a FP McCann proprietary lubricant, which can be supplied with all pipeline orders from us. Failure to use this proprietary lubricant in accordance with the instructions provided by the pipe-seal manufacturer / FP McCann, may give rise to problems with pipe jointing and seal performance and invalidate any warranty, implied or otherwise. FP McCann accepts no responsibility whatsoever for problems or loss of performance arising from any such failure.

**WARNING When Lifting ≥45° Inclined pull only**

**Joint Gap**

**Lift joint**

**The Lift**
PRE-LUBRICATED PIPES

STANDARD PIPES

Nominal Size | DN | 1800 | 2100 | 2400
Internal Diameter | A | 1830 | 2076 | 2380
Barrel Diameter | B | 2140 | 2410 | 2750
Effective Length | C | 2500 | 2500 | 2500
Approx. Weight | KG | 6525 | 7960 | 10270
Pipes per Load | Qty | 4 | 3 | 2

RIGHT ANGLE (90°) REDUCED JUNCTION

Nominal Size | DN | 1800 | 2100 | 2400
Internal Diameter | A | 1830 | 2076 | 2380
Barrel Diameter | B | 2140 | 2410 | 2750
Effective Length | C | 2500 | 2500 | 2500
Approx. Weight | KG | 6525 | 7960 | 10270

SPIGOTT/ SOCKET BUTT PIPES

Nominal Size | DN | 1800 | 2100 | 2400
Internal Diameter | A | 1830 | 2076 | 2380
Barrel Diameter | B | 2140 | 2410 | 2750
Effective Length | C | 2500 | 2500 | 2500
Approx. Weight | KG | 6525 | 7960 | 10270

ROCKER PIPES

Nominal Size | DN | 1800 | 2100 | 2400
Internal Diameter | A | 1830 | 2076 | 2380
Barrel Diameter | B | 2140 | 2410 | 2750
Effective Length | C | 2500 | 2500 | 2500
Approx. Weight | KG | 3310 | 4010 | 5040

OLIGUE (45°) REDUCED JUNCTION

Nominal Size | A | 1800 | 2100 | 2400
Branch Super sleeves | A | 100 | 100 | 100
Branch Super sleeves | B | 150 | 150 | 150
Effective Length | C | 2500 | 2500 | 2500
Approx. Weight | KG | 6525 | 7960 | 10270

SPIGOT BUTT PIPES

Nominal Size | DN | 1800 | 2100 | 2400
Internal Diameter | A | 1830 | 2076 | 2380
Barrel Diameter | B | 2140 | 2410 | 2750
Effective Length | C | 2500 | 2500 | 2500
Approx. Weight | KG | 3020 | 3610 | 4670

TWO PIECE BENDS

Nominal Size | DN | 1800 | 2100 | 2400
Internal Diameter | A | 1830 | 2076 | 2380
Angle 90° | 11.25 | 3 | 3 | 3
Angle 60° | 22.5 | 3 | 3 | 3
Angle 45° | 45 | 3 | 3 | 3

Note:
All junctions are to be fitted on their side. Juncions are not designed for vertical surface compaction.
Under no circumstances should lubricants be used when assembling pre-lubricated pipes; the seal is lubricated internally.

MANHOLE CHAMBERS (TONGUE & GROOVE JOINT)

MANHOLE CHAMBERS

PRODUCT INFORMATION

• FP McCann’s manhole chamber rings are manufactured with tongue and groove joints and comply with BS EN 1917 / BS 5911-3
• Manhole chambers from DN900 - DN1800 have 3 lifting points.
• Manhole chambers from DN2100 - DN3000 have 4 lifting points.
• DN3600 and DN4000 are outside of the scope of the British Standard (Non-Kitemark), but comply with all relevant provisions of the European Standard. DN4000 is supplied in two halves
NB: NI have 3 lifting points

WARNING
When Lifting ≥45° Inclined pull only

MANHOLE CHAMBERS

MANHOLE CHAMBERS (TONGUE & GROOVE JOINT)

NB: Dimensions above are in mm.
Facilitates available 150mm Super sleeve made to order. Can connect to other pipes via additional adaptors not supplied.

NB: NI have 3 lifting points

Nominal Size | Available Depth of Section (D) | Wall Thickness (T) | Litres per unit | Barrel Diameter (B) | Approx Weight Kg. | Approx. Products per load Qty (metres)
| A (DN) (mm) | (250mm < D < 250mm) | (250mm < D < 250mm) | (250mm < D < 250mm) | (250mm < D < 250mm) | per metre | (per unit)
900 | | | | | | |
1000 | | | | | | |
1200 | | | | | | |
1500 | | | | | | |
DN3600 | | | | | | |
DN4000 | | | | | | |

NB: NI have 3 lifting points
SOAKAWAYS

WORK PRACTICE - RECOMMENDED SITE

RECOMMENDED LIFTING EQUIPMENT

3. Carefully inspect units during off-loading to verify that products are in the delivery docket and advise accordingly.

MANHOLE SOAKAWAY CHAMBERS

**MANHOLE SOAKAWAYS**

**RECOMMENDED SITE WORK PRACTICE - MANHOLE CHAMBERS**

**CONSTRUCTION**
To ensure that the manhole structure is vertical, accurate levelling of the formation or the in-situ concrete foundation is essential. Please note: the depths of each manhole can vary and are subject to tolerances; it is recommended that each unit installed has its depth measured prior to installation, to ascertain if the levelling requirements are satisfactorily met. Tongue and groove joints should be installed with the groove facing upward. Manhole sections fitted with double steps can be used at any depth. However, it is recommended that the deepest section of manhole units should be used whenever possible, in order to minimize the number of units and costs. Precast cover slabs can be laid directly onto the shaft or chamber rings. To allow for any differential settlement between manhole and pipeline, a flexible joint incorporating short length rocker pipes should be constructed as close as possible to the outside of the manhole or the concrete surround. If used. Extra care must be taken to ensure that joints are properly made.

**JOINING**
Precast manhole components are provided with joints formed within the wall section. These are sealed with cement and sand mortar, or with proprietary FP McCann mastic sealants. Precast concrete manholes, well jointed, provide an adequate seal under normal conditions.

**REINSTATEMENT**
An in-situ concrete surround to precast concrete manholes is not necessarily because a well-constructed precast manhole is a strong, durable structure with its own inherent strength and would only require a surround for exceptional structural reasons. However, under some specifications, a concrete surround is required when the depth from ground level to the base of the concrete chamber ring exceeds 4.5m. In this case, the surround should be of 150mm thickness. Backfilling should take place as each precast manhole section is placed. It must be brought up evenly and compacted around the manhole to prevent displacement.

**HANDLING & INSTALLING MANHOLE**
1. Time and place of off-loading should be agreed before the units arrive at site. The contractor should provide suitable equipment for off-loading. For safety reasons, if individual sections are loaded and delivered in chimney fashion, 2. A chamber should take place at the nearest hard road to the point of installation. When off-loaded, units should never be stored on their side (on the roll) but always be laid in the ‘as installed’ upright position.
3. Carefully inspect units during off-loading to verify that products are undamaged and comply with order. Note any discrepancies on the delivery docket and advise accordingly.

**SEALING RIP**

To seal the joint, if the manufacturer’s instructions are not followed at all times.

Please note it is the end-user’s responsibility to ensure safe access and lifting procedures are followed at all times.

**DN4000 MANHOLE CHAMBER**

**DN4000 COVER SLAB – 2 PIECE UNIT (DETAILED STANDARD 600 & 675 OPENINGS)**

**DN4000 LIFTING/HANDLING & INSTALLATION GUIDE**

1. **LIFTING**
Singe units (half ring) are lift into place using 3 no. threaded lifting loops connected into threaded lifting sockets that are cast into the units, all of which must be used. The chain angle should not be less than 65 degrees to the horizontal. In order to lift without tilt, the chain lengths will differ. Refer to the diagram opposite for explanation of minimum chain angle and lengths. Alternatively, a spreader beam may be used. Complete units (full ring) are lift using 4 threaded lifting loops attached to threaded lifting sockets cast into the units. Refer to the diagram opposite for explanation of positioning of lifting points to be used. The chain angle should not be less than 65 degrees to the horizontal. Alternatively, a spreader beam may be used. Please note: Using 3 chains to lift a full ring will put unnecessary stress on the concrete and may cause the concrete around the join to crack. Unit weight and identification of lifting points will be marked on each castling for information.

2. **HANDLING & INSTALLATION**
It is recommended that the two piece chamber ring is jointed before lifting into place:
- Place the two units on a level surface, ideally on 2 skids to reduce resistance when jointing and also to maintain a clean joint.
- Place both halves side by side, ensuring both are at the correct orientation i.e. with bolt holes in line with threaded sockets.
- Insert the M24x200 threaded pins with the 60mm threaded side placed into the cast-in sockets.
- Place a strip of bituminous sealant along the small recess of the vertical joint on both halves of the manhole ring.
- Half-rings can be lifted into final position and the chamber can be built up, a half unit at a time.

Please note it is the end-user’s responsibility to ensure safe access and lifting procedures are followed at all times.

Refer to the BPDA website for further information:
https://www.precastdrainage.co.uk/page/pipe-laying-lifting
FP McCann's precast concrete wide wall manholes have been designed with a tongue and groove dimension to accommodate the use of bituminous sealant. FP McCann’s approved sealant should be used at all times. The sealant requirement for wide wall manholes is 12mm x 120mm x 6m. When placing the sealing strip into position during installation, the ends of the strips must be overlapped by a minimum of 30mm and cut at an angle of 60 degree. The cut ends must then be pressed together. Full installation guidelines can be provided upon request or obtained from our website www.fpmccann.co.uk

**PRODUCT BENEFITS**

- Quick and easy installation
- Watertight structure
- Safe anchor lifting system (spherical head lifting system)
- Greater cost savings associated with using precast concrete over a traditional system
- No concrete back fill required, in accordance with ‘Sewers for Adoption’ 7th edition
- More environmentally friendly than a traditional system, almost 40% less carbon omitted during the concrete casting process
- Significant reduction in health and safety risks associated with using precast concrete

**Please note:** Wide Wall Manhole Chambers are manufactured with 3 x 45mm diameter lifting points to facilitate the safe anchor lifting system (spherical head lifting system).
**MANHOLE COVER SLABS & ACCESSORIES**

**STANDARD COVER SLABS**

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>Outside Diameter (A) (mm)</th>
<th>Slab Thickness (C) (mm)</th>
<th>Opening Configuration &amp; Location</th>
<th>Approx. Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>900</td>
<td>1060</td>
<td>150</td>
<td>CENTRAL</td>
<td>275</td>
</tr>
<tr>
<td>1050</td>
<td>1240</td>
<td>150</td>
<td>ECCENTRIC</td>
<td>315</td>
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<tr>
<td>1200</td>
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<td>150</td>
<td>CENTRAL</td>
<td>390</td>
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<td>1500</td>
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<td>3750</td>
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<tr>
<td>3000</td>
<td>3420</td>
<td>200</td>
<td>ECCENTRIC</td>
<td>4970</td>
</tr>
<tr>
<td>*3600 Two Piece</td>
<td>4000</td>
<td>300</td>
<td>*ECCENTRIC</td>
<td>9250</td>
</tr>
</tbody>
</table>

**STANDARD REDUCING SLABS**

<table>
<thead>
<tr>
<th>Diameter (B) (mm)</th>
<th>Opening Configuration &amp; Location</th>
<th>Approx. Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>900</td>
<td>1060</td>
<td>CENTRAL</td>
</tr>
<tr>
<td>1050</td>
<td>1240</td>
<td>ECCENTRIC</td>
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</tr>
<tr>
<td>*3600 Two Piece</td>
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<td>*ECCENTRIC</td>
</tr>
</tbody>
</table>

**ADJUSTING UNITS & CORBEL SLABS**

FP McCann manufactures a full range of adjusting units and corbel slabs that have the following advantages:

- Designed as setting for manhole cover
- Eliminates laying engineering bricks on-site
- Quicker to lay, ensuring reduced labour costs
- 65mm thick – similar to brickwork
- Sits on top of the manhole cover slab
- Eliminates brickwork vertical joint weakspots
- Quality product produced by vibration process
- Comprehensive strength, similar to Class B.Eng bricks

**COVER SLABS**

- A
- B
- C

**LANDING SLABS**

- A
- B
- C

**REDUCING SLABS**

- A
- B
- C

Multiple access/other access sized cover slabs can be made to order.

**NOTES:**

- All dimensions are in mm, unless stated otherwise.
- Note: A 600 x 600 eccentric corbel slab is also available when using a ladder BS EN 1917 and BS 5911.
FP McCann’s DN1200 Easi-Base™ is a prefabricated manhole base unit with integral benching, channels and connectors, that provides an immediate and long-lasting watertight solution in the management of waste water.

**PRODUCT BENEFITS**

- An extremely fast, efficient and economical method of constructing manhole bases on-site
- Accepted by all UK water companies
- Significant health and safety benefits
- An immediate watertight structure, allowing other trades to instantly follow on
- Factory prefabrication provides a quality finish to channelling and benching, and enables accurate combinations and variations for entry/exit pipes
- Connects with any type of pipe and is compatible with the DN1200 130mm thick wide wall chamber ring which eliminates the need for backfilling.
- Maintenance of channels and benches are aided by clean access for inspection
- Eliminates the risk of water pollution that is associated with traditional methods of manhole construction, such as concrete base formation integrity failures due to bad weather conditions, which results in groundwater being contaminated with polluted raw sewerage and clean groundwater infiltrating the already overloaded raw sewerage system of pipelines and treatment plants
- The 7th Edition of Sewers for adoption has now been published to include precast bases; Easi-Base™s are in full accordance with the guidance provided.
- Easi-Base™ is a kitemark product, manufactured and tested to BS EN1917
- WRc tested and approved
- An 80 year guaranteed base

The unique DN1200 Easi-Base™ utilises a polypropylene liner with prefabricated benching and channels. Pipe connection bells are pushed into the inlet and outlet points and the liner is then encased and embedded in concrete to provide its structural strength and integrity. The DN1200 Easi-Base™ is manufactured as a monolithic precast unit; it utilises the standard manhole tongue and groove joint and is ready for immediate use, in combination with either a standard 90mm thick manhole chamber or the new 130mm thick wide wall chamber ring.

The Easi-Base™ system connects with most type of pipe including Single wall uPVC, Twin wall, Concrete, Ductile Iron and Clay.

The DN1200 unit allows connection to channel diameters DN150 to DN900. FP McCann has developed a selection of adaptors to increase the range of pipe types accommodated. The type of pipe must be disclosed prior to placing the order, so that the correct adaptors and seals are fitted.

**PRODUCT FEATURES**

- The DN1200 Easi-Base™ is made to an internal diameter of 1200mm with a tongue and groove joint profile to match standard DN1200 manhole chamber rings
- Wall thickness is 150mm
- The base has a 150mm floor thickness with the outlet invert at approximately 150mm from ground level
- A 1% fall exists across the channel toward the outlet (1:100)
- A gradient of 1:10 is present at the benching with the run-off toward the channel
- The height of the DN1200 Easi-Base™ unit varies in accordance with the diameter of the main channel running through the unit. (Please refer to the above table for heights)
PREDL® liners are currently used in Germany, Austria, France, Spain, Portugal, Italy, Norway, Denmark and Poland and have achieved accredited quality standards within Europe. FP McCann with franchise partner PREDL® are the first in the British Isles to introduce this new technology to manhole construction. There are over 1500 basic forms of the PREDL® manhole liner that can be delivered in more than 100,000 variants.

### EXAMPLES OF PREDL LINERS

#### STANDARD STOCK

**Pipe Size** (mm) | **PREDL REFERENCE**
--- | ---

**Pipe Size** (mm) | **PREDL REFERENCE**
--- | ---
200 | P1, P15, P159, P19, P9, P4, P5, P59, P6, P7, P9

**Pipe Size** (mm) | **PREDL REFERENCE**
--- | ---

**Pipe Size** (mm) | **PREDL REFERENCE**
--- | ---
250 | P1, P15, P159, P19, P2, P25, P3, P35, P37, P38, P39, P4, P46, P48, P49, P5, P5+, P55, P56, P57, P579, P58, P59, P6, P6+, P69, P7, P72, P79, P8, P8+, P9

**Pipe Size** (mm) | **PREDL REFERENCE**
--- | ---
300 | P1, P15, P159, P17, P18, P19, P2, P25, P27, P28, P29, P3, P35, P357, P358, P359, P37, P38, P39, P4, P46, P48, P49, P5, P5+, P56, P57, P579, P58, P59, P6, P6+, P69, P7, P72, P79, P8, P8+, P9

150 Pipe: PVC (EN1401), Polysewer, Marley Quantum, Twinwall, Ultra Rib, Supersleve Clay, Naylor Clay
200 Pipe: PVC (EN1401)
225 Pipe: Polysewer, Marley Quantum, Twinwall, Ultra Rib, Supersleve Clay, Naylor Clay
250 Pipe: PVC (EN1401)
300 Pipe: PVC (EN1401), Polysewer, Marley Quantum, Twinwall, Ultra Rib, Supersleve Clay, Naylor Clay, Concrete

### DN1200 RANGE OF LINER ORIENTATIONS

| Pipe Size (mm) | PREDL REFERENCE | Angle 0˚ | Angle 90˚ | Angle 180˚ | Angle 270˚ |
--- | --- | --- | --- | --- | ---
200 | P1, P15, P159, P19, P9, P4, P5, P59, P6, P7, P9 | |
250 | P1, P15, P159, P19, P2, P25, P3, P35, P37, P38, P39, P4, P46, P48, P49, P5, P5+, P55, P56, P57, P579, P58, P59, P6, P6+, P69, P7, P72, P79, P8, P8+, P9 | |
300 | P1, P15, P159, P17, P18, P19, P2, P25, P27, P28, P29, P3, P35, P357, P358, P359, P37, P38, P39, P4, P46, P48, P49, P5, P5+, P56, P57, P579, P58, P59, P6, P6+, P69, P7, P72, P79, P8, P8+, P9 | |

### ORDER FORM

**Order Details**

- Merchant: .......................................................................................
- Merchant Contact: .........................................................................
- Contractor: ....................................................................................
- Contact Name: ...............................................................................
- Contact Tel: ....................................................................................
- Job Details / Address: ....................................................................
- Manhole Ref: ..................................................................................
- Chamber Dia (mm): ........................................................................

Please see the examples below.

**NOTES**

1. One form required per Easi-Base™.
2. It is essential the pipe type is given correctly to ensure the correct pipe seals are provided.

### SPECFYING AND ORDERING YOUR EASI-BASE UNIT

Combinations and variants in entry pipe diameters and orientations can be chosen from the PREDL Clock diagram. When ordering, it is important to remember that the ‘P’ refers to the position of the outlet leading from the manhole. All other orientations are specified as a reference from the ‘P’ position; the next reference is then given as the main channel; each inlet is then referenced firstly by the largest diameter, then by numerical order.

Please see the examples below.

- **P5** is a DN1200 Easi-Base™ with straight-through inlet at 180° from the outlet position. Note a 1% fall in the channel exists towards the outlet position ‘P’.
- **P59** refers to a DN1200 Easi-Base™ with the main channel inlet at 180° from the outlet ‘P’ position and an additional second inlet at 270°.

Using the PREDL clock reference system, FP McCann can ensure the accuracy of each channel connection.

### SPECIFYING AND ORDERING YOUR EASI-BASE UNIT

- **Outlet**
- **Inlet 1**
- **Inlet 2**
- **Inlet 3**
- **Inlet 4**
- **Inlet 5**

<table>
<thead>
<tr>
<th>Outlet</th>
<th>Inlet 1</th>
<th>Inlet 2</th>
<th>Inlet 3</th>
<th>Inlet 4</th>
<th>Inlet 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREDL Ref</td>
<td>P</td>
<td>Angle</td>
<td>0˚</td>
<td>Pipe Size</td>
<td>Pipe Type</td>
</tr>
</tbody>
</table>

**EXAMPLE**

- **P5 19**

- **Angle** 0˚ 90˚ 180˚ 270˚ 180˚
- **Pipe Size** 300mm 150mm 300mm 150mm
- **Pipe Type** Wavin Ultrarib Wavin Ultrarib Wavin Ultrarib Wavin Ultrarib

- **Add Info**
FP McCann’s bespoke Easi-Bases™ from DN1500 to DN2100 complement our existing manhole ranges and are produced as monolithic units, utilising standard manhole tongue and groove joints for connection with standard manhole chambers. These units are produced wholly from concrete and provide a variety of connection orientations using the Predl Clock System. They can accommodate concrete, clay, twinwall, ductile iron and uPVC pipes from 150mm to 1200mm.

The table below gives the dimensions associated with each size, including the overall height of the unit, the invert level for each different pipe diameter and the combination of pipe diameters accommodated. All Easi-Base™s are made level to soffit, (i.e. level-benching).

### DN1500 - DN2100 EASI-BASESTM

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Pipe Size</th>
<th>Invert Level</th>
<th>Finished Height</th>
<th>Weight (t)</th>
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<tbody>
<tr>
<td>DN1500</td>
<td>150</td>
<td>470</td>
<td>750</td>
<td>3.50</td>
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<tr>
<td>DN1500</td>
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<td>DN1500</td>
<td>250</td>
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<td>DN1500</td>
<td>300</td>
<td>755</td>
<td>950</td>
<td>3.90</td>
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<tr>
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<td>755</td>
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<tr>
<td>DN1500</td>
<td>450</td>
<td>825</td>
<td>1100</td>
<td>4.60</td>
</tr>
<tr>
<td>DN1500</td>
<td>525</td>
<td>945</td>
<td>1200</td>
<td>4.70</td>
</tr>
<tr>
<td>DN1500</td>
<td>600</td>
<td>1015</td>
<td>1310</td>
<td>4.75</td>
</tr>
<tr>
<td>DN1800</td>
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<td>750</td>
<td>6.00</td>
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<td>150</td>
<td>470</td>
<td>750</td>
<td>6.00</td>
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<td>DN1800</td>
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<tr>
<td>DN1800</td>
<td>525</td>
<td>945</td>
<td>1200</td>
<td>7.00</td>
</tr>
<tr>
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<td>600</td>
<td>1015</td>
<td>1310</td>
<td>6.50</td>
</tr>
<tr>
<td>DN1800</td>
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<td>1175</td>
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<td>8.00</td>
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<tr>
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<td>750</td>
<td>1195</td>
<td>1450</td>
<td>7.75</td>
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<tr>
<td>DN1800</td>
<td>825</td>
<td>1255</td>
<td>1500</td>
<td>7.50</td>
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<tr>
<td>DN1800</td>
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<td>1345</td>
<td>1580</td>
<td>8.85</td>
</tr>
<tr>
<td>DN2100*</td>
<td>150-1200</td>
<td>1900</td>
<td>2435</td>
<td>10.50</td>
</tr>
</tbody>
</table>

* 2 part unit / max 3 per unit
† 1 unit ex Knockloughrin depot

### WEIGHTS AND LIFTING MECHANISM DETAIL

<table>
<thead>
<tr>
<th>Easi-Base™ (DN)</th>
<th>Lifting Mechanism</th>
<th>Quantity of Lifters Used per unit</th>
<th>Safe Working Load (S.W.L) per lifter (Tonnes)</th>
<th>Easi-Base™ Unit Max. weight (Tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>150</td>
<td>3</td>
<td>2.5</td>
<td>1.5 - 2.5</td>
</tr>
<tr>
<td>1500</td>
<td>150</td>
<td>3</td>
<td>6.3</td>
<td>3.5 - 5.5</td>
</tr>
<tr>
<td>1800</td>
<td>150</td>
<td>3</td>
<td>6.3</td>
<td>6.0 - 8.0</td>
</tr>
<tr>
<td>2100</td>
<td>150</td>
<td>3</td>
<td>6.3</td>
<td>6.5</td>
</tr>
<tr>
<td>2100*</td>
<td>Utility Anchors &amp; 150</td>
<td>3 &amp; 3</td>
<td>5.6 &amp; 6.3</td>
<td>11.0</td>
</tr>
</tbody>
</table>

* Manufactured in NI
(Please note, weights will vary dependent upon pipe size and number of inlets/outlets.)

Our Easi-Base™ manhole systems are manufactured with cast-in lifting sockets to allow chains to be hooked on to lift the base in a safe manner, which will prevent damage during handling. It also negates the requirement to drill holes through the Easi-Base, thus ensuring absolute water tightness when installing in wet ground.
FP McCann’s integral seal is a simple, reliable rubber compression connector which is embedded in the concrete when the manhole is cast. The seal is compressed between the pipe and the concrete, creating a flexible watertight seal.

FP McCann is the first precast concrete manufacturer in the UK to offer an integral seal on our Easi-Base™ DN1500 and DN1800 units. Our new integral seal system is a simple, reliable rubber compression connector which is embedded in the concrete when the manhole is cast. The seal is compressed between the pipe and the concrete, creating a flexible watertight seal.

**FEATURES**
- Connector is placed in the sealing position at the precast plant
- Manhole arrives at the jobsite ready to receive the pipe
- Pipe is beveled and lubricated, and then inserted through connector
- Manhole may be back filled immediately

**BENEFITS**
- Integrally cast into the structure when the concrete is poured
- Requires low insertion force
- No clamps to tighten or forget
- Fast and easy installation
- Less time in the excavation
- Durable, reusable casting forms
- Reusable tooling holds connector in position during casting process.

*1050mm and above pipe sizes require grouting using a e-proxy resin or similar approved product*

**EASI-BASE™ WITH INTEGRAL SEAL**

**EASI-BASE ADAPTORS AND SEALS**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Size</th>
<th>Pipe O/D</th>
<th>Type</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>FPM 101</td>
<td>225</td>
<td>260</td>
<td>Adaptor</td>
<td>PVC Tw/ULtra Rib</td>
</tr>
<tr>
<td>FPM 102</td>
<td>225</td>
<td>N/A</td>
<td>Adaptor</td>
<td>End Cap Stock</td>
</tr>
<tr>
<td>FPM 103</td>
<td>225</td>
<td>263</td>
<td>Adaptor</td>
<td>Clay (SuperSleve)</td>
</tr>
<tr>
<td>FPM 104</td>
<td>225/150</td>
<td>N/A</td>
<td>Adaptor</td>
<td>Level Invert Reducer</td>
</tr>
<tr>
<td>FPM 105</td>
<td>225</td>
<td>268</td>
<td>Adaptor</td>
<td>PE/Twin Wall</td>
</tr>
<tr>
<td>FPM 106</td>
<td>225</td>
<td>N/A</td>
<td>Seal</td>
<td>UV Bell Seal</td>
</tr>
<tr>
<td>FPM 107</td>
<td>225</td>
<td>263</td>
<td>Seal</td>
<td>Clay Adaptor Seal</td>
</tr>
<tr>
<td>FPM 108</td>
<td>150</td>
<td>170</td>
<td>Adaptor</td>
<td>Ultra Rib</td>
</tr>
<tr>
<td>FPM 109</td>
<td>150</td>
<td>N/A</td>
<td>Adaptor</td>
<td>End Cap</td>
</tr>
<tr>
<td>FPM 110</td>
<td>150</td>
<td>178</td>
<td>Adaptor</td>
<td>Twin Wall PE</td>
</tr>
<tr>
<td>FPM 111</td>
<td>150</td>
<td>178</td>
<td>Adaptor</td>
<td>Clay (SuperSleve)</td>
</tr>
<tr>
<td>FPM 112</td>
<td>300</td>
<td>335</td>
<td>Adaptor</td>
<td>Ultra Rib</td>
</tr>
<tr>
<td>FPM 113</td>
<td>150</td>
<td>186</td>
<td>Adaptor</td>
<td>Naylor Densleeve</td>
</tr>
<tr>
<td>FPM 114</td>
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<td>353</td>
<td>Adaptor</td>
<td>Twin Wall</td>
</tr>
<tr>
<td>FPM 115</td>
<td>150</td>
<td>160</td>
<td>Adaptor</td>
<td>Twin Wall PVC</td>
</tr>
<tr>
<td>FPM 116</td>
<td>225</td>
<td>278</td>
<td>Adaptor</td>
<td>Naylor Densleeve</td>
</tr>
</tbody>
</table>

Please note: all adaptors and seals are available from stock.

**EASI-BASE™ WITH INTEGRAL SEAL**

**FLEXI-FIT PIPE SEAL**

The Flexi-Fit pipe seal is a time and cost saving solution for fitting lateral (or branch) pipes into larger concrete pipes, manholes, junctions, catch pits or other concrete structures, at the time of casting or retro-fitting into a cored hole.

FP McCann is the first precast concrete manufacturer in the UK to offer an integral seal on our Easi-Base™ DN1500 and DN1800 units. Our new integral seal system is a simple, reliable rubber compression connector which is embedded in the concrete when the manhole is cast. The seal is compressed between the pipe and the concrete, creating a flexible watertight seal.

**BENEFITS**
- A Single product, universal solution
- Removes the need for adaptors
- Can be installed in seconds
- Can be cast into concrete during manufacture or cored and retro-fit
- Configuration can be altered in seconds
- Watertight connection for any DN150 Lateral*
- Smooth transition and level invert through to the connecting structure
- Integral product pipe stop removes the possibility of lateral intrusion
- Independently tested to over 1 bar pressure on all adoptable laterals

* Will not fit Naylor Clay pipes (>179mm)

**FLEXI-FIT SPECIFICATIONS**

Each component gives smooth level invert transition

Rigid ring to allow ribbed pipe connection and casting capability

**SEALANT**

| DN1200 | 12mm x 120mm x 4.3m |
| DN1500 | 12mm x 120mm x 5.2m |
| DN1800/DN2100 | 12mm x 120mm x 6.0m |

**Material**
- ABS & EPDM Rubber

**Pressure Rating**
- 0.75 bar

**Standards**
- EN681-1

**INNER BUSH**
- (164mm)

**CENTRAL SOCKET**
- (70mm)

**OUTER BODY**
- (79mm)

**OPTIONAL SPACER**
- for deep socket connection
HIGHWAYS AGENCY COMPLIANT EPDM FLEXIBLE SEAL DN1050 CATCHPIT

With its flexible rubber pipe connector seals, precast concrete catchpits can be utilised on a single lane carriageway, replacing the requirement to cast a base sump in-situ and construct the catchpit from a standard DN1050 manhole ring.

The innovative EPDM 40 flexible rubber seal at the connection points can accommodate pipe sizes DN150, DN225 and DN300. This negates the need to saw cut openings in the concrete wall and the use of wet mortar trades to seal the pipe surround.

Catchpits are supplied with factory fitted pre-marked EPDM 40 rubber blanks. The unique rubber blank/seal has preformed cutting grooves around the three DN entry sizes indicated. This allows for accurate cutting out to pipe diameter requirement. There is no similar system available on the market. Once pipes are fitted into the seal, up to 45 degrees of pipe deflection is permitted without breaking the seal.

Significant savings in time eliminates the need for follow-up finishing gangs. Reduced safety risks because the operative time in excavation is minimal and no power tools are required to cut concrete. Indirect cost benefits arise from saving up to 26 hours of labour time, related to the curing of wet trades on a traditional build.

FP McCann’s catchpit products are manufactured under BSI Kitemark approval to comply with BS EN 1917 and BS 5911, and are therefore fully compliant to HA’s MCHW specification.

PRODUCT BENEFITS

- Creates an immediate watertight structure
- Prefabricated off-site (minimising on-site labour and costs)
- Quick and efficient to install
- Accommodates connection to all types of pipe used in road and manhole construction
- Safety benefits gained in the construction of manholes as the pre-formed sump and connect seals eliminate on-site construction, thus greatly reducing labour activity within the manhole
- Quality is greatly increased as construction is within the factory environment and complies with BS EN 1917 and BS 5911
- Eliminates material wastage associated with current in-situ method
- Yields environmental benefits such as lower carbon footprint, less concrete used on-site and less excavated material removed from site
- Bespoke designs available

<table>
<thead>
<tr>
<th>Nominal Size (DN)</th>
<th>Height (mm)</th>
<th>+ Max. Pipe Size (mm)</th>
<th>Chamber OD (mm)</th>
<th>Wall Thickness (mm)</th>
<th>Capacity (l)</th>
<th><strong>Approx. Weight (kg)</strong></th>
<th>No. of Units per Load</th>
<th>Lifting Hole Qty/ dia/ per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN1050</td>
<td>* 1000</td>
<td>300</td>
<td>1210</td>
<td>80</td>
<td>650</td>
<td>1380</td>
<td>19</td>
<td>3no. with lifting holes</td>
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<tr>
<td>DN1200</td>
<td>* 1000</td>
<td>300</td>
<td>1380</td>
<td>90</td>
<td>870</td>
<td>1600</td>
<td>16</td>
<td>3no. 16 sockets and loops</td>
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<tr>
<td>DN1350</td>
<td>* 1400</td>
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<td>150</td>
<td>1800</td>
<td>4700</td>
<td>5</td>
<td>3no. utility anchors</td>
</tr>
<tr>
<td>DN1500</td>
<td>* 2400</td>
<td>675</td>
<td>1800</td>
<td>150</td>
<td>3300</td>
<td>7700</td>
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<td>6300</td>
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<tr>
<td>DN2100</td>
<td>* 2400</td>
<td>900</td>
<td>2400</td>
<td>150</td>
<td>5100</td>
<td>8300</td>
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</tr>
<tr>
<td>DN2400</td>
<td>* 2700</td>
<td>1500</td>
<td>2700</td>
<td>150</td>
<td>10500</td>
<td><strong>17000</strong></td>
<td>2</td>
<td>3no. utility anchors</td>
</tr>
</tbody>
</table>

* Height can be reduced to suit customers’ requirements Based on 300mm sump. If a non-standard invert level is required, please specify when ordering.

** Maximum weight of a solid, full height unit with no holes
+ Based on a standard catchpit only. If larger pipe sizes are required, please contact FP McCann

The catchpit effectively provides a sealed sump manhole, a monolithic precast concrete unit fitted with connector seals, which can be used to connect to the following types of pipe: upvc, twin wall, clay, ductile iron and concrete. The catchpit is designed to accommodate pipe sizes DN150 to DN1800 and is in line with highway specification.

PRODUCT BENEFITS

- Creates an immediate watertight structure
- Prefabricated off-site (minimising on-site labour and costs)
- Quick and efficient to install
- Accommodates connection to all types of pipe used in road and manhole construction
- Safety benefits gained in the construction of manholes as the pre-formed sump and connect seals eliminate on-site construction, thus greatly reducing labour activity within the manhole
- Quality is greatly increased as construction is within the factory environment and complies with BS EN 1917 and BS 5911
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<table>
<thead>
<tr>
<th>Nominal Size (DN)</th>
<th>Height (mm)</th>
<th>+ Max. Pipe Size (mm)</th>
<th>Chamber OD (mm)</th>
<th>Wall Thickness (mm)</th>
<th>Capacity (l)</th>
<th><strong>Approx. Weight (kg)</strong></th>
<th>No. of Units per Load</th>
<th>Lifting Hole Qty/ dia/ per unit</th>
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</thead>
<tbody>
<tr>
<td>DN1050</td>
<td>* 1000</td>
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<td>80</td>
<td>650</td>
<td>1380</td>
<td>19</td>
<td>3no. with lifting holes</td>
</tr>
<tr>
<td>DN1200</td>
<td>* 1000</td>
<td>300</td>
<td>1380</td>
<td>90</td>
<td>870</td>
<td>1600</td>
<td>16</td>
<td>3no. 16 sockets and loops</td>
</tr>
<tr>
<td>DN1350</td>
<td>* 1400</td>
<td>600</td>
<td>1800</td>
<td>150</td>
<td>1800</td>
<td>4700</td>
<td>5</td>
<td>3no. utility anchors</td>
</tr>
<tr>
<td>DN1500</td>
<td>* 2400</td>
<td>675</td>
<td>1800</td>
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<tr>
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<td>2100</td>
<td>150</td>
<td>2700</td>
<td>6300</td>
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</tr>
<tr>
<td>DN2100</td>
<td>* 2400</td>
<td>900</td>
<td>2400</td>
<td>150</td>
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<td>8300</td>
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<td>DN2400</td>
<td>* 2700</td>
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<td>2700</td>
<td>150</td>
<td>10500</td>
<td><strong>17000</strong></td>
<td>2</td>
<td>3no. utility anchors</td>
</tr>
</tbody>
</table>

* Height can be reduced to suit customers’ requirements Based on 300mm sump. If a non-standard invert level is required, please specify when ordering.

** Maximum weight of a solid, full height unit with no holes
+ Based on a standard catchpit only. If larger pipe sizes are required, please contact FP McCann

The catchpit effectively provides a sealed sump manhole, a monolithic precast concrete unit fitted with connector seals, which can be used to connect to the following types of pipe: upvc, twin wall, clay, ductile iron and concrete. The catchpit is designed to accommodate pipe sizes DN150 to DN1800 and is in line with highway specification.

PRODUCT BENEFITS

- Creates an immediate watertight structure
- Prefabricated off-site (minimising on-site labour and costs)
- Quick and efficient to install
- Accommodates connection to all types of pipe used in road and manhole construction
- Safety benefits gained in the construction of manholes as the pre-formed sump and connect seals eliminate on-site construction, thus greatly reducing labour activity within the manhole
- Quality is greatly increased as construction is within the factory environment and complies with BS EN 1917 and BS 5911
- Eliminates material wastage associated with current in-situ method
- Yields environmental benefits such as lower carbon footprint, less concrete used on-site and less excavated material removed from site
- Bespoke designs available

<table>
<thead>
<tr>
<th>Nominal Size (DN)</th>
<th>Height (mm)</th>
<th>+ Max. Pipe Size (mm)</th>
<th>Chamber OD (mm)</th>
<th>Wall Thickness (mm)</th>
<th>Capacity (l)</th>
<th><strong>Approx. Weight (kg)</strong></th>
<th>No. of Units per Load</th>
<th>Lifting Hole Qty/ dia/ per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN1050</td>
<td>* 1000</td>
<td>300</td>
<td>1210</td>
<td>80</td>
<td>650</td>
<td>1380</td>
<td>19</td>
<td>3no. with lifting holes</td>
</tr>
<tr>
<td>DN1200</td>
<td>* 1000</td>
<td>300</td>
<td>1380</td>
<td>90</td>
<td>870</td>
<td>1600</td>
<td>16</td>
<td>3no. 16 sockets and loops</td>
</tr>
<tr>
<td>DN1350</td>
<td>* 1400</td>
<td>600</td>
<td>1800</td>
<td>150</td>
<td>1800</td>
<td>4700</td>
<td>5</td>
<td>3no. utility anchors</td>
</tr>
<tr>
<td>DN1500</td>
<td>* 2400</td>
<td>675</td>
<td>1800</td>
<td>150</td>
<td>3300</td>
<td>7700</td>
<td>4</td>
<td>3no. utility anchors</td>
</tr>
<tr>
<td>DN1800</td>
<td>* 1500</td>
<td>450</td>
<td>2100</td>
<td>150</td>
<td>2700</td>
<td>6300</td>
<td>4</td>
<td>3no. utility anchors</td>
</tr>
<tr>
<td>DN2100</td>
<td>* 2400</td>
<td>900</td>
<td>2400</td>
<td>150</td>
<td>5100</td>
<td>8300</td>
<td>3</td>
<td>3no. utility anchors</td>
</tr>
<tr>
<td>DN2400</td>
<td>* 2700</td>
<td>1500</td>
<td>2700</td>
<td>150</td>
<td>10500</td>
<td><strong>17000</strong></td>
<td>2</td>
<td>3no. utility anchors</td>
</tr>
</tbody>
</table>

* Height can be reduced to suit customers’ requirements Based on 300mm sump. If a non-standard invert level is required, please specify when ordering.

** Maximum weight of a solid, full height unit with no holes
+ Based on a standard catchpit only. If larger pipe sizes are required, please contact FP McCann
VALVE CHAMBER

FP McCann designs and manufactures a bespoke range of reinforced valve chambers capable of housing any size and type of valve/pump. Valve chambers consist of a precast concrete sealed sump manhole with factory-fitted saddles to house the pump, and are used in the management of water, oils and chemicals.

<table>
<thead>
<tr>
<th>Chamber Diameter</th>
<th>1200 - 3000mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber Height</td>
<td>900mm</td>
</tr>
<tr>
<td>Stool</td>
<td>Bespoke to project requirements</td>
</tr>
<tr>
<td>Pipe Size</td>
<td>150 - 375mm</td>
</tr>
<tr>
<td>Inlets / Outlets</td>
<td>Will vary to accommodate pipe size</td>
</tr>
<tr>
<td>Cover Slab Thickness</td>
<td>Will vary in accordance with chamber diameter</td>
</tr>
<tr>
<td>Base Thickness</td>
<td>250mm</td>
</tr>
</tbody>
</table>

PRODUCT BENEFITS

- Immediate watertight structure
- Reduced installation time/costs
- Accommodates connection to all types of pipe, including concrete, metallic, HDPE and clay
- Pump is raised off the ground and sits on a preformed concrete stool
- Easy and clean access for operation and inspection

STORMBRAKE™

Vortex Flow Controls (VFCs) are commonly used in drainage schemes to regulate the storm water runoff from urban areas. Through the use of vortex flow technology, FP McCann’s StormBrake™ provides solutions to a variety of stormwater management problems. These include accurately controlling storm/surface water flow, minimising upstream storage requirements and reducing the risk of blockages compared to traditional orifice plates.

WHAT IS VORTEX FLOW TECHNOLOGY?

Vortex flow technology is based on the principle of a forced vortex, where under sufficiently high upstream water levels a vortex is induced in the flow by the device. The vortex motion results in significant energy loss, creating a pressure drop across the device and restricting the discharge leaving the outlet. The geometric properties of the device control the amount of flow restriction and can be tailored to suit the design conditions for a specific site.

BENEFITS

- Minimal maintenance required after installation. FP McCann’s StormBrake™ is self-activating and function without any mechanical components
- Outlet diameters of up to 4-6 times larger than an equivalent orifice plate, significantly reducing the risk of blockages and the associated maintenance costs
- Reduces the amount of upstream storage required, minimising the cost of providing attenuation facilities
- Accurately designed to meet a wide range of design conditions:
  - flows between 3 – 40 l/s;
  - heads between 0.5 – 2.0 m
- For design conditions outside of this range, please contact FP McCann directly
- Contains a bypass door which can be manually opened at ground level using a pull cable to allow easy access for inspection or blockage removal
- Provides minimal flow restriction at low upstream heads to allow fast discharge of water during the initial stages of a storm
FP McCann has designed and developed the enhanced StormCleanser™ for the treatment of urban catchment stormwater run-off.

The StormCleanser™ provides a cost-effective solution for designers, engineers and contractors involved in the provision of Sustainable Drainage Systems (SuDS). This unit has no moving parts, requires no power, and is constructed within standard precast concrete chambers.

The units come as factory fitted in precast chambers and could also be installed on-site, as required. The modular stainless steel built assembly is designed to provide installation simplicity. The material provides very high corrosion resistance and excellent longevity, beyond the design life of a typical drainage system.

The enhanced StormCleanser™ design allows for an inlet at varying angles with respect to the outlet. Moreover, the design also enables configuration with multiple inlets, at different orientations and of various sizes. The symmetric inlet design provides the freedom of clockwise or counter-clockwise flow direction, and allows the vortex formation with minimal hydrodynamic losses and turbulence.

Fixed flow direction separators tend to lose efficiency especially when a higher flow inlet is placed ahead of a lower flow inlet. The changeable flow direction provides drainage engineers the freedom to set the desired orientation of multiple inlets. StormCleanser™ allows for preferential flow direction of the main inlet, providing optimum performance for a wide range of configurations. StormCleanser™ is developed with state-of-the-art hydraulics technology, using Computational Fluid Dynamics (CFD) modelling and full-scale experimentation.

**FEATURES**
- Developed at inhouse high-flow Hydraulic Rig, and rigorously tested against actual rainfall inlet conditions
- High retention at most frequent rainfall events per annum
- High treatment flow rate to size ratio preventing oversized separators in the drainage design i.e. minimise footprint
- Wide range of chamber sizes (Ø1200 – Ø4000mm) and pipe sizes (Ø150 – Ø900mm)
- Tested using extremely fine sand particles starting from 2µm
- Modular and innovative design for multiple inlet orientation
- Choice of flow direction providing optimal configuration performance
- Complies with SuDS legislation

**APPLICATIONS**
- SuDS based drainage networks
- Housing Developments
- Retail Parks
- Commercial Centres
- Leisure Facilities
- Industrial Developments
- Highway Drainage Products
- Car Parks; Roads, Motorways and Trafficked Areas
- Existing surface water sewer discharges

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Tank Size (mm)</th>
<th>Max Treatment Flow Rate</th>
<th>Hydraulic Capacity</th>
<th>Pipe Size (mm)</th>
<th>Min. Sediment Storage Capacity (m³)</th>
<th>Min. Oil Storage Capacity (L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>43</td>
<td>86</td>
<td>300</td>
<td>0.50</td>
<td>790</td>
</tr>
<tr>
<td>1500</td>
<td>67</td>
<td>134</td>
<td>375</td>
<td>0.82</td>
<td>1235</td>
</tr>
<tr>
<td>1800</td>
<td>96</td>
<td>192</td>
<td>450</td>
<td>1.23</td>
<td>1780</td>
</tr>
<tr>
<td>2100</td>
<td>131</td>
<td>262</td>
<td>525</td>
<td>1.75</td>
<td>2400</td>
</tr>
<tr>
<td>2400</td>
<td>172</td>
<td>344</td>
<td>600</td>
<td>2.38</td>
<td>3165</td>
</tr>
<tr>
<td>2700</td>
<td>217</td>
<td>434</td>
<td>675</td>
<td>3.13</td>
<td>4000</td>
</tr>
<tr>
<td>3000</td>
<td>268</td>
<td>536</td>
<td>750</td>
<td>4.01</td>
<td>4900</td>
</tr>
<tr>
<td>3600</td>
<td>387</td>
<td>712</td>
<td>900</td>
<td>6.20</td>
<td>7125</td>
</tr>
<tr>
<td>4000</td>
<td>477</td>
<td>954</td>
<td>900</td>
<td>8.00</td>
<td>8795</td>
</tr>
</tbody>
</table>

**OPERATION**

The StormCleanser™ is specifically designed to remove suspended solids, hydrocarbons, and floatable debris from the stormwater run-off. Water and pollutants enter the system via the inlet pipe, where the internal geometry enables low energy forced vortex flow patterns. This allows the floatables to gather and solids to settle to the bottom of the treatment chamber for subsequent removal.

Re-suspension of the solids is minimised by the provision of a baffle plate, positioned above the solids storage sump. Floatable debris is retained within the sump storage of the unit, allowing easy access for suction cleaning. A central core allows for convenient suction hose entry down to the sump for cleaning and maintenance. Stormwater surges in excess of 125% of maximum treatment flow rate, overflow a weir, bypass the treatment zone and directly discharge through the outlet pipe. This helps to minimize the effects of scour within the treatment region and prevents wash out of typical sediment downstream.

**NOTES**
- MTFR is per WRc specified annualised removal efficiency of at least 50%, for a particle size distribution (PSD) of 2 – 1000 microns with a D50: 63µm and density of 2650 kg/m³
- Hydraulic capacity indicates the maximum flow rate per WRc scour test criteria
- Customized solutions such as oriented inlet, multiple inlets, and different pipe sizes available as required
- Sediment storage capacity could be extended as required, per the desired maintenance frequency
WHAT IS STORMCHANNEL™?
FP McCann’s StormChannel™ is a heavy duty, precast concrete slotted drainage channel designed to remove surface water from many areas, including roads, motorways, car parks, industrial, commercial and residential areas. This helps to prevent flooding and run-off.

FP McCann offers two types of StormChannel™:
1. A precast concrete bullnosed kerb drainage channel has a linear slot drain and a profiled, oblong drainage channel.
2. A standard precast concrete drainage channel with an interrupted slot and stabilizer bars for increased stability.

BENEFITS:
• Quick installation
• Minimal maintenance
• Excellent flow rates even at zero or shallow gradients
• Modular system
• Robust product
• Economical product
• Integrated watertight seal
• No concrete surround required
• Conforms to EN 1433

FEATURES:
• Resilient up to classes D400kN, E600kN or F900kN
• 2% surface slope to the slot
• Supplied with interrupted slot only – slot width 30mm
• Standard inner diameter: 480mm x 300mm
• Drainage cross section: 0.125m²
• Spigot and socket end for correct alignment and joining

Additional connections can be provided on request. Junction box sump unit also available in all sizes.

HOUSE INSPECTION CHAMBERS

FP McCann’s precast concrete inspection chambers are available in four common sizes: 600 x 450, 750 x 600, 1000 x 675 and 1200 x 750mm. Manufactured in accordance with BS EN 1917 / BS5911, each section has a tongue and groove joint and can be sealed with a sand and cement mortar or bitumen sealant, in the same fashion as a circular manhole and chamber ring.

To complete the chamber, FP McCann has a range of covers and ground level components. FP McCann’s frame (also known as a surround) and lid combination is designed to sit flush with the top course, such as tarmac or concrete surfacing or in grassy areas.

The lid itself features an anti-slip chequered finish and recessed lifting points to allow removal from the frame by use of standard lifting eyes.

<table>
<thead>
<tr>
<th>Chamber Size (mm)</th>
<th>Cover</th>
<th>Wall/ Slab thickness (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>600x450</td>
<td>Frame and lid placed straight on top of unit</td>
<td>40</td>
</tr>
<tr>
<td>750x600</td>
<td>Below surface slab with 600x450 access, allowing use of frame and lid</td>
<td>8</td>
</tr>
<tr>
<td>1000x675</td>
<td>Below surface slab with 900x600 access, allowing use of frame and lid</td>
<td>75</td>
</tr>
<tr>
<td>1200x750</td>
<td>Light or heavy duty below surface slab with 1200x600 access, allowing use of standard steel access hole cover</td>
<td>105</td>
</tr>
</tbody>
</table>

**Note:** For HIC’s placed in depths greater than 1.5m, we recommend the use of a concrete surround.

<table>
<thead>
<tr>
<th>Description</th>
<th><strong>Weight per unit (mm)</strong></th>
<th>No. of units per pallet</th>
<th><strong>Effective thickness</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>600x450 frame</td>
<td>8</td>
<td>100</td>
<td>6</td>
</tr>
<tr>
<td>600x450 cover slab</td>
<td>8</td>
<td>100</td>
<td>8</td>
</tr>
<tr>
<td>750x600 frame</td>
<td>8</td>
<td>100</td>
<td>8</td>
</tr>
<tr>
<td>750x600 cover slab</td>
<td>8</td>
<td>100</td>
<td>8</td>
</tr>
<tr>
<td>1000x675 frame</td>
<td>8</td>
<td>100</td>
<td>8</td>
</tr>
<tr>
<td>1000x675 cover slab</td>
<td>8</td>
<td>100</td>
<td>8</td>
</tr>
<tr>
<td>1200x750 frame</td>
<td>8</td>
<td>100</td>
<td>8</td>
</tr>
<tr>
<td>1200x750 cover slab</td>
<td>8</td>
<td>100</td>
<td>8</td>
</tr>
</tbody>
</table>
GULLIES & SLABS RANGE

GULLIES

- The Gully Cover Slab is designed as seating for a gully grate
- Standard Gully Cover
- Horseshoe Gully Cover

PRODUCT BENEFITS

- Quicker to lay, ensuring reduced labour costs
- Use on top of 450mm diameter gully
- Eliminates laying engineering bricks on-site
- Sits flush to kerb for enhanced stability
- 100mm thick single piece unit
- Eliminates brickwork vertical joint ‘weakspots’
- Greater stability than brickwork
- Quality product produced by vibration process
- Compressive strength similar to Class B.Eng. bricks

GULLY COVER SLABS

- Dimensions (mm) Standard Horseshoe
- Length (mm) 750 850
- Width (mm) 650 650
- Thickness (mm) 100 100
- Weight (kg) 70 70
- Hole Size (mm) 450 450
- Up/Pack 12 12

PRODUCT BENEFITS

- The seal has been cast-in, thus preventing loss or damage on-site
- An integral seal and rodding eye for universal sealing characteristics
- The rodding eye closure has been recessed into the concrete to help eliminate dislodgment
- Reduced thickness, giving reduced weight and a smaller footprint for better vehicle utilisation
- Improved system that helps prevent any discharge of oil
- The gully is fully universal, suitable for all plastic and clay drainage products from 160mm to 186mm diameter

AWARD-WINNING SAFETY SOLUTION FOR MANHOLE CONSTRUCTION

Clients, consultant engineers, contractors and suppliers all have a duty to mitigate hazards on-site, whenever reasonably practicable. One such hazard identified is the risk of operatives falling through manhole openings, particularly during the construction process and also in follow-up maintenance work.

Working with partners Severn Trent Water, engineer Grontmij and contractor to the water sector, Morgan Sindall plc, FP McCann has designed an award-winning safety solution. Our fall arrest system allows for safe working around the manhole opening prior to the fitting of the ironwork.

In the construction of a manhole, operatives often work unprotected from the opening at surface level when the final stages of completion occur. This includes the final brickwork up to the manhole frame and the mortar bedding of the frame itself.

With most standard cover slabs, the access point for man entry is open and it is left to the contractor to cover-on-site. In many site situations, these openings remain for a number of days while phases of work are completed. Our fall arrest system immediately addresses this problem. The future production of all standard access cover slabs will incorporate the optional protective grid, which will remain in the slab even when the final D400 steel cover and frame are set in place at surface level.

The galvanised mild steel grid is available in four standard sizes:
- 610mm x 610mm
- 675mm x 675mm
- 750mm x 600mm
- 1200mm x 675mm

The fall arrest grid is seated on load-bearing corners cast into a standard range of manhole cover slabs. If a temporary fall arrest system is required, once the construction of the manhole is complete, the grid can be removed prior to the fitting of the ironwork. Alternatively, it can be a permanent fixture, left in place beneath the manhole lid. The spacing between the bars allows for ease of inspection and jetting of the manhole base during maintenance work.

Note: Gullies and Gully cover slabs manufactured in accordance with BS 5911-6

Dimensions (mm) Nominal Weight Approx. Capacity No. per Approx. Diameter Internal Outlet Load (Kg) (litres)

<table>
<thead>
<tr>
<th>Diameter/Internal</th>
<th>Depth</th>
<th>Difflet</th>
<th>Weight (Kg)</th>
<th>Capacity (litres)</th>
<th>No. per Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>375</td>
<td>750</td>
<td>150</td>
<td>160</td>
<td>51</td>
<td>60</td>
</tr>
<tr>
<td>375</td>
<td>900</td>
<td>150</td>
<td>200</td>
<td>67</td>
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<tr>
<td>450</td>
<td>750</td>
<td>150</td>
<td>215</td>
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<tr>
<td>450</td>
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<td>150</td>
<td>235</td>
<td>90</td>
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</tr>
<tr>
<td>450</td>
<td>1050</td>
<td>150</td>
<td>270</td>
<td>119</td>
<td>60</td>
</tr>
<tr>
<td>450</td>
<td>1200</td>
<td>150</td>
<td>280</td>
<td>142</td>
<td>60</td>
</tr>
</tbody>
</table>

GULLY LIFTER

AWARD-WINNING SAFETY SOLUTION FOR MANHOLE CONSTRUCTION

Clients, consultant engineers, contractors and suppliers all have a duty to mitigate hazards on-site, whenever reasonably practicable. One such hazard identified is the risk of operatives falling through manhole openings, particularly during the construction process and also in follow-up maintenance work.

Working with partners Severn Trent Water, engineer Grontmij and contractor to the water sector, Morgan Sindall plc, FP McCann has designed an award-winning safety solution. Our fall arrest system allows for safe working around the manhole opening prior to the fitting of the ironwork.

In the construction of a manhole, operatives often work unprotected from the opening at surface level when the final stages of completion occur. This includes the final brickwork up to the manhole frame and the mortar bedding of the frame itself.

With most standard cover slabs, the access point for man entry is open and it is left to the contractor to cover-on-site. In many site situations, these openings remain for a number of days while phases of work are completed. Our fall arrest system immediately addresses this problem. The future production of all standard access cover slabs will incorporate the optional protective grid, which will remain in the slab even when the final D400 steel cover and frame are set in place at surface level.

The galvanised mild steel grid is available in four standard sizes:
- 610mm x 610mm
- 675mm x 675mm
- 750mm x 600mm
- 1200mm x 675mm

The fall arrest grid is seated on load-bearing corners cast into a standard range of manhole cover slabs. If a temporary fall arrest system is required, once the construction of the manhole is complete, the grid can be removed prior to the fitting of the ironwork. Alternatively, it can be a permanent fixture, left in place beneath the manhole lid. The spacing between the bars allows for ease of inspection and jetting of the manhole base during maintenance work.

Note: Gullies and Gully cover slabs manufactured in accordance with BS 5911-6
FP McCann’s rain harvesting chamber is a bespoke precast water storage chamber that is compatible with water harvesting systems for residential, industrial/commercial and agricultural installations. Capturing rainwater for re-use offers significant cost savings for the user and benefits the environment by increasing water resources and further enhancing water amenity. The chamber complies with Environment Agency SuDS (Sustainable Urban Drainage System) directives.

The basic concept of harvesting rainwater is simple - rainwater is mostly collected from the roofs of buildings - it flows through gutters and downspouts and is then filtered and collected by a storage tank. From the tank, it can be recirculated or treated to produce a better quality of recycled water.

<table>
<thead>
<tr>
<th>Internal Diameter (x1000mm)</th>
<th>Capacity (Litres)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN1800</td>
<td>1200</td>
<td>1800</td>
</tr>
<tr>
<td>DN1800</td>
<td>1500</td>
<td>1900</td>
</tr>
<tr>
<td>DN2400</td>
<td>3000</td>
<td>5900</td>
</tr>
<tr>
<td>DN2400</td>
<td>5000</td>
<td>7250</td>
</tr>
<tr>
<td>DN2400</td>
<td>7000</td>
<td>8700</td>
</tr>
</tbody>
</table>

ADD-A-STEP® modular ladders are designed to allow easy access to chambers and are approved for use in potable water, waste water, highly corrosive and general construction applications. They are a cheaper, safer and a more user-friendly alternative to traditional stainless steel ladders.

The ADD-A-STEP® modular ladder system is designed to provide a product that can be supplied off-the-shelf for next day delivery. Each module of the ADD-A-STEP® ladder consists of two stiles, one rung and two retaining clips. Each stile measures 360mm long, 80mm wide and 32mm thick maximum dimension. The ladder width outside the stiles (upright) is 435mm.

The ADD-A-STEP® ladder has 30mm diameter rungs at 300mm centre spacing and the width or foot space inside the stiles is 375mm. Two types of wall brackets are supplied as standard, one for circular and one for square chambers. The ladder can be assembled on-site using the number of modules to achieve any length and can be trimmed to length using a standard hand saw without the need for expensive cutting equipment.

ASSEMBLED IN MINUTES

Stainless steel pull-ups available to suit ex stock

BENEFITS

The modular design allows for more economical transportation than fully assembled ladders. The ADD-A-STEP® ladder requires no maintenance other than occasional cleaning with a pressure hose, if desired. The ladder has excellent insulation properties so it can be used in applications where electrical cables are present. Constructed from polybutylene (PBT), which is UV tolerant, it is a non-corrosive and a fully recyclable material; it can easily be cut on-site with no harmful shards or dust given off.

The ADD-A-STEP® ladder helps to reduce potential health and safety risks. At approximately 5kg per linear metre, the ladder is significantly lighter than galvanized or stainless steel alternatives and its yellow colour gives it high visibility properties, making it clearly visible when the manhole cover is raised. It is also a cheaper and more user-friendly alternative to traditional stainless steel manhole ladders. The ADD-A-STEP® system is fully compliant and tested to BS EN 14396, and is the only CE marked modular ladder system in the UK.
PLASTIC ENCAPSULATED LADDERS & RUNGS

This system ladder gives the user benefits of a durable plastic encapsulated ladder without the need to specify an exact length or fit on-site. In addition, a single specification can be used for all depths of access.

PRODUCT SPECIFICATIONS

BS EN 13101  Plastic Encapsulated Steps

PRODUCT APPLICATIONS

Concrete manholes and inspection chambers. Renovation of existing structures.

MATERIALS

The plastic encapsulated ladder has a bright yellow coating and is made from high impact virgin polypropylene copolymer plastic. If the ladder is to be subject to prolonged exposure to daylight then black or UV stabilised material should be specified. It is reinforced with structural steel.

PERFORMANCE

Pull out load: 7.5kN minimum, when fitted in accordance with manufacturer’s instructions

Deflection under load: 5mm maximum at 2.5kN

Permanent Set: 0 mm at 2.5kN

Impact: 20kg weight from 1 metre, no cracking

Chemical Resistance: At least pH2 to 12

Integrity of plastic: 2M ohm at 500 volts DC

Thickness of plastic: 3mm minimum

Minimum cross section: 25mm diameter

PRODUCT BENEFITS

• Excellent corrosion resistance
• Visibility
• No sharp edges
• Eliminates need to specify exact length or fit on-site
• Steel reinforcement gives predictable deflection under load without causing brittle failure

HANDHOLD ENTRY POLE SYSTEM

The handhold entry pole system is suitable for aiding maintenance engineers in the initial entry into a manhole from the surface level. Once fitted, the entry pole is a permanent fixture within the manhole, which is stored in the lowered position beneath the level of the cover. When required, the entry pole can be easily extended by simply hooking the easy-to-reach loop located at the top of the pole, pulling the handle upwards and twisting, locking into position. The handhold then provides a stable support to aid the entrance of the manhole, as well as a clear visual indication of the location of the manhole, when open. This helps prevent injury of other people in the area. Once the engineer has used the entry pole to aid their return to the surface, the pole is simply twisted to unlock it from the raised position and lowered back into the manhole, ready for the next time it is needed.

SPECIFICATION

The handhold has a pole length of 1200mm and can be assembled to give three different distances from the pole to the wall. This is designed to accommodate different cover positions.

PRODUCT BENEFITS

• Helps the user find the first step safely
• Creates visual aid to indicate location of manhole to other people in the area
• Easy to fit
• Easy to raise and lower
• High strength for ultimate safety
• Low cost
• Can be fitted to any Caswick step
• Two projections for round or flat walled manholes

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FP McCann’s precast concrete headwalls provide an ideal end connection point to outfall pipes into open watercourses such as rivers, culverts, collection and balancing ponds. They are a very efficient alternative to intrusive shuttering of soil embankments and costly on-site formwork with ready-mixed concrete, making them particularly suitable for use in hard-to-reach locations and in environmentally sensitive areas.

Where time constraints exist such as in tidal flow situations, concrete headwalls can be quickly positioned, secured and backfilled, providing immediate stability around the point of water discharge.

The FP McCann headwall range can accommodate pipe sizes from DN150 to DN2100 and is suitable for usage with box culverts. Additionally, accessories such as flap valves, penstocks, silt traps, handrails and safety grating can be added as part of the specification.

A front weir wall can be fabricated onto any of the standard headwall range, on request, and installation is quick and easy.

**KEY SITE SAFETY BENEFITS**

Safety hand rails can be used with our full range of headwalls. Health and safety risks are minimised because the construction work takes place off-site and installation is quick and easy.

Please note: Bespoke grates and handrails are available on request. Please contact FP McCann for information on correct installation

**PRODUCT BENEFITS**

- Headwalls are designed to EC2 and manufactured to BS EN 13369. (Full design calculations available to illustrate design assumptions).
- Prefabricated off-site
- Speedy and efficient to install
- Durable, long-lasting and low maintenance
- No on-site shuttering or formwork required
- Provides immediate stability and reduces soil erosion
- Valve and safety accessories available
- Cost-effective solution
- Significantly reduces the potential for floating debris to block the watercourse
- Installation with 2 or 3 lifting anchors
- Flap valves and grates available
- Reduces carbon footprint as no need to bring in lorries to site to pour in-situ
- The extended toe unit is available for all sizes making the entire headwall range compliant with Sewers for Adoption (SFA) and Sewers for Scotland
- Headwalls meet the requirements indicated in Fig. C.5 (typical details) of Sewers for Adoption

**ACCESSORIES**

Please note: Bespoke grates and handrails are available on request. Please contact FP McCann for information on correct installation

**HEADWALL RANGES**

<table>
<thead>
<tr>
<th>Headwall Range</th>
<th>Up to &amp; including Pipe Sizes</th>
<th>Max Pipe O.D. mm</th>
<th>Approx. Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW Small 100</td>
<td>300</td>
<td>450</td>
<td>1107</td>
</tr>
<tr>
<td>HW Small 150</td>
<td>300</td>
<td>450</td>
<td>1390</td>
</tr>
<tr>
<td>HW Medium 100</td>
<td>450</td>
<td>630</td>
<td>1540</td>
</tr>
<tr>
<td>HW Medium 150</td>
<td>450</td>
<td>630</td>
<td>2020</td>
</tr>
<tr>
<td>HW Large 100</td>
<td>900</td>
<td>1080</td>
<td>3020</td>
</tr>
<tr>
<td>HW Large 200</td>
<td>900</td>
<td>1080</td>
<td>4740</td>
</tr>
<tr>
<td>HW XL-T1</td>
<td>1100</td>
<td>1800</td>
<td>Part A / B 4725</td>
</tr>
<tr>
<td>HW XL-T2</td>
<td>1050</td>
<td>1260</td>
<td>Part A / B 4909</td>
</tr>
<tr>
<td>HW XL-T3</td>
<td>675</td>
<td>885</td>
<td>Part A / B 3480</td>
</tr>
<tr>
<td>HW XL-T4</td>
<td>375</td>
<td>505</td>
<td>Part A / B 2646</td>
</tr>
<tr>
<td>HW XXL-T1</td>
<td>2100</td>
<td>2460</td>
<td>Part A / B 10 150</td>
</tr>
<tr>
<td>HW XXL-T2</td>
<td>1500</td>
<td>1800</td>
<td>Part A / B 9005</td>
</tr>
<tr>
<td>HW XXL-T3</td>
<td>1050</td>
<td>1260</td>
<td>Part A / B 8421</td>
</tr>
<tr>
<td>HW XXL-T4</td>
<td>525</td>
<td>675</td>
<td>Part A / B 6919</td>
</tr>
</tbody>
</table>

NS: The abpove dimensions are in mm.

Fit a pipe lifter to your excavator and you can lay concrete pipes in around half the time with less cost and less hassle — but with greater safety.

To buy or rent the Pipe Lifter, contact BPOA’s supply partners visit: concretepipelifter.co.uk for details

All of the precast concrete drainage products manufactured by FP McCann feature a lifting system to allow safe off-loading and installation in an efficient manner. Each system is suited to each type of product.

The information below will allow you to determine what lifting attachments are required. This list is not exhaustive and may be subject to change. Please contact FP McCann’s technical department if you are unsure about any aspect of lifting. Please be aware that it is the contractor’s responsibility to ensure all lifts are safe and compliant with legal requirements.

If you do not have the correct lifting equipment, please contact our sales department who will be happy to assist. Please ensure you have ordered lifting equipment to arrive on-site, ready for when your load is delivered!

Unless otherwise stated, FP McCann will only supply the eyes or attachments. Correct chains will need to be sourced by the contractor. Unless otherwise specified, access to the trailer will be required to insert the attachments.

**KNOW YOUR LIFTERS**

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>LIFTERS REQUIRED</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>900 to 1800 Standard Chamber Rings and Soak-away</td>
<td>3No M24 Lifting Eye Pins inserted into holes through the ring wall</td>
<td>Eyes should be on the INSIDE of the ring.</td>
</tr>
<tr>
<td>2100 to 3000 Standard Chamber Rings and Soak-away</td>
<td>4No M30 Lifting Eye Pins inserted into holes through the ring wall</td>
<td>Eyes should be on the INSIDE of the ring.</td>
</tr>
<tr>
<td>3600 Standard Chamber Rings</td>
<td>3No RD30 Lifting Loops screwed into the top face of the ring</td>
<td>Please be aware that the loops are not intended for prolonged use.</td>
</tr>
<tr>
<td>4000 Standard Chamber Rings (2 part)</td>
<td>4No RD36 Lifting Loops screwed into the top face of the ring</td>
<td>Please be aware that the loops are not intended for prolonged use. Instructions for handling are shown on the product itself.</td>
</tr>
<tr>
<td>1200 to 1800 Wide-Wall Chamber Rings</td>
<td>3No St Spherical Head Clutch</td>
<td>Attach to the OUTSIDE of the ring.</td>
</tr>
<tr>
<td>300 to 1200 Standard Pipes and Fittings</td>
<td>Pipe Grab (below) or Slings</td>
<td>For prolonged use. Instructions for handling are shown on the product itself.</td>
</tr>
<tr>
<td>1350 to 2100 Standard Pipes and Fittings</td>
<td>10t Spherical Head Clutch and Chain Sling Set</td>
<td>Clutches and chains allow safe lift and easy installation of units.</td>
</tr>
<tr>
<td>2400 Standard Pipes and Fittings</td>
<td>20t Spherical Head Clutch and Chain Sling Set</td>
<td>12-20 tonne shackles 2 leg lifting chain only</td>
</tr>
<tr>
<td>All Diameters of Standard Cover Slabs</td>
<td>None</td>
<td>Chain Hooks can be attached directly to all of our standard slabs without further equipment required.</td>
</tr>
<tr>
<td>Small Headwalls</td>
<td>2 No. 24mm Lifting Loops</td>
<td>Please be aware that the loops are not intended for prolonged use. Instructions for handling are shown on the product itself.</td>
</tr>
<tr>
<td>Medium &amp; Large Headwalls</td>
<td>3 No. 24mm Lifting Loops</td>
<td>Please be aware that the loops are not intended for prolonged use. Instructions for handling are shown on the product itself.</td>
</tr>
</tbody>
</table>

MECHANICAL GRABS - The quicker, easier and safer option for handling rings and pipes. These attachments connect to site plant and allow off-loading and installation without any need for access to the trailer bed. Mechanical grabs are available for pipe diameters DN300 to 1200 and for ring diameters of DN900 to 3000. For further information, contact your sales representative. Easy-to-use, headwalls and flow-control chambers come supplied with the correct lifts ready for use. Castings should be handled with a mechanical grab. All lifts supplied by FP McCann come with appropriate certification and are ready for use. Lifters should be incorporated into the contractors lifting equipment inspection regime under LLOP regulations or disposed of after use.

**MECHANICAL CONCRETE PIPE LIFTER**

Safer. No operative needed on vehicle during off-loading or in trench during pipe laying.

Easier. Simple to use. No special equipment & minimal training required.

Faster. Around 50% saving on installation time.

Cheaper. Fewer operatives plus greater productivity.

The Concrete Pipe Lifter makes light work of the installation of waste water pipelines. Within seconds, it can be attached to your excavator using a quick-hitch coupling. There are no hydraulic links or additional energy requirements.

There is no need for anyone to stand on the bed of the vehicle during off-loading (the biggest cause of accidents during pipe laying). There’s no need for anyone to stand in the trench during installation and there are no slings or chains to trip hands and fingers. The whole operation is around 50% faster and you can reduce the size of your pipe laying team, so costs are lower too.

The Concrete Pipe Lifter is suitable for standard UK specification BS EN1916 concrete pipes from DN300 to DN1200.

The Manhole Lifter is a companion device that makes lifting manhole rings a safe and easy, one-man operation. It eliminates the risk of vehicle falls during off-loading. There are two versions available for precast concrete manhole rings from DN900 to DN1800 and from DN1200 to DN3000. Its capable of lifting rings from 250 mm to 1000 mm deep.
SAFE LIFTING OF STANDARD PRECAST CHAMBER RING SECTIONS

When lifting chamber ring sections with lifting eyes, it is important that the eyes are passed from the inside of the ring and the nut is attached to the outside of the ring to secure the pin. Hooks must be attached to the eyes on the inside of the chamber and lifted in a safe and controlled manner.

Lifting with the pins installed in any other way is dangerous and should not be attempted in any circumstances.

Lifting with the eyes on the outside is NOT safe and can crush the concrete section. When using lifting eye bolts with the nut not attached, the ring can become damaged or the eyes can pull out of the concrete.

Please be aware that precast concrete rings are fragile. They have thin walls and are not reinforced, and can be easily broken when handled incorrectly.

INCORRECT

Eyes passed through from the outside with hooks connected to the outer face of the ring. Pins can come loose if nuts not applied or the self-locking mechanism has not engaged and the concrete can be crushed by the chains.

CORRECT

Eyes passed through from the inside with the plate and nut applied to the thread on the outside, or self-locking mechanism engaged. Hooks are connected to the inside of the ring to allow for a safe lift with straight chains.

For safe lifting in situations when access to the product is restricted (i.e. when stacked high or on a trailer bed, a mechanical grab should be employed). Wide wall chamber rings are lifted via a different method (see page 18).

Bespoke chamber components such as Easi-Bases™ and StormBrake™ Flow Control Chambers will feature a separate handling method. Reference should be made to appropriate drawings or handling information.

STORMSTORE™ RANGE OF TANKS & CHAMBER SYSTEMS

FP McCann’s Stormstore™ range of precast tank and chamber systems is the most extensive in the UK. Products manufactured include StormTank™ bespoke precast concrete panel system, StormChamber™ bespoke precast concrete chamber system, a precast concrete storm and waste water management system called Modular Tank System and StormHold™ stormwater management system. Complementary products include StormCleanser™ hydrodynamic separator, StormBrake™ vortex flow control system and StormChannel™ heavy-duty precast concrete slotted drainage channel.

KEY ADVANTAGES OF OUR RANGE

• From receiving the specification, designs can be returned within 2 days
• Complete design package provided, including calculations and drawings
• Manufactured off-site, including factory-fitted pipework and flow control connections, ensures consistent quality, lower construction costs, faster installation and lower health and safety issues
• Design service life of 100 years
• Overall cost of the project can be estimated no matter how complicated the design
• Bespoke designs can be used for reproductions and for future alterations
• No vertical shuttering required, unless an in-situ floor is installed
• Complies with all relevant British Standards and Eurocodes
FP McCann’s precast tank and chamber systems are designed using parametric 3D modelling. Specification details such as length, width, depth and loading category are entered into our in-house system by our design team; along with additional options such as pipe entries, which will instantly produce the drawings, schedules, price etc.

All multi-purpose chamber and panel systems are designed to BS EN 1992 and are CE marked.

THE DESIGN PROCESS...

1. Design parameters are entered on the system by FP McCann
2. Rudimentary details produced, including price and drawing
3. Once approved, additional design details are entered on the system
4. System produces automatic production drawings, steel schedules, customer drawings and dedicated calculations
5. Approval obtained from client by signing drawings and calculations
6. Production commences

PARAMETRIC DESIGN
ONE DESIGN FOR ALL STRUCTURES

FP McCann’s StormChamber™ multipurpose chamber system is a single piece chamber system made up of a base unit, risers and cover slab to suit chamber depth and the specific application. A 3D dimensional drawing is available on request. This flexible modular system is suitable for most tank and chamber applications.

STORMCHAMBER™ – INTERNAL DIMENSIONS

<table>
<thead>
<tr>
<th>Size Range</th>
<th>Internal Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1250 x 1250mm</td>
<td>2500 x 2000mm</td>
</tr>
<tr>
<td>1500 x 1500mm</td>
<td>2500 x 2500mm</td>
</tr>
<tr>
<td>2000 x 1500mm</td>
<td>3000 x 2500mm</td>
</tr>
<tr>
<td>2000 x 2000mm</td>
<td>3000 x 3000mm</td>
</tr>
</tbody>
</table>

The above size range do not generally have toe units.

Sizes above 3000x3000mm up to a maximum size of 5000x3000mm. The length and width of these chambers can be adjusted up/down in 250mm increments to suit requirements. The height of the chamber is flexible up to 6 metres, with 8 metres possible, subject to calculations.

If chamber dimensions are critical and don’t fit within the above range, we can usually offer a solution.

TYPICAL CONSTRUCTION/ INSTALLATION

(Subject to specific application)

- Base unit is placed on level concrete blinding or type 1 sub base
- Riser units are placed onto the base unit, if required
- Hydrophilic swell, butyl sealant and bearing strips are placed in the joint between the base unit and riser units
- Internal walls are fitted at factory or at site and are connected with threaded rod, nuts and washers
- Pipework is connected and backfilling takes place
- Cover slab is bedded on with high strength mortar, contained to the inside by butyl sealant strip

You should consider the overall installed cost of the chamber when taking into account all the benefits and cost savings detailed below, not the upfront material cost.

STORMCHAMBER™ – BENEFITS

- Concrete surround is not required, saving time and money on site installation. Up to 85% reduction in on-site construction programme
- Pipe penetrations are done at the factory, avoiding the need for cutting or core drilling on site
- Weir walls, flow controls etc can be factory fitted, if required. Up to 95% reduction in site man-hours for pit construction
- Virtual elimination of on-site waste
- 55% reduction in lorry movements for deliveries
- Traffic calming/ management reduction
- Elimination of need for confined space working
- Significant reduction in site noise
- Clear openings to suit requirements
- Reduces enclosed spaces work and working at depth
- Reduction in Health and Safety and Dynamic Risk Assessment issues
- Enhanced functionality - product can be designed for future alterations
- A flexible modular system with a high quality factory finish
- Greatly reduces long term maintenance costs
- Smaller units may be adjusted using alternative increments, if required

FP McCann’s StormChamber™ multipurpose chamber system is a single piece chamber system made up of a base unit, risers and cover slab to suit chamber depth and the specific application. A 3D dimensional drawing is available on request. This flexible modular system is suitable for most tank and chamber applications.
The StormTank™ multipurpose panel system is an underground structure consisting of wall panels, an in-situ or precast concrete base and cover slab, which are assembled on-site by the contractor or an approved installer using a range of standard jointing types. The panels can be made with cast-in pipe connections, recesses and openings and have penstocks or flap valves pre-installed. Internal weir-walls, overflows, underpasses and baffle walls can also be incorporated into the structure.

This system can be used for a variety of uses such as CSO chambers, storage tanks, large size manholes, pumping stations, valve chambers etc. The main advantage of using this system is that there is no size limitation, except for the height, which cannot exceed six metres, with a two metre overburden. A detailed installation guide is available. Please contact FP McCann for further details.

PRODUCT APPLICATIONS
- Air-infiltration chambers
- Hydro-brake chambers
- Large CSO chambers
- Water storage tanks
- Pumping stations
- Attenuation tanks
- Large manholes
- ASP structures
- Sludge tanks
- Basements
- Headwalls

MODULAR TANK SYSTEM

StormStore (storm and waste water management system) provides a multifunctional, durable solution for the detention, retention, infiltration, harvesting and treatment of water, comprising of a combination of standardised precast concrete elements, which are designed to solve your storm and waste water management needs.
MANUFACTURING BENEFITS
• Manufactured locally
• Bespoke inlets and outlets
• An adaptable system which can cater for the 1 in 30 and 1 in 100 year storm event
• FP McCann uses state-of-the-art tooling to manufacture products of the highest quality
• A fully modular system encompassing inherent health and safety benefits

MAINTENANCE AND CLEANING BENEFITS
• The StormStore system excels where most other systems fail, incorporating features that provide maximum system performance and life cycles. As with all stormwater systems, inspection and maintenance of the StormStore system is vital for satisfactory performance and extended life cycle of the stormwater management system
• A self-cleansing and easy maintainable system which includes silt collection areas
• Designed to create safe walking channels during the maintenance, cleaning and inspection process
• Easily inspected visually, offering reduced inspection costs
• System provides clear lines of sight to aid health and safety during maintenance and cleaning

DESIGN BENEFITS
• Complies with BS EN 1992
• Grated inlets may also be incorporated to accommodate surface stormwater flows directly into the StormStore system, reducing the requirements for conventional site drainage components. Any grated inlets may also include pre-treatment devices for pollutant removal
• Standard units reduce design cost
• No requirement for in-situ structural topping to roof slab – offering reduced fill depths and cost savings
• Fully accessible system with the option of including step rungs or ladders
• A fully modular system that brings with it inherent health and safety benefits
• The design and performance meets CESWI 7th edition
• Standard internal heights from underside of roof slab to the channel inverts of 1500, 1800, 2100 and 2400mm. All available with either 1 in 4 or 1 in 20 benching gradients
• The system fully meets CE Marking requirements
• The system and installation is approved by WRc
• Complies with Sewers for Adoption 7th edition and Sewers for Scotland 3rd Edition 2015

BENEFITS OF MODULAR TANK SYSTEM
• Precast elements manufactured using concrete with a DC4 design chemical class in accordance with BPE SD1
• Up to 2.5m overburden with a 10kN/m2 surcharge
• 100 year design life
• Complies with watertightness class 1 of BS EN 1992-3
• Assumed water table at roof slab level
• Suitable for use within wastewater and stormwater drainage systems

INSTALLATION BENEFITS
• Potential savings on temporary works
• Reduced disruption due to speed of installation
• No need to wait 28 days before back filling. Backfilling can follow on after installation
• No requirement for in-situ concrete topping to roof slab
• No requirement for on-site in-situ benching
• No requirement for in-situ joint-stitching
The production of water-impermeable surfaces in construction is inevitable. This includes roof areas on buildings, car parks, loading bays and road pavements. The provision of these surfaces interrupts the natural drainage process, creating increased stormwater run-off in respect of both volume and flow rate.

In many cases, this increase in stormwater flow and volume is a problem as the local sewer or watercourse does not have the sufficient capacity to cope. This problem could be alleviated by an increase in the size of the stormwater sewer or watercourse, thus providing the capacity within the drainage system to cope with the increased surface water. This, however, may be expensive, cause major infrastructure disruption, and can often be completely uneconomic.

Legislation under Planning Policy Statement 25 and Building Regulations approved Document H3 for flood risk assessment (SuDS), has created the need for planners and developers to design and install effective stormwater management systems.

The types of systems that can be employed to overcome these issues are well documented and varied. Quite often they can be very technically demanding in their operation, maintenance and construction. The selection of a system will depend on site constraints, position, expected loading, geographical limitations and inevitably cost.

The Storm-Hold system offers a complete solution to the stormwater attenuation problem and utilises a tried, tested and approved method of stormwater storage. FP McCann can provide the complete package of design, product specification and supply of products and installation advice.

**PRODUCT FEATURES**

- Available in a range of sizes
- Can use and combine a number of techniques and products such as pipes, culverts, tanks, manifold systems and soakaways
- A complete solution with all connections
- Established and familiar products
- Can be laid in short lengths
- The system can be adapted to load-bearing and non-load bearing applications
- 120 year design life
- Adoptable by water companies
- Manufactured in accordance with a BSI accredited quality management system conforming to ISO 9001
- Available straight from stock

**STRUCTURAL**

The inherent structural strength of concrete is well documented and can be designed to meet the severest of loading criteria. Storm-Hold systems can be tailored to suit low load situations, for example, when the tank is to be situated below verges or gardens.

**BENEFITS**

- System can be designed specifically to suit the application
- Quick construction using a standard joint
- No need for fabrication on-site or external specialist contractors
- Straightforward installation using known techniques, no need to retrain
- Can be installed under roads and car parks
- Can cope with construction plant loading
- Floation is not a concern – no need for geotechnical anchors when located below the water table
- Long term solution

**DESIGN**

The design of the system can be tailored to suit most structural and hydraulic criteria.

**RELEVANT LEGISLATION/ INFORMATION**

- Department of Communities and Local Government (CLG)
- Future Water February 2008, Department for Environment, Food and Rural Affairs (DEFRA)
- The Pitt Review, Learning Lessons from the 2007 floods by Sir Michael Pitt
- The Code for Sustainable Homes February 2008, Department for Communities and Local Government (CLG)
- The SuDS Manual 2007, CIRIA C697
- Sustainable drainage systems – Hydraulic, structural and water quality advice 2004, CIRIA C609
- Flood and Water Management Act 2010

FP McCann’s Storm-Hold systems can be designed to suit a wide range of construction projects and drainage schemes. Precast concrete attenuation components include products such as side entry manholes, stop and bends and spigot and socket end wall pipes. These products can either be engineered into an on-line sewer pipe system or utilised off-line as single or multiple stormwater holding tanks. All FP McCann storm attenuation products comply with the requirements set out within ‘Sewers for Adoption 7th Edition’ and are made from Kite marked precast concrete components, which comply with the relevant Standards: BS EN 1916 / BS 5911-1 and Manholes BS EN 1917.
EXAMPLES

Spigot and Socket Tank End Wall Pipes
(Adaptor/Fitting - BS EN 1916)
• Consists of a standard 2500mm long flex pipe with a cast-in end wall.
  Inlet/outlet holes are generally cored into the wall.

Side Entry Manholes (Junction - BS EN 1916)
• Entry shafts factory-fitted to pipes 900mm diameter and above.
  Ideal for use in restrictive locations where conventional manhole build is not possible.
• Can be supplied in left or right hand configuration. Access steps can be fitted, if required.
• Can be used in conjunction with an end wall pipe.
  Additional chamber sections or a reducing slab can be used to build height.

Stop End Bends (Bend - BS EN 1916)
• Tank end access for pipes 900mm diameter and above.
  Access steps fitted, if required.
  Drainage inlet/outlet holes cored, as requested.
  Additional chamber sections or a reducing slab can be used to build height.

Side Entry Manhole with Bend (Junction/Bend - BS EN 1916)
• 2500mm long Easi Flex standard pipe with cast-in bend.
  Entry shaft fitted to pipes 900mm diameter and above.

Mid Entry Manholes (Junction/Bend BS EN 1916)
• Standard pipe with a sealed manhole joint, complete with fitted slab.
  Manhole joint and slab factory-fitted to pipes 1200mm diameter and above.
  Drainage inlet/outlet holes cored, as requested.
  Access steps factory-fitted, if required.

PRODUCT BENEFITS

1. Flexibility of design – adaptable to meet client requirements.
2. Products can be used in space restrictive on-line sewer systems, providing the required storage volume.
3. Reduction in construction times.
4. Quality assured and kite marked products used.
5. Sustainable systems with design life in excess of 100 years.
6. Site safety benefits related to reduction of man hours spent in excavation.
7. Ease of access for maintenance.
8. Can be linked to other SuDS related systems such as rainwater capture and re-use.

Note:
Concrete haunching should be used to provide local stiffening to the concrete pipes with manhole entries. Use a minimum 150mm thickness surround to the pipes, extending to a height of 300mm above the pipes, in order to support the shaft joint.
BOX CULVERTS

TYPICAL CULVERT

Units are available in internal span sizes from 1000mm to 6000mm and internal heights from 500mm to 3600mm, with unit lengths to a maximum of 2000mm, dependent on final mould configuration (please refer to internal dimensions chart opposite).

The proven strength and performance characteristics of precast concrete box culverts, together with their excellent service life, make them ideal for a wide variety of civil engineering and construction applications. Box culvert sections can be manufactured in a variety of internal profiles and sizes, offering exceptional versatility in the uses to which they can be applied.

In addition to the more common use for diverting water courses, box culverts have been used in an array of applications including balancing tanks, pedestrian subways, access shafts, service tunnels, sea outfalls, road crossings and many other situations where the whole life cost consideration requires strength, durability and economy to be of paramount importance.

Unlike other materials such as steel, precast concrete box culverts do not require additional treatments to prolong their life or improve performance. The concrete surface will not rust and the smooth internal finish of the box culvert ensures optimum flow of water through the concrete structure.

Precast concrete box culverts fulfil the current design life requirements for built structures. With minimum maintenance and the ability to provide many years of service, precast concrete box culverts are the most cost-effective means of diverting water courses, especially with the ever present risk of corrosive elements in the water or soil.

Whilst the methods and procedures for the installation of precast box culvert units are familiar to contractors, careful attention to detail will lead to safer working, a smoother flow of operations and a higher standard of finished culvert. Box Culvert installation and jointing details can be downloaded from www.fpmccann.co.uk/box-culverts.

This guide provides a reliable checklist for anyone engaged in the installation of box culverts. It is published to encourage good practice in the use of precast box culverts.

INSTALLATION GUIDELINES

For installation and jointing details, refer to the Box Culvert Installation Guide which can be downloaded from our website. For installation and jointing details, refer to the Box Culvert Installation Guide which can be downloaded from our website.

INTERNAL DIMENSIONS

(Based on flat invert culvert units) Key: Flow area m² / Discharge rate m³/sec

<table>
<thead>
<tr>
<th>Width mm (internal span)</th>
<th>Discharge rate m³/sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>2.46 0.59 0.71 0.80 1.01</td>
</tr>
<tr>
<td>1200</td>
<td>3.56 0.89 0.98 1.04 1.22</td>
</tr>
<tr>
<td>1500</td>
<td>3.61 0.97 0.92 1.12 1.17 1.52 1.71</td>
</tr>
<tr>
<td>1800</td>
<td>3.60 0.74 0.95 1.04 1.50 1.75 2.00</td>
</tr>
<tr>
<td>2000</td>
<td>3.75 0.92 1.13 1.37 1.81 2.33 2.57 2.81 3.05</td>
</tr>
<tr>
<td>2400</td>
<td>4.01 1.05 1.26 1.47 2.07 2.56 2.74 3.52 4.13</td>
</tr>
<tr>
<td>2700</td>
<td>4.26 1.18 1.39 1.60 2.19 2.67 2.85 3.64 4.32</td>
</tr>
<tr>
<td>3000</td>
<td>4.68 1.30 1.52 1.73 2.33 2.83 3.22 3.93 4.63</td>
</tr>
<tr>
<td>3300</td>
<td>5.15 1.40 1.64 1.85 2.46 2.96 3.36 4.07 4.73</td>
</tr>
<tr>
<td>3600</td>
<td>5.69 1.49 1.71 1.92 2.53 3.03 3.43 4.13 4.83</td>
</tr>
</tbody>
</table>

Please note: These figures are a guide only and will be dependent on the mould configuration used in manufacture. Discharge rates are calculated using Colebrooke-White equation for a fully walled rectangular under uniform flow conditions and assuming a flat invert culvert unit. The assumed laying gradient (s) is 1:1000 with a roughness co-efficient (n) of 0.9. Where different parameters may be required, please consult the office number below to discuss your specific requirements.

The hydraulic design of a culvert should always be undertaken by the over-crown designer, as they are able to take into account the upstream and downstream conditions and the impact of any obstructions such as embankment, restriction due to site or building etc. for the culvert to be free flowing at all times. Due to the lack of this information, FP McCann will only give discharge rates for an idealised culvert, which may not suit the local conditions.

BENCHING

Combined with either a channel or as a "Vee", benching improves self-cleansing flow rates.

MAMMAL LEDGES

Cast in mammal ledges allow access through the culvert to wildlife without the requirement for extra site provisions.

SPECIALS

Bespoke units accommodating a variety of features can be manufactured to our customers' design requirements.

DRAINAGE WALLS

FP McCann offers a bespoke headwall solution suitable for box culverts. These headwalls are made up of a number of precast panels and tied with an in-situ stitch.
AGRICULTURE
Lydney 01594 847500  Grantham 01476 562277

ARCHITECTURAL PRECAST
London 020 3905 7640

BOX CULVERTS
Weston Underwood 01335 361269

BUILDING PRODUCTS
Cadeby 01455 290780

DOCK LEVELLERS
Weston Underwood 01335 361269

DRAINAGE
Ellistown 01530 240000 (England/Wales)  Magherafelt 028 7954 9026 (Scotland/NI)

FENCING
Cadeby 01455 290780

FILTER BED SYSTEMS
Littleport 01353 861416

FLOORING
Weston Underwood 01335 361269  Uddingston 01698 803300

POWER & INFRASTRUCTURE
Littleport 01353 861416

RAIL
Littleport 01353 861416

SPECIALIST PRECAST
Littleport 01353 861416

STRUCTURAL PRECAST
Byley 01606 843500  Grantham 01476 562277

TANKS & CHAMBERS
Weston Underwood 01335 361269

TUNNELS & SHAFTS
Cadeby 01455 290780

WALLING
Grantham 01476 562277  Lydney 01594 847500
Uddingston 01698 803 300 (Scotland)  Magherafelt 028 7954 9026 (NI)