

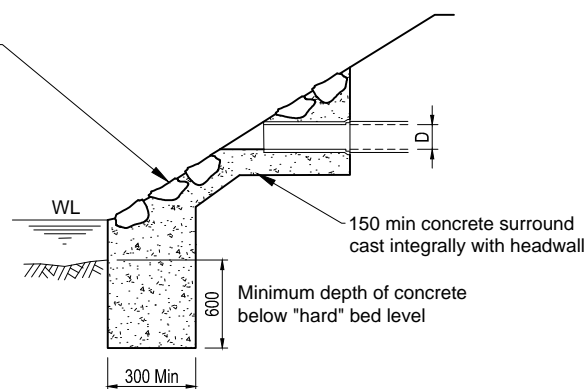
**TYPICAL DETAIL E**  
**TYPICAL OUTFALL DETAIL TYPE 2**

Local conditions may dictate the use of sheet piles driven to a suitable designed depth below bed level of the watercourse.  
Alternatively a concrete toe beam together with stone pitching to the bank of the watercourse as shown on Typical detail D must be used.

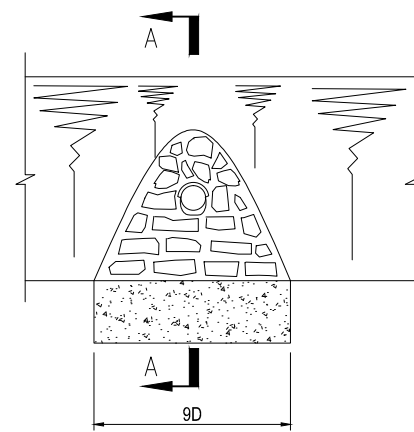
**NOTES**

1. All dimensions in millimetres
2. Generally the angle between the direction of flow of the receiving watercourse and the outfall pipe should be 45°
3. All reinforced concrete edges to be finished with a 25 x 25 fillet
4. Min cover to reinforcement in the top face of the base slab to be 40
5. The bed and opposite bank of the watercourse may, in certain circumstances need to be protected by 225 to 300 thick uncoursed rubble pitching laid on a 100 thick bed of FND2 concrete (Note 8) and pointed in Class M1 Mortar. The stone for pitching shall consist of large smooth faced stones roughly dressed square and shall be of a hard durable and inert material. Bunter sandstone, Keuper waterstones and Carboniferous shales and mudstones are not to be used
6. An Outlet Grille as shown on Typical Detail G must be provided on all outfalls where the pipe size exceeds 450mm. Where pipe diameters are 375 to 450, 20 dia. stainless steel bars are to be provided across outlet at max. 120mm c/c leaving 100mm max. clear opening
7. Where outlets have a flap valve, a special detailed grille must be provided on all outlets 375mm diameter and above
8. Secure handrailing shall be supplied where a person may fall 2 metres or more or where a fall of less than 2 metres carries an increased risk of injury due to the landing surface
9. FND2 to be used for soil conditions Sulphate class 1 only. Designated mix references FND3, FND4A & FND4B to be used in soil conditions with sulphate classes 3,4A and 4B respectively (refer to specification clause 4.3.1)

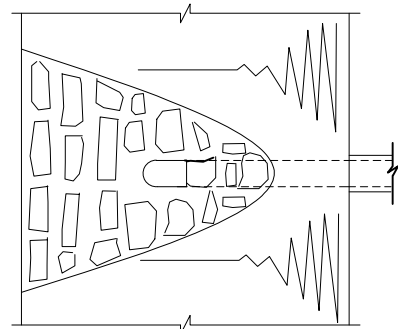
225 to 300 thick uncoursed random rubble pitching on 100 thick Grade FND2 (Note 4) concrete and pointed in Class M1 mortar



**SECTIONAL ELEVATION A-A**



**SECTION A-A**



**PLAN**

**TYPICAL DETAIL F**  
**TYPICAL OUTFALL DETAIL TYPE 3**  
**(MAXIMUM PIPE SIZE 225mm)**

**NOTES**

All dimensions in millimetres

1. The bed and opposite bank of the watercourse may, in certain circumstances, need to be protected by 225 to 300 thick uncoursed rubble pitching laid on 100 thick bed of FND2 concrete (Note 4) and bed of FND2 concrete (Note 4) and pointed in Class M1 mortar. The stone for pitching shall consist of large smooth faced stones roughly dressed square and shall be of a hard durable and inert material. Bunter sandstones, Keuper waterstones and carboniferous shales and mudstones are not to be used
2. Maximum diameter 225mm
3. FND2 to be used for soil conditions sulphate class 1 only. Designated mix references FND3, FND4A & FND4B to be used in soil conditions with sulphate classes 3,4A and 4B respectively (refer to specification clause 4.3.1)

**CURRENT ISSUE INFORMATION**

A	SC	DH	SD	FOR INFORMATION	15.04.16
VERSION	DRWN	CHKD	REVD		DATE



UNITED UTILITIES LTD  
DEVELOPER SERVICES  
DETAIL 12  
TYPICAL OUTFALL DETAIL  
TYPE 2 & TYPE 3

SCALE	NTS	SHEET SIZE	A3
DRAWING NUMBER	STND/19/012	REVISION	A