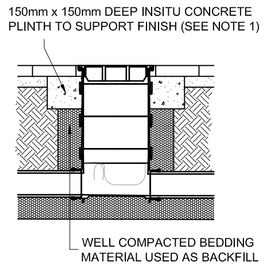
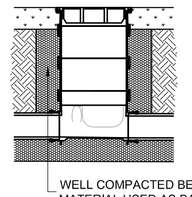


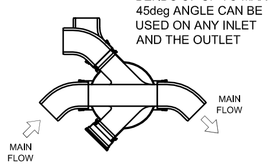
ACCESS GULLY CONNECTION
SCALE - 1:20



MINI ACCESS CHAMBER (PAVED AREAS)
SCALE - 1:20



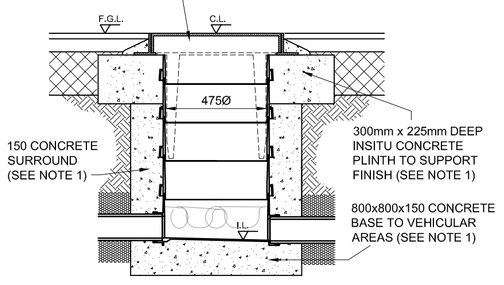
MINI ACCESS CHAMBER (SOFT LANDSCAPED AREAS)
SCALE - 1:20



WHERE CHAMBERS ARE FITTED ON 90° CORNERS ALWAYS USE THE MAIN CHANNEL BY FITTING A 45deg BEND ON INLET & OUTLET.

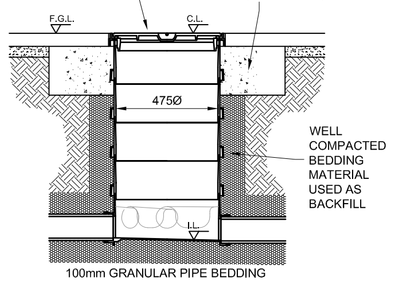
PLAN ON MINI ACCESS CHAMBER
SCALE - 1:20

M.H. COVER & FRAME (TO BS EN124) TO PROVIDE 600x600 CLEAR OPENING, BEDDED AND HAUNCHED WITH 1:3 CEMENT:SAND MORTAR, COVER TO BE CLASS C250 (SUITABLE FOR USE IN CAR PARKS, FORECOURTS & AREAS WITH SLOW MOVING TRAFFIC), FOR REDUCED ACCESS (RA) PPIC's A SEPARATE REDUCED ACCESS COVER (OR OTHER MEANS OF RESTRICTED ENTRY) IS ALSO TO BE PROVIDED AT THE LOWER LEVEL.

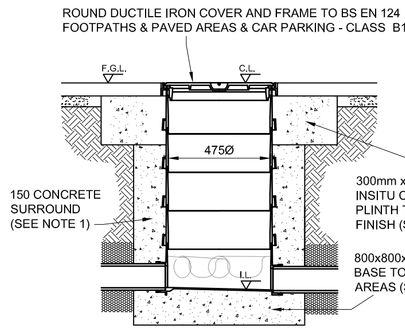


POLYPROPYLENE INSPECTION CHAMBER LOCATED IN 'SHARED ACCESS' AREAS (ACCESSABLE TO BIN WAGONS ETC)
SCALE - 1:20

ROUND DUCTILE IRON COVER AND FRAME TO BS EN 124 FOOTPATHS & PAVED AREAS & CAR PARKING - CLASS B125

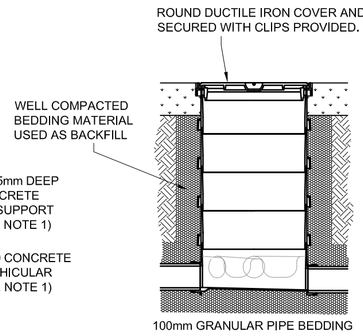


POLYPROPYLENE INSPECTION CHAMBER LOCATED IN HARD LANDSCAPED AREAS (NOT ACCESSABLE TO WHEELED VEHICLES)
SCALE - 1:20



POLYPROPYLENE INSPECTION CHAMBER LOCATED IN PRIVATE DRIVEWAY AREAS (ACCESSABLE TO DOMESTIC VEHICLES)
SCALE - 1:20

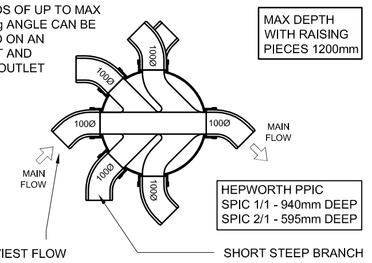
ROUND DUCTILE IRON COVER AND FRAME SECURED WITH CLIPS PROVIDED.



POLYPROPYLENE INSPECTION CHAMBER LOCATED IN SOFT LANDSCAPED AREAS
SCALE - 1:20

BENDS OF UP TO MAX 45deg ANGLE CAN BE USED ON AN INLET AND THE OUTLET

MAX DEPTH WITH RAISING PIECES 1200mm



HEAVIEST FLOW SHOULD ALWAYS BE DIRECTED THROUGH MAIN CHANNEL

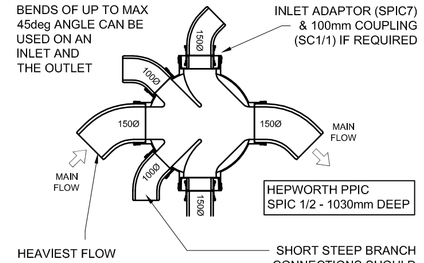
SHORT STEEP BRANCH CONNECTIONS SHOULD PREFERABLY BE CONNECTED VIA A 45° INLET USING A BEND WHERE NECCESSARY

WHERE CHAMBERS ARE FITTED ON 90° CORNERS ALWAYS USE THE MAIN CHANNEL BY FITTING A 45deg BEND ON INLET & OUTLET.

PLAN ON PREFORMED BENCHING TO POLYPROPYLENE INSPECTION CHAMBER
SCALE - 1:20

BENDS OF UP TO MAX 45deg ANGLE CAN BE USED ON AN INLET AND THE OUTLET

INLET ADAPTOR (SPIC7) & 100mm COUPLING (SC1/1) IF REQUIRED



HEAVIEST FLOW SHOULD ALWAYS BE DIRECTED THROUGH MAIN CHANNEL

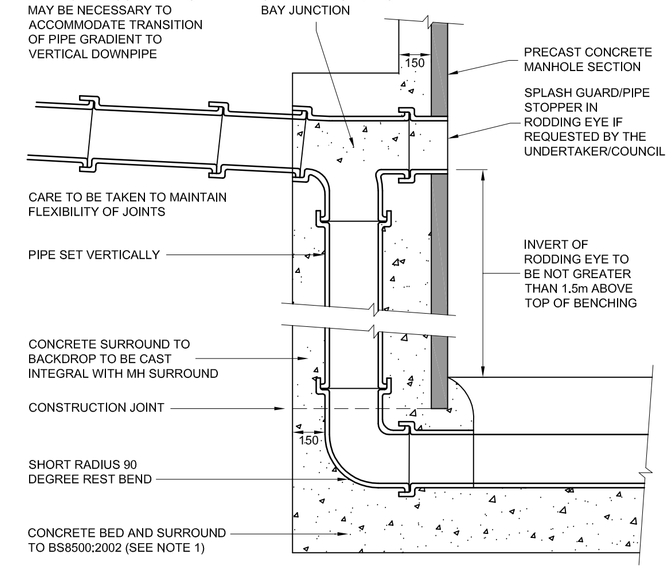
SHORT STEEP BRANCH CONNECTIONS SHOULD PREFERABLY BE CONNECTED VIA A 45° INLET USING A BEND WHERE NECCESSARY

WHERE CHAMBERS ARE FITTED ON 90° CORNERS ALWAYS USE THE MAIN CHANNEL BY FITTING A 45deg BEND ON INLET & OUTLET.

PLAN ON PREFORMED BENCHING TO POLYPROPYLENE INSPECTION CHAMBER
SCALE - 1:20

ADDITIONAL ROCKER PIPES MAY BE NECESSARY TO ACCOMMODATE TRANSITION OF PIPE GRADIENT TO VERTICAL DOWNPIPE

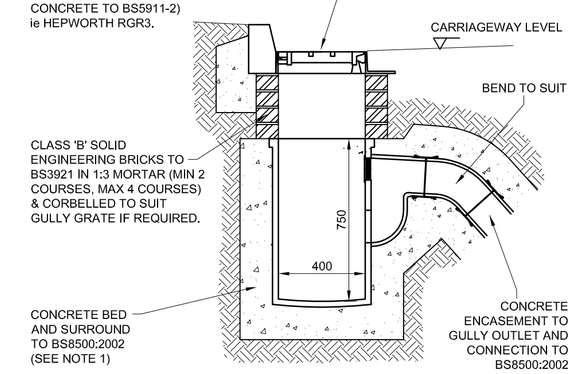
STANDARD TUMBLING BAY JUNCTION



TYPICAL VERTICAL BACKDROP DETAIL
SCALE - 1:20

400mmØ x 750mm DEEP TRAPPED ROAD GULLY WITH RODDING EYE AND STOPPER (VITRIFIED CLAYWARE TO BS65 OR PRECAST CONCRETE TO BS5911-2) ie HEPWORTH RGR3.

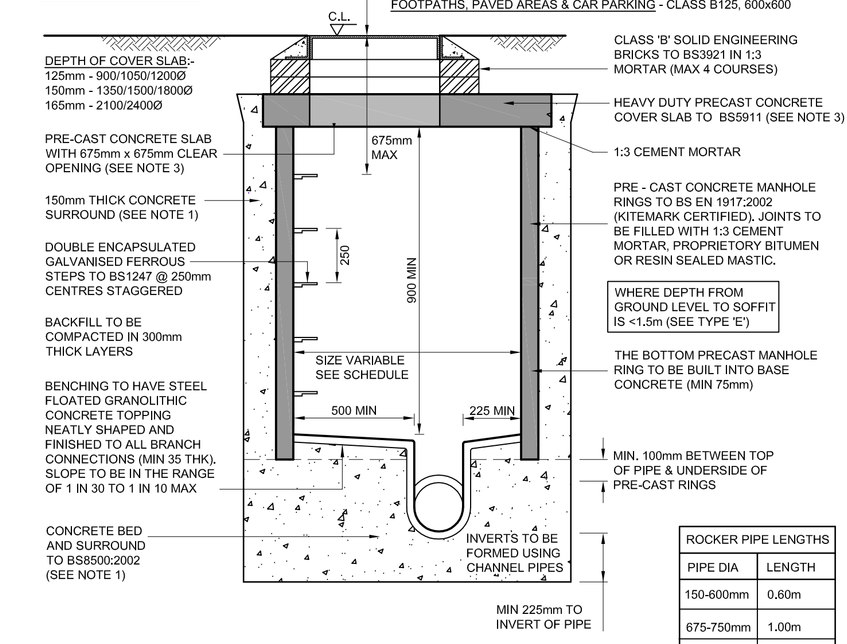
HINGED CAST IRON GULLY GRATE AND FRAME TO BS EN124:1994 (GRADE C250 OR D400) BEDDED ON 10mm 1:3 SAND:CEMENT MORTAR.



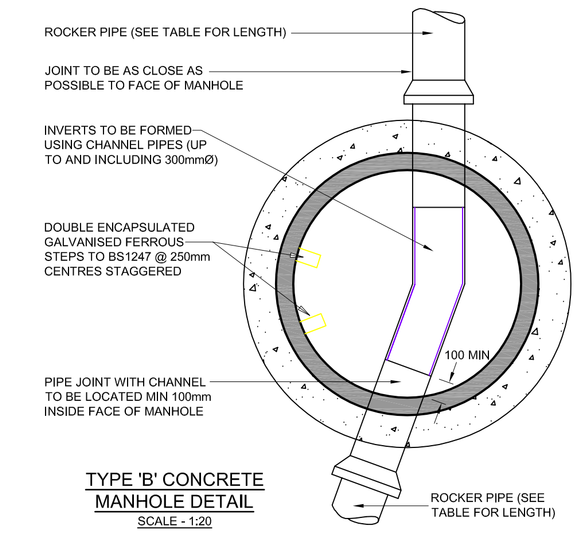
TYPICAL ROAD GULLY DETAIL
SCALE - 1:20

MAX DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE TO BE 3.0m

M.H. COVER & FRAME TO BS EN124 BEDDED AND HAUNCHED WITH 1:3 CEMENT:SAND MORTAR, COVERS TO BE AS FOLLOWS:-
CARRIAGEWAY OF ROADS (INC PARKING AREAS) - CLASS D400, 600x600
FOOTPATHS, PAVED AREAS & CAR PARKING - CLASS B125, 600x600



ROCKER PIPE LENGTHS	
PIPE DIA	LENGTH
150-600mm	0.60m
675-750mm	1.00m
825 & over	1.25m



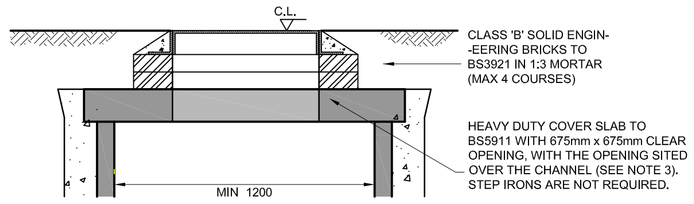
TYPE 'B' CONCRETE MANHOLE DETAIL
SCALE - 1:20

NOTE 1
CONCRETE BASE SLABS AND SURROUNDS TO BE GEN 3 CONCRETE TO BS8500:2002 TO SATISFY DESIGN CHEMICAL CLASS DC-1 AS SPECIFIED IN BRE SPECIAL DIGEST 1:2005 AND TABLE A7 OF BS8500-1:2002.

NOTE 2
A FLEXIBLE JOINT SHALL BE PROVIDED AS CLOSE AS IS FEASIBLE TO THE OUTSIDE FACE OF ANY STRUCTURE INTO WHICH A PIPE IS BUILT, COMPATIBLE WITH THE SATISFACTORY COMPLETION & SUBSEQUENT MOVEMENT OF THE JOINT. THE LENGTH OF THE ROCKER PIPE AWAY FROM THE STRUCTURE SHALL BE 600mm (FOR PIPES OF NOMINAL DIAMETER 150-600mm)

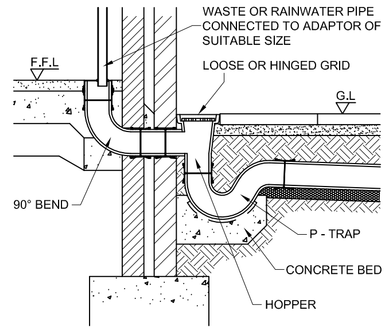
NOTE 3
COVER SLABS MUST CARRY THE BSI KITEMARK (OR MAY BE REJECTED BY THE INSPECTOR), WHERE THE CLEAR OPENING OF THE KITE MARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME A LOAD BEARING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN TO 600mm X 600mm. PLEASE REFER TO CONCRETE PIPES SYSTEMS ASSOCIATION (CPSA) TECHNICAL BULLETIN ISSUED AUTUMN 2004 FOR KITEMARKED COVER SLAB OPENING SIZES.

M.H. COVER & FRAME TO BS EN124 BEDDED & HAUNCHED WITH 1:3 CEMENT:SAND MORTAR.
CARRIAGEWAY OF ROADS (INC PARKING AREAS) - CLASS D400, 675x675
FOOTPATHS, PAVED AREAS & CAR PARKING - CLASS B125, 675x675

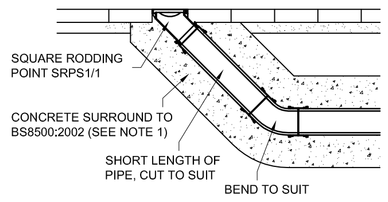


FOR DETAILS BELOW THIS LEVEL REFER TO TYPE 'B' MANHOLE

TYPE 'E' CONCRETE MANHOLE DETAIL
(DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE 1.0m - 1.5m)
SCALE - 1:20



BACK INLET GULLY (TRAPPED)
SCALE - 1:20



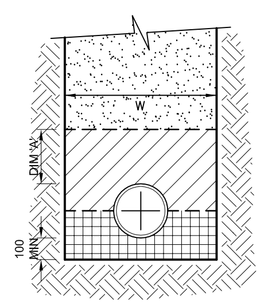
DETAILS OF RODDING EYE (RE)
SCALE - 1:20

1.0 GENERAL

1.1 THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S, ENGINEER'S & SPECIALIST'S DRAWINGS & SPECIFICATIONS.

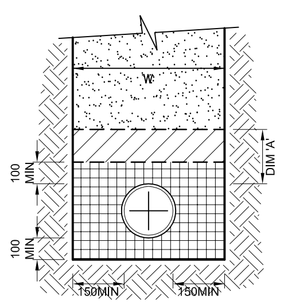
1.2 WORK TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT GOOD PRACTICE, BUILDING REGULATIONS AND SUBSEQUENT AMENDMENTS, THE PROJECT SPECIFICATION, RELEVANT BRITISH STANDARDS AND CODES OF PRACTICE. MATERIALS AND COMPONENTS TO BE SUITABLE FOR THEIR INTENDED USE.

CLASS 'B' HALF DEPTH GRANULAR SURROUND
a) LAY AND COMPACT TO A THICKNESS NOT LESS THAN 100mm OVER FULL WIDTH OF TRENCH. WHERE TRENCH BOTTOM IS UNEVEN DUE TO HARD SPOTS INCREASE DEPTH BY 100mm. LAY PIPES DIGGING SLIGHTLY INTO BED AND RESTING UNIFORMLY. ADJUST TO LINE AND GRADIENT.
b) LAY & COMPACT GRANULAR MATERIAL UNIFORMLY TO HALFWAY UP EACH SIDE OF PIPE.
c) BACKFILL WITH SELECTED CUSHION OF 'SELECTED FILL'. COMPACT BY HAND IN 100mm LAYERS TO 150mm (250mm FOR ADOPTABLE SEWERS) ABOVE CROWN OF PIPE.



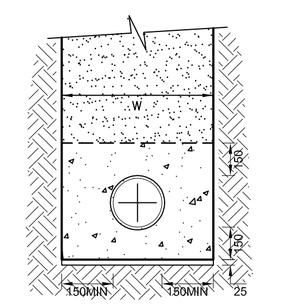
CLASS 'B' HALF DEPTH GRANULAR SUPPORT FOR VITRIFIED CLAY PIPEWORK
COVER > 1200mm in ROADS/PARKING
COVER < 600mm in SOFT LANDSCAPING)
SCALE - 1:20

CLASS 'S' GRANULAR SURROUND
a) LAY AND COMPACT TO A THICKNESS NOT LESS THAN 100mm OVER FULL WIDTH OF TRENCH. WHERE TRENCH BOTTOM IS UNEVEN DUE TO HARD SPOTS INCREASE DEPTH BY 100mm. LAY PIPES DIGGING SLIGHTLY INTO BED AND RESTING UNIFORMLY. ADJUST TO LINE AND GRADIENT.
b) LAY & COMPACT GRANULAR MATERIAL IN 100mm LAYERS TO 100mm ABOVE CROWN OF PIPE. SIDEFILL MATERIAL TO BE PLACED EVENLY ON BOTH SIDES OF PIPE TAKING CARE TO WORK THE MATERIAL UNDER THE LOWER QUADRANT OF THE PIPE (ENSURING THE PIPE IS NOT LIFTED), BOTH SIDES OF THE TRENCH SHOULD BE FILLED SIMULTANEOUSLY TO AVOID HORIZONTAL MOVEMENT OF THE PIPE.
c) BACKFILL WITH SELECTED CUSHION OF 'SELECTED FILL', COMPACT BY HAND IN 100mm LAYERS TO 150mm (250mm FOR ADOPTABLE SEWERS) ABOVE CROWN OF PIPE.



CLASS 'S' GRANULAR SURROUND FOR PVC STRUCTURED PIPES
COVER > 1200mm in ROADS/PARKING
COVER < 600mm in SOFT LANDSCAPING)
SCALE - 1:20

CLASS 'Z' CONCRETE SURROUND
a) FOR CONCRETE MIX SEE 'NOTE 2'
b) LAY CONCRETE BLINDING, 25mm THICK OVER FULL WIDTH OF TRENCH & ALLOW TO SET.
c) LAY PIPES ON BLINDING ON FOLDING WEDGES OF COMPRESSIBLE BOARD TO GIVE MIN 150mm CLEARANCE UNDER THE PIPE.
d) FORM VERTICAL CONSTRUCTION JOINTS IN SURROUND AT FACE OF FLEXIBLE PIPE JOINTS AT MAX 5m c/c USING 18mm THICK COMPRESSIBLE BOARD PRECUT TO PROFILE OF PIPE. FILL ANY GAP BETWEEN SPIGOT AND SOCKET WITH RESILIENT MATERIAL TO PREVENT ENTRY OF CONCRETE.
e) AFTER INITIAL TESTING, PLACE AND COMPACT MORE CONCRETE FOR FULL WIDTH OF TRENCH TO ENCASE PIPE TO 150mm ABOVE CROWN.

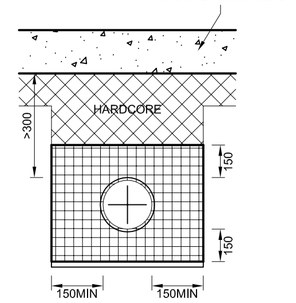


CLASS 'Z' CONCRETE SURROUND
COVER < 1200mm in ROADS/PARKING
COVER < 600mm in SOFT LANDSCAPING)
SCALE - 1:20

MAX TRENCH WIDTH	
PIPE DIA.	WIDTH
150	600
225	700
300	750
375	1050
400	1100
450	1150
525	1200
600	1350
675	1450
750	1500
900	1900

DIM 'A'
MIN 250 (ADOPTABLE)
MIN 150 (GENERALLY)

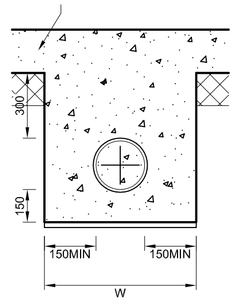
GROUND FLOOR SLAB



PIPE BEDDING DETAIL BELOW SLAB
(WHERE MORE THAN 300mm COVER)
SCALE - 1:20

CLASS 'Y' CONCRETE SURROUND
a) WHERE CROWN OF PIPE IS LESS THAN 300mm BELOW UNDERSIDE OF SLAB, ENCASE PIPE IN CONCRETE OF SAME MIX AS SLAB AND CAST INTEGRALLY WITH SLAB. EXTEND LENGTH OF CONCRETE TO WITHIN 150mm OF NEAREST FLEXIBLE JOINT.
b) EXCAVATE TRENCH AFTER HARDCORE HAS BEEN LAID AND COMPACTED.
c) LAY CONCRETE BLINDING, 25MM THICK OVER FULL WIDTH OF TRENCH & ALLOW TO SET.
d) LAY PIPES ON BLINDING ON FOLDING WEDGES OF COMPRESSIBLE BOARD TO GIVE A MINIMUM 150mm CLEARANCE UNDER THE PIPE.

GROUND FLOOR SLAB



CLASS 'Y' CONCRETE SURROUND BELOW SLAB
(WHERE LESS THAN 300mm COVER)
SCALE - 1:20

GENERAL FILL MATERIALS
TRENCHES SHALL BE BACKFILLED WITH MATERIAL EXCAVATED FROM WITHIN THE SITE OR IMPORTED ON TO THE SITE WHICH MEETS THE REQUIREMENTS OF A CLASS 1, 2 OR 3 GENERAL FILL MATERIAL COMPLYING WITH OF THE 'SPECIFICATION FOR HIGHWAY WORK, SERIES 600, TABLE 6/1. MECHANICAL COMPACTION OF MAIN BACKFILL MATERIAL SHOULD NOT BE COMMENCED UNTIL THEIR IS A TOTAL COVER DEPTH OF 300MM ABOVE THE CROWN OF PIPE.

SELECTED FILL (FILL SELECTED FROM EXCAVATED MATERIAL)
SELECTED FILL FROM EXCAVATED MATERIAL SHOULD BE READILY COMPACTABLE BY HAND AND FREE FROM TIMBER, FROZEN MATERIAL, VEGETABLE MATTER AND FOREIGN MATTER AND EXCLUDE HARD LUMPS OF CLAY RETAINED ON A 100mm SIEVE AND STONES RETAINED ON A 40mm SIEVE.

GRANULAR PIPE BEDDING
PRIVATE PIPEWORK
FOR PIPE SIZE DN100 & DN150, GRANULAR SUPPORT TO COMPLY WITH THE REQUIREMENTS OF A MATERIAL OF DESIGNATION TYPE 4/10 TO BS EN 12620:2002 (i.e. 10mm SINGLE SIZED). FOR PIPE SIZE DN225 & DN300, GRANULAR SUPPORT TO COMPLY WITH THE REQUIREMENTS OF A MATERIAL OF DESIGNATION TYPE 4/20 TO BS EN 12620:2002 (i.e. THE MATERIAL SHOULD HAVE A PARTICLE SIZE THAT IS PREDOMINANTLY WITHIN THE RANGE OF 5 TO 20mm).
ADOPTED PIPEWORK
BEDDING AND SIDEFILL MATERIAL TO CONFORM TO THE REQUIREMENTS OF WATER INDUSTRY SPECIFICATION (WIS) 4-08-02 - 'SPECIFICATION FOR BEDDING AND SIDEFILL MATERIALS INCLUDING RECYCLED AGGREGATES FOR BURIED PIPELINES' (FEBRUARY 1994, INCORPORARATING NOVEMBER 2008 AMMENDMENTS).

PIPE SIZE / STRENGTH CLASS / BEDDING
FOR EACH PIPE SIZE THE STRENGTH CLASS AND BEDDING/SIDEFILL (DEPENDANT ON COVER PROVIDED AND DESIGNATION OF SURFACING ie ROADS/PARKING, SOFT LANDSCAPING) SHOULD BE AS FOLLOWS :-

CLAY PIPEWORK
VITRIFIED CLAY DRAINAGE GOODS TO BE HEPWORTH SUPERSLEVE OR SIMILAR APPROVED TO BS EN 295-1 (KITEMARKED).

SIZE:	DN 100	DN150	DN225	DN300
STRENTH:	FN 40	FN 40	FN 45	FN 72
BEDDING:	CLASS 'B'	CLASS 'B'	CLASS 'B'	CLASS 'B'

PVC-U PIPEWORK
PVC-U DRAINAGE GOODS TO BE HEPWORTH PLASTIDRAIN (110 to 160Ø), HEPWORTH SEWERDRAIN (200 to 630Ø) OR SIMILAR APPROVED TO BS 4660:2000 AND BS EN 1401-1:1998.

SIZE:	DN 110	DN160	DN225	DN300
BEDDING:	CLASS 'S'	CLASS 'S'	CLASS 'S'	CLASS 'S'

REV.	DATE	DRN	DESCRIPTION

PURPOSE OF ISSUE
CONSTRUCTION

CLIENT
MTX CONTRACTS LTD

PROJECT
GREENCELL, SPALDING

TITLE
TYPICAL DRAINAGE DETAILS

JOB No.	DRAWING No.	REVISION
C18142	/ 07	~

DRAWN	CHECKED	SCALE @ SHEET SIZE	DATE
TW	AJP	AS STATED A1 DRAWING NOT TO BE SCALED	MARCH 2015

atkinson consulting engineers peck
Watson House, 45 Waterloo Road, Stockport, Cheshire, SK1 3BJ
telephone: +44 (0)161 480 2833, facsimile: +44 (0)161 477 3939
email: apos@atkinsonpeck.co.uk, web: www.atkinsonpeck.co.uk
ace consultancy engineering business environment