



- ALL DIMENSIONS IN MM
- ALL MEASUREMENTS ± 1 MM

SPECIFICATION INFORMATION

- OPENING IN BACK WALL CAST TO SUIT OUTSIDE DIAMETER OF THE PIPEWORK
- INVERT LEVEL OF PIPE CAN BE SET TO YOUR SPECIFICATION

HEADWALL INSTALLATION

UNITS SHOULD BE BEDDED ON MINIMUM 200MM THICK WELL COMPACTED CLASS 6A+
SELECTED WELL GRADED GRANULAR MATERIAL

*MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS: VOLUME (MCHW1)
SPECIFICATION FOR HIGHWAY WORKS, SERIES 100 (NOV 89)

SIT THE HEADWALL LEVEL OR WITH A SLIGHT FALL 1:50 FROM PIPE TO SPILL MOUTH.

HANDLING

- A. WEIGHT OF CONCRETE IS BASED ON 2.4 TONNE/M³-5% IS RECOMMENDED FOR SIZING LIFTING EQUIPMENT.
- B. ALL LIFTING POINTS SHALL BE USED AS SPECIFIED BELOW
- C. UNIT TO BE LIFTED AS PER LIFTING DIAGRAM

CONCRETE

- A. MIX REF: SELF-COMPACTING DC4/DS4 MIX
B. LIFTING STRENGTH BASED ON 2 CUBES = 20N/MM²
C. CHARACTERISTIC 28 DAY CUBE STRENGTH = 50N/MM²
D. CONCRETE PROVIDES DESIGN CHEMICAL CLASS 4 (DC4) TO SPECIAL DIGEST 1, TABLE F2.

REINFORCEMENT

- A. REINFORCEMENT TO BS EN 13369
B. SCHEDULING, DIMENSIONING, BENDING & CUTTING TO BS8666
C. CAGE TO BE MACHINE TIED WITH STEEL WIRE

MANUFACTURE

- A. MANUFACTURE TO BS EN 15258:2008 PRECAST CONCRETE PRODUCTS - RETAINING WALL ELEMENTS, FACTORY PRODUCTION CONTROL CERTIFICATE NUMBER: 0086-CPR-650448 & BS EN 13369
- B. TOLERANCES TO BS EN 13369 CLAUSE 4.3.1.1

	Top	Sides
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Close	A	A	A	Self - Levelled
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- D. MARKING: UNITS SHALL BE INDELIBLY MARKED TO SHOW:

- MOULD REFERENCE CODE
- DE-MOULD DATE
- JOB REFERENCE NUMBER & UNIQUE PRODUCT NUMBER
- UNIT WEIGHT (KG)

DESIGN

- A. CONCRETE DESIGN TO EC2
B. ALTHOUGH HAVE DESIGNED THE CONCRETE UNITS ONLY, THE SITE CONDITIONS SHOULD BE ASSESSED FOR SUITABILITY BY THE SCHEME DESIGNER
C. UNITS ARE DESIGNED TO WITHSTAND A VERTICAL LIVE LOAD SURCHARGE OF 10KN/M^2
D. WEIGHT OF SOIL = 18KN/M^2
E. ANGLE OF INTERNAL FRICTION = 30 DEG.
F. DESIGN LIFE: >100 YEARS

Min Cover	Cover Black Size (mm)	Min Cover Size (mm)	Max Cover Size (mm)
All Faces	55	50	40

Exposure Classification	Exposure induced by Carbonation	Corrosion induced by Chloride	Freeze/thaw effect	Chemical attack
All Faces	XCL/4	XB3	XF4	XA3

FABRICATION SPECIFICATION

- MANUFACTURE IAW EN 1090-2 EXC CLASS 1
MATERIAL GRADE IS TO BE: BS EN 10025 S275
WELDING CARRIED OUT IAW EN 1090-2 PARA 7.5.4 - 7.5.18
ALL FILLET AND BUTT WELDS TO HAVE A MINIMUM THROAT THICKNESS OF 6MM &
JOINTS TO BE FULLY WELDED WHERE POSSIBLE.
ENSURE VERTICAL FLATS ARE FULLY WELDED BOTH SIDES WHERE POSSIBLE.
ALL SHARP EDGES AND BURRS ARE TO BE REMOVED.
REMOVE ALL WELD SPLATTER.
GALVANISING BY PUNCHING ARE PERMITTED WITH REAMING.
GALVANISING IS CARRIED OUT AFTER FABRICATION TO BS EN ISO 1461

HANDRAIL SPECIFICATION

3. KLE KEMP CO. GALVANISED SIZE 8 FITTINGS
SIZE 8 48.3MM OD 3.2MM WALL THICKNESS GALVANISED MEDIUM DUTY TUBE TO BS
EN 10255
360N/M DESIGN LOAD AT STATED IN BS 8118, BS 6180, BS 6399 & BS 7818, CIVIL
ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY (CESWI) 7TH EDITION
CLAUSE 2.60 HANDRAILS & BALUSTERS & THE ENGINEERING EQUIPMENT AND
MATERIALS SURVEY'S ASSOCIATION (EEMUA) PUBLICATION 105 7TH EDITION FACTORY
STAIRWAYS, LADDERS AND HANDRAILS
OTHER DESIGN LOADS AVAILABLE ON REQUEST
GRP/FRP HANDRAILS ALSO AVAILABLE



NOTES:

1. ALL SEWERS ARE DESIGNED IN ACCORDANCE WITH SEWER SECTION GUIDANCE V.0.2 AND UNITED UTILITIES GUIDELINES AND STANDARD DETAILS.
2. ALL COORDINATES AND LEVELS SHOWN ARE RELATIVE TO THE TOPOGRAPHIC SURVEY.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE LINE AND LOCATION OF ANY EXISTING SEWERS, AS WELL AS ANY EXISTING MANHOLES, MUST BE CORRECTLY LOCATED AND MARKED OUT PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES MUST BE MUST BE REPORTED IMMEDIATELY.
4. PRIOR TO THE COMMENCEMENT OF ANY ON SITE WORKS THE CONTRACTOR MUST OBTAIN THE NECESSARY UNDERTAKER AND BE IN POSSESSION OF THE LATEST DRAWINGS SHOWING THEIR APPARATUS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ALLOW FOR THE SUPERVISION OF THE CONSTRUCTION WORKS TO UNITED UTILITIES AND/ OR ANY OTHER AUTHORITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPERVISING OFFICER GIVING NOTICE WHICH WILL BE IN ACCORDANCE WITH THE AUTHORITIES REQUIREMENTS.
5. EXISTING SEWERS WHICH WILL BE SHALL PIPE WORK AND SHALL BE EXTRA STRENGTH TO BS EN 5991 PART 1.
6. ANY PRE CAST CONCRETE PIPE WORK WILL BE IN ACCORDANCE WITH BS EN 1946/202.
7. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THE CORRECT BEDDING, SURROUND AND BACKFILLING PROCEDURES ARE FOLLOWED FOR PVC PIPES. FOR DETAILS OF EMBEDMENT AND SURROUND FOR FLEXIBLE PIPES REFER TO UNITED UTILITIES STANDARD DETAIL STD/05/001/01.
8. ALL MANHOLES AND CHAMBERS SHALL BE IN ACCORDANCE WITH BS EN 1917/2002.
9. SEWERS WITH COVERS TO SOFFIT GREATER THAN 1.2m IN ROADS AND 0.9m IN FIELDS SHALL HAVE BEDDING AND SURROUND AS FOLLOWS: RIGID BEDDING SHALL BE 150mm GRAD 3.5, SEMI RIGID PIPE EMBEDMENT SHALL BE CLASS 5 ALL IN ACCORDANCE WITH UNITED UTILITIES STANDARD DETAIL STD/05/001/01.
10. ANY SEWER FOR ADIPTION WITH A COVER OF LESS THAN 1.2m TO 1.5m SHALL BE 150mm GRAD 3.5 TO PIPE SLOPE. SEWELS WHO HAVE A MINIMUM 150mm GNC 3 CONCRETE BED AND SURROUND WITH FLEXIBILITY MAINTAINED WITH FLEXKELL EXPANSION JOINT FILLER OR SIMILAR APPROVED AT EACH PIPE JUNCTION.
11. PRIVATE DRAINAGE CONNECTIONS TO THE SEWER WILL BE 150MM DIAMETER AND LAID TO THE SEWER INVERT.
12. THE INVERT LEVELS SPECIFIED AT THE DRAG OUT CHAMBER ARE INCLING LEVELS.
13. WHEREVER POSSIBLE PRIVATE DRAINAGE RUNS WILL REMAIN WITHIN THE CURTLAGGE OF THE DWELLING FOR WHICH THEY SERVE.
14. THE CONNECTION TO THE ADAPTABLE SEWER SHALL BE MANUFACTURED TO A SADDLE CONNECTION IS NOT PERMITTED UNLESS IT IS CLOSELY SPECIFIED.
15. CONNECTIONS TO THE EXISTING SEWER WILL BE IN ACCORDANCE WITH SECTION 10.0 APPROVAL GRANTED BY UNITED UTILITIES.
16. THE SEWERAGE CONNECTIONS TO THE SEWER WILL BE IN ACCORDANCE WITH APPROVAL GRANTED BY THE E.A.