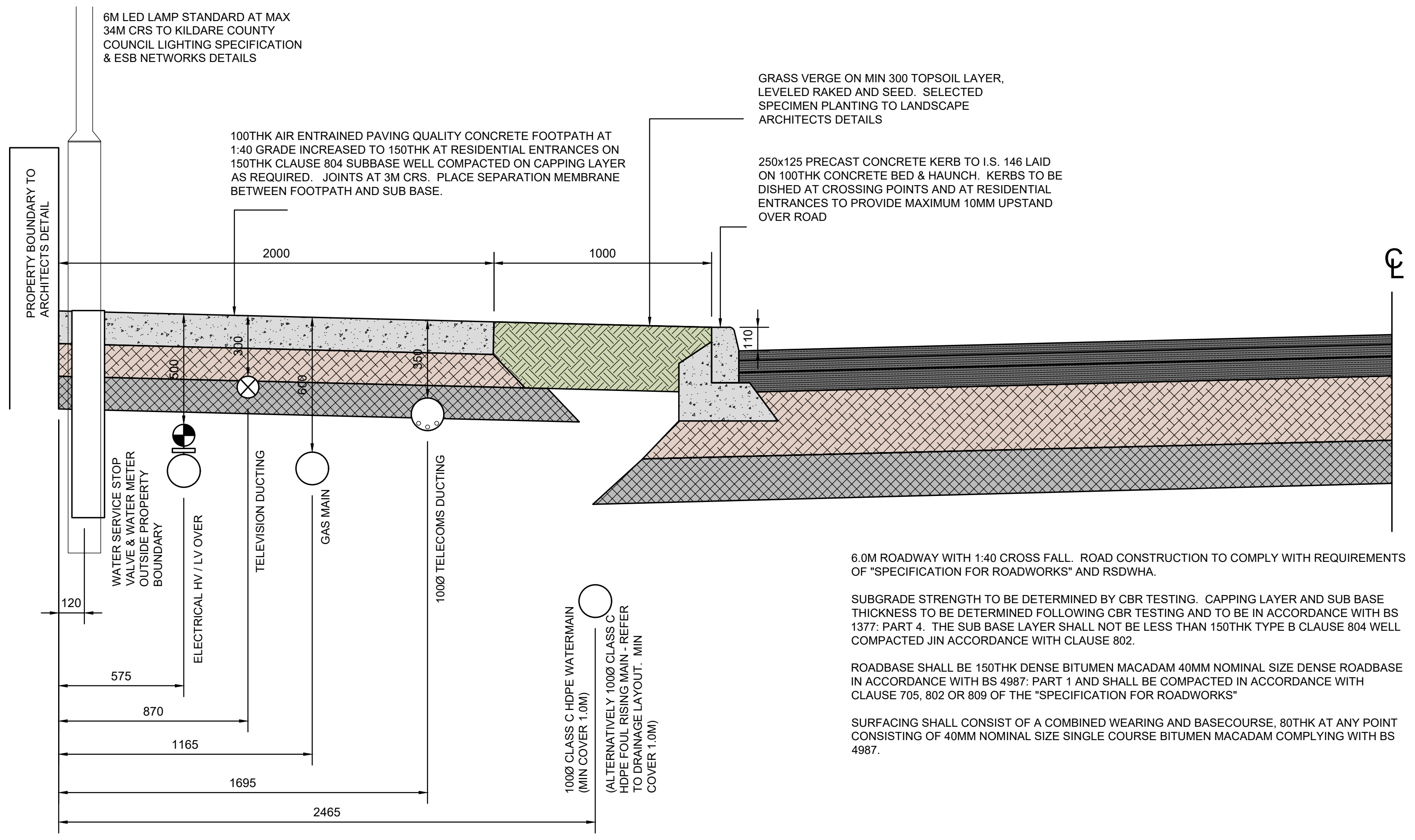


6.0M ROADWAY WITH 1:40 CROSS FALL. ROAD CONSTRUCTION TO COMPLY WITH REQUIREMENTS OF "SPECIFICATION FOR ROADWORKS" AND RSDWHA.

SUBGRADE STRENGTH TO BE DETERMINED BY CBR TESTING. CAPPING LAYER AND SUB BASE THICKNESS TO BE DETERMINED FOLLOWING CBR TESTING AND TO BE IN ACCORDANCE WITH BS 1377: PART 4. THE SUB BASE LAYER SHALL NOT BE LESS THAN 150THK TYPE B CLAUSE 804 WELL COMPACTED JIN ACCORDANCE WITH CLAUSE 802.

ROADBASE SHALL BE 150THK DENSE BITUMEN MACADAM 40MM NOMINAL SIZE DENSE ROADBASE IN ACCORDANCE WITH BS 4987: PART 1 AND SHALL BE COMPACTED IN ACCORDANCE WITH CLAUSE 705, 802 OR 809 OF THE "SPECIFICATION FOR ROADWORKS"

SURFACING SHALL CONSIST OF A COMBINED WEARING AND BASECOURSE, 80THK AT ANY POINT CONSISTING OF 40MM NOMINAL SIZE SINGLE COURSE BITUMEN MACADAM COMPLYING WITH BS 4987.

MAIN ACCESS ROADWAY & FOOTPATH CONSTRUCTION DETAIL
(INCLUDING TYPICAL FOOTPATH SERVICES LAYOUT)
SCALE 1:25

ROAD CONSTRUCTION

MATERIALS

ROADWORKS, MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE "SPECIFICATION FOR ROADWORKS" ISSUED BY THE NATIONAL ROADS AUTHORITY (NRA). THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO SUB-BASE, BASE OR WEARING SURFACES BY CONSTRUCTION PLANT AND EQUIPMENT AND SHALL MAKE GOOD ANY SUCH DAMAGE AT HIS OWN EXPENSE.

TOLERANCES FOR FINISHED CARRIAGEWAY SURFACES

TOLERANCES IN THE SURFACE LEVELS OF PAVEMENT COURSES SHALL BE IN ACCORDANCE WITH CLAUSE 702 OF THE NRA SPECIFICATION FOR ROADWORKS OR OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS AND SHALL GENERALLY BE ±6MM FOR ROAD SURFACING AND BASECOURSES, ±15MM FOR ROADBASE, ±10MM FOR SUB BASES.

NATURAL STONE & HARDCORE

NATURAL STONE SHALL BE OF DURABLE QUALITY, UNIFORM IN TEXTURE AND FREE FROM IRON BANDS, SPOTS, SANDHOLES, FLAWS SHAKES AND OTHER IMPERFECTIONS WHICH WOULD ADVERSELY AFFECT ITS STRENGTH AND APPEARANCE. THE DIMENSIONS OF STONES SHALL BE ADEQUATE FOR PROPER COURSING AND BONDING.

HARDCORE SHALL CONSIST OF CLEAN, HARD, DURABLE MATERIAL EITHER BROKEN STONE, BRICKS OR CONCRETE GRADED FROM 200MM TO 50MM AND BE FREE FROM EXTRANEOUS MATTER.

ROAD FORMATIONS & SUBGRADE

SUBGRADE STRENGTH SHOULD BE ESTABLISHED BY MEANS OF THE CALIFORNIA BEARING RATIO (CBR) TEST, IN ACCORDANCE WITH BS 1377: PART 4: SECTION 7. SAMPLES SHOULD BE TAKEN AT THE RATE OF ONE PER 100M OF ROAD AND WHERE SIGNIFICANT VARIATIONS IN SOIL TYPE ARE ANTICIPATED.IN PREPARING THE TEST SPECIMEN, THE METHOD OF COMPACTION SHOULD BE THE STATIC COMPACTION METHOD 2, AS SPECIFIED IN PARAGRAPH 7.2.3.3 OF BS 1377: PART 4.

THE DEPTH OF THE SUB-BASE AND CAPPING LAYERS WILL VARY WITH THE SUBGRADE STRENGTH, AS INDICATED BY THE CBR TEST RESULTS. THE THICKNESS OF THE SUB-BASE LAYER SHOULD BE NOT LESS THAN 150MM FOR ALL FORMS OF ROADWAY CONSTRUCTION.

THE ROAD FORMATION SHALL BE THE SURFACE OBTAINED AFTER COMPLETION OF ANY EARTHWORKS AND SHALL BE IN ACCORDANCE WITH CLAUSE 616 OF THE NRA SPECIFICATION FOR ROADWORKS. THE PREPARATION AND SURFACE TREATMENT OF FORMATION SHALL BE CARRIED OUT AFTER THE REINSTATEMENT OF ANY EXCAVATIONS FOR SERVICES. ALL EXPOSED FORMATIONS SHALL BE INSPECTED BY THE ENGINEER AND NO SUB-BASE MATERIAL SHALL BE PLACED UNTIL THE FORMATION HAS BEEN APPROVED BY THE ENGINEER.

SUB BASE CONSTRUCTION

WITHIN 48 HOURS OF COMPLETION OF A ROAD FORMATION, GRANULAR SUB-BASE MATERIAL TO CLAUSE 804 OR CLAUSE 806 OF THE NRA SPECIFICATION FOR ROADWORKS SHALL BE SPREAD AND COMPACTED TO THE REQUIRED THICKNESS. COMPACTION SHALL BE CARRIED OUT IN ACCORDANCE WITH CLAUSE 802 OF THE NRA SPECIFICATION.

MACADAM ROADBASE

TRANSPORTATION, LAYING AND COMPACTION OF ALL COATED MACADAM SHALL BE CARRIED OUT IN ACCORDANCE WITH CLAUSES 900 SERIES OF THE NRA SPECIFICATION FOR ROADWORKS AND IN ACCORDANCE WITH THE RELEVANT PROVISIONS OF BS 4987, BS 594987 AND IS EN 12591.

A TWO COURSE BITUMINOUS MACADAM SURFACING SHALL BE LAID OVER THE SUB-BASE WHERE SPECIFIED. IT SHALL CONSIST OF A MACADAM BASE COURSE IN ACCORDANCE WITH BS 4987 ROLLED WITH A POWER ROLLER TO A CONSOLIDATED THICKNESS OF 63MM. A SECOND COURSE OF BITUMINOUS MACADAM IN ACCORDANCE WITH BS 4987 IS TO BE LAID OVER AND ROLLED WITH A POWER ROLLER TO A CONSOLIDATED THICKNESS OF 25MM GIVING 88MM CONSOLIDATED FOR THE TWO LAYERS. WHERE THE ROADBASE IS TO BE USED BY CONSTRUCTION TRAFFIC ITS THICKNESS SHALL BE INCREASED BY 50MM AND SHALL BE SURFACE DRESSED.

ROADBASE MATERIAL SHALL BE COMPACTED IN ACCORDANCE WITH CLAUSES 705, 802 OR 809 OF THE SPECIFICATION FOR ROADWORKS AS APPROPRIATE.

ROADWAY SURFACING

ROADWAY SURFACING SHOULD CONSIST OF ONE OF THE FOLLOWING:

TWO COURSES, CONSISTING OF A BASECOURSE, 40MM MINIMUM THICKNESS AT ANY POINT, OF 20MM NOMINAL SIZE DENSE BASECOURSE BITUMEN MACADAM AND A WEARING COURSE, 25MM MINIMUM THICKNESS AT ANY POINT, OF 10MM NOMINAL SIZE CLOSE GRADED WEARING COURSE BITUMEN MACADAM, BOTH OF WHICH SHOULD COMPLY WITH BS 4987.

OR,

A COMBINED WEARING COURSE AND BASECOURSE, 80MM THICKNESS AT ANY POINT, CONSISTING OF 40MM NOMINAL SIZE SINGLE COURSE BITUMEN MACADAM, COMPLYING WITH BS 4987.

IN SITU CONCRETE KERBING

WHERE CAST IN SITU CONCRETE KERBS ARE PROPOSED THEY SHALL BE EITHER 300MM DEEP BY 225MM THICK LAID ON A 150MM THICK X 300MM WIDE CONCRETE BED AND HAUNCH OR BE DESIGNED TO SIT 50MM ON TO FINISHED CONCRETE CARRIAGEWAY SURFACE BEING 175MM THICK ON TOP SECTION AND 125MM THICK ON LOWER SECTION.

CONCRETE THROUGHOUT SHALL BE GRADE C20/25 CONCRETE WITH MAXIMUM SIZE OF AGGREGATE 20MM. WHERE PRECAST KERBS ARE USED THEY SHALL BE 250MM X 125MM COMPLYING WITH IS 146 AND SHALL BE LAID ON A 150MM THICK BY 300MM WIDE CONCRETE BED AND HAUNCHED IN GRADE C16/20 CONCRETE. ALTERNATIVE KERB TYPES AT CARRIAGEWAY EDGES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

KERBS SHALL FINISH BETWEEN 100 AND 150 ABOVE THE FINISHED CARRIAGEWAY SURFACE AND SHOUL DBE REDUCED/DISHED TO 25MM AT VEHICULAR ENTRANCES AND TO 10MM AT PEDESTRIAN CROSSING POINTS. THE FOOTWAY SLOPE AT DISHINGS SHALL NOT EXCEED 7%.

FOOTPATHS

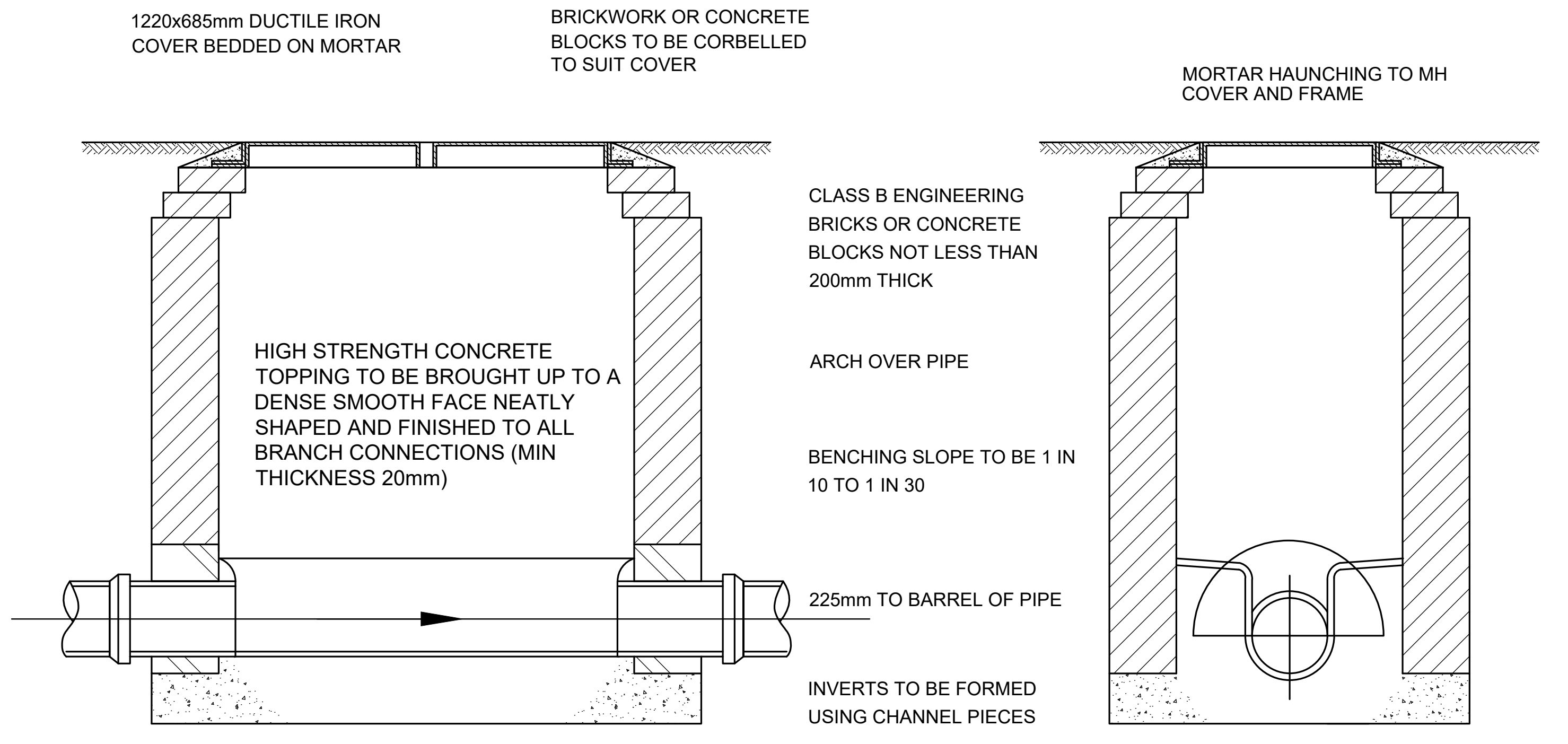
FOUNDATION FOR FOOTPATHS

FOUNDATIONS FOR FOOTWAYS SHALL CONSIST OF CLAUSE 804 GRANULAR SUB-BASE MATERIAL SPREAD EVENLY AND COMPACTED IN LAYERS OF NOT MORE THAN 100MM THICKNESS. THE SUB BASE THICKNESS SHALL NOT BE LESS THAN 100MM INCREASING TO 150 UNDER VEHICULAR ENTRANCES.

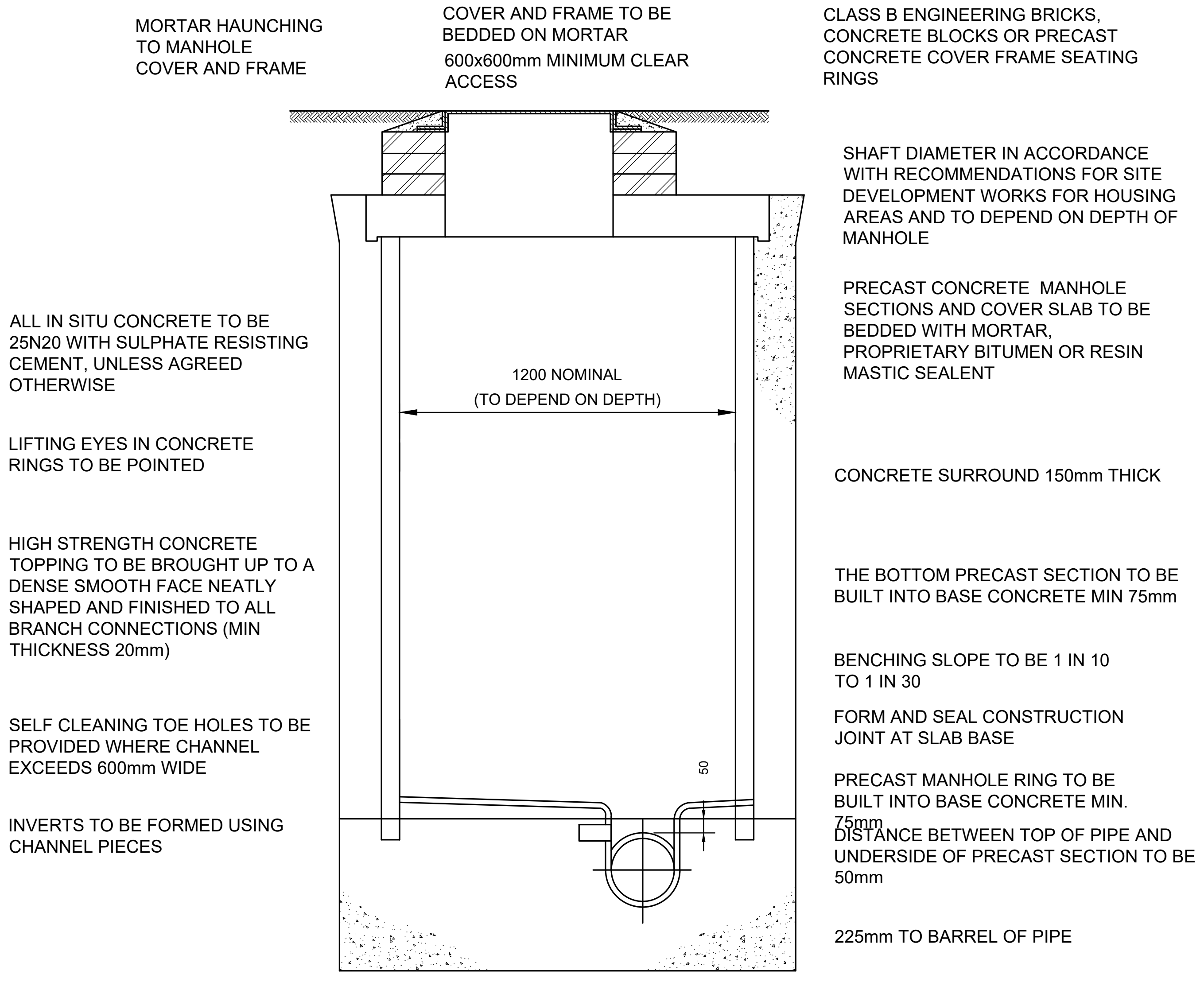
COMPACTION TO THE CORRECT LEVELS SHALL BE CARRIED OUT USING A VIBRATORY ROLLER HAVING A STATIC LOAD OF AT LEAST 1000 KG/METRE WIDTH OF ROLL.

FOOTPATHS SHALL BE LAID WITH 2.5% CROSS FALL TOWARDS THE ROADWAY. STRAIGHT JOINTS SHALL BE FORMED AT 3M CENTRES AND SHALL INCLUDE A DOUBLE LAYER OF ROOFING FELT COMPLYING WITH IS 36 FOR THE FULL DEPTH OF THE JOINT. A 125MICRON PLASTIC IMPERMEABLE SEPARATION MEMBRANE SHALL BE PLACED BETWEEN THE CONCRETE AND THE SUB BASE

CONCRETE FOOTPATHS SHALL BE CAST WITH AIR ENTRAINED PAVING QUALITY CONCRETE AS SPECIFIED IN TABLE 2.6 OF CLAUSE 2.21, RSDWHA.



TYPICAL MANHOLE DETAIL
(UPTO 1.5M DEEP)
SCALE 1:20



TYPICAL MANHOLE DETAIL
(1.5M TO 3.0M DEEP)
SCALE 1:20

DRAINAGE

MANHOLES

MANHOLES SHOULD BE DURABLE, RESISTANT TO WATER PENETRATION, RESISTANT TO LEAKAGE AND SHOULD BE DESIGNED AND CONSTRUCTED SO AS TO MINIMISE THE RISK OF BLOCKAGE. MANHOLES SHALL BE CONSTRUCTED OF PRECAST CONCRETE UNITS, COMPLYING WITH THE REQUIREMENTS OF BS 5911: PART 200.

MANHOLE BASES SHOULD BE CONSTRUCTED OF CONCRETE, 30N/MM2, 20MM MAXIMUM AGGREGATE SIZE, MINIMUM THICKNESS 150MM FOR DEPTHS UP TO 3.3M AND 225MM FOR DEPTHS IN EXCESS OF 3.3M. ALTERNATIVELY, APPROVED PRECAST CONCRETE BASES MAY BE USED.

WHERE MANHOLES ARE CONSTRUCTED WHOLLY ABOVE THE WATER TABLE, REBATED JOINTS SEALED WITH CEMENT MORTAR SHALL BE USED. IN WATERLOGGED GROUND, OR WHERE THE WATER TABLE IS ABOVE THE MANHOLE BASE, JOINTS SHOULD BE MADE WATERTIGHT, USING A NON-RIGID JOINTING MATERIAL SUCH AS A MASTIC SEALANT, OR AN ELASTOMERIC RING.

ROOFS SHOULD CONSIST OF A REINFORCED CONCRETE SLAB, MINIMUM THICKNESS 150MM, DESIGNED TO CARRY ALL LIVE AND DEAD LOADS. ALTERNATIVELY, APPROVED PRECAST CONCRETE ROOFS MAY BE USED.

CHANNELS & BEDDING

AN OPEN CHANNEL OF HALF-ROUND SECTION, BEDDED AND JOINTED IN 1:3 CEMENT SAND MORTAR, SHOULD EXTEND THE WHOLE LENGTH OF THE MANHOLE. WHERE THERE IS CHANGE IN PIPE SIZE BETWEEN THE MAIN PIPE ENTERING AND THAT LEAVING THE MANHOLE, THE CONNECTING CHANNEL SHOULD CONSIST OF AN APPROVED PROPRIETARY TAPER. WHERE A SUITABLE TAPER IS NOT AVAILABLE, THE CHANNEL SHOULD BE FORMED FROM IN SITU CONCRETE, 30N/MM2, 20MM MAXIMUM AGGREGATE SIZE, FINISHED WITH A 1:3 CEMENT SAND MORTAR.

A VERTICAL IN SITU BENCHING SHOULD BE FORMED FROM THE TOP EDGE OF THE CHANNEL, TO A HEIGHT NOT LESS THAN THE SOFFIT OF THE OUTLET. IT SHOULD BE ROUNDED OFF TO A RADIUS OF ABOUT 25MM AND THEN SLOPED UPWARDS AT A GRADIENT OF ABOUT 1:12 TO MEET THE WALL OF THE MANHOLE. THE BENCHING SHOULD BE FLOATED TO A HARD SMOOTH SURFACE, WITH A COAT OF 1:3 CEMENT SAND MORTAR LAID MONOLITHICALLY. IN THE CASE OF BRANCH CHANNELS, THE BENCHING SHOULD BE SO SHAPED AS TO GUIDE THE FLOW IN THE DESIRED DIRECTION. ALTERNATIVELY, PRECAST BASE UNITS, INCORPORATING CHANNELS AND BENCHING MAY BE USED, SUBJECT TO APPROVAL.

MANHOLE COVERS & FRAMES

MANHOLE COVERS AND FRAMES ARE SUBJECT TO APPROVAL, BUT SHOULD COMPLY GENERALLY WITH THE REQUIREMENTS OF IS EN 124. THE MINIMUM OPENING DIMENSIONS SHOULD BE 600MM X 600MM (RECTANGULAR), OR 600MM DIAMETER (CIRCULAR). THE APPROPRIATE CLASS OF COVER AND FRAME THAT SHOULD BE USED IN VARIOUS LOCATIONS IS GIVEN IN TABLE 3.5.

STEPS SHOULD BE PROVIDED IN MANHOLES OF GREATER THAN ONE METRE IN DEPTH. MANHOLE STEPS SHOULD COMPLY WITH THE REQUIREMENTS OF BS 1247: PART 1. BLOCKWORK, IN SITU CONCRETE AND PRECAST CONCRETE MANHOLES SHOULD BE PROVIDED WITH STEPS, IN TWO VERTICAL RUNS, 300MM APART CENTRE TO CENTRE. THE STEPS SHOULD BE AT 300MM INTERVALS IN EACH RUN AND THE TWO RUNS SHOULD BE STAGGERED VERTICALLY, BY 150MM. THE TOP STEP SHOULD BE A MAXIMUM DISTANCE OF 450MM FROM THE GROUND SURFACE AND THE BOTTOM STEP SHOULD BE A MAXIMUM DISTANCE OF 300MM ABOVE THE TOP OF THE BENCHING. PRECAST CONCRETE UNITS SHOULD HAVE BUILT IN STEPS, AS PROVIDED FOR IN CLAUSE 3.6.5 OF BS 5911: PART 200.

GULLIES

GULLIES SHALL BE PROVIDED FOR IMPERVIOUS OR PAVED AREAS AT A MINIMUM RATE OF ONE GULLY PER 200M2. IN THE SELECTION OF GULLY LOCATIONS, CARE SHOULD BE TAKEN TO ENSURE THAT PONDING WOULD NOT OCCUR. GULLIES FOR ROAD DRAINAGE SHOULD BE PROVIDED IN ACCORDANCE WITH TABLE 3.6, RSDWHA.

GULLIES FOR THE DRAINAGE OF ROADWAYS AND LARGE PAVED AREAS SHOULD BE PRECAST CONCRETE, COMPLYING WITH THE REQUIREMENTS OF BS 5911: PART 230, OR MAY CONSIST OF A CHAMBER CONSTRUCTED OF 100MM SOLID BLOCKWORK AND HAVING A 150MM IN SITU CONCRETE FLOOR, WITH MINIMUM INTERNAL DIMENSIONS OF 450MM X 300MM X 750MM. THE OUTLET FROM THE GULLY SHOULD BE 150MM DIAMETER, SET A MINIMUM OF 375MM ABOVE THE FLOOR OF THE CHAMBER. THE CLASS OF GULLY GRATING REQUIRED FOR VARIOUS LOCATIONS, IS THE SAME AS THAT GIVEN FOR MANHOLE COVERS AND FRAMES IN TABLE 3.5. THE TYPE OF GULLY IS SUBJECT TO APPROVAL. GULLY GRATINGS IN ROADS SHOULD BE SET WITH THE DIRECTION OF THE OPENINGS AT RIGHT ANGLES TO THE DIRECTION OF TRAFFIC.

PIPE COVER

WHERE IT IS NOT POSSIBLE TO ACHIEVE THE MINIMUM COVER STIPULATED IN TABLE 3.3, RSDWHA PIPES SHOULD BE BEDDED AND SURROUNDED IN CONCRETE, 150MM THICK, CLASS E, IN ACCORDANCE WITH CLAUSE 1502 OF THE SPECIFICATION FOR ROADWORKS.

FLEXIBLE PIPES SHOULD BE LAID WITH A MINIMUM COVER OF 1.2M IN ROADS AND DRIVEWAYS, 0.9M IN OPEN SPACES AND FOOTPATHS NOT ADJACENT TO ROADWAYS AND 0.6M IN GARDENS. ALTERNATIVELY, WHERE IT IS NOT POSSIBLE TO ACHIEVE THESE MINIMUM COVERS, ADDITIONAL MEASURES SHOULD BE TAKEN IN ORDER TO PROTECT THE PIPEWORK. THESE MEASURES MIGHT TAKE THE FORM OF A LAYER OF CONCRETE PAVING SLABS, WITH AT LEAST A 75MM LAYER OF GRANULAR MATERIAL BETWEEN PIPES AND SLABS, FOR GARDENS AND OPEN SPACES. IN THE CASE OF A ROAD, A REINFORCED CONCRETE SURROUND, OR REINFORCED CONCRETE BRIDGING SLABS MAY BE REQUIRED. ALL SUCH MEASURES ARE SUBJECT TO APPROVAL.

PIPE LAYING

MAXIMUM TRENCH WIDTH SHALL BE THE PIPE DIAMETER PLUS 600MM. PIPES SHALL BE LAID ON A 50MM BED OF FINE GRAINED MATERIAL CONSISTING OF SAND, GRAVEL OR SOIL, PASSING A 10MM SIEVE. WHERE PIPES ARE LAID ON ROCK OR OTHER HARD MATERIAL THE BEDDING DEPTH SHALL BE INCREASED TO 100MM. SIMILAR MATERIAL SHALL BE PLACE AROUND AND OVER THE PIPE FOR A COVER O 100MM. PIPES LAID UNDER ROADS SHALL HAVE COVER MATERIALS INCREASED TO 150MM. SELECTED FILL FREE FROM STONES GREATER THAN 25MM IN SIZE, RUBBISH, TREE ROOTS, VEGETABLE MATTER, OR LUMPS OF CLAY GREATER THAN 75MM IN SIZE SHALL BE USED TO FILL THE NEXT 300MM.

TRENCH COMPACTION

SIDEFILL OF EITHER GRANULAR MATERIAL OR SELECTED FILL, SHOULD BE PLACED UNIFORMLY ON EITHER SIDE OF THE PIPE, IN LAYERS NOT EXCEEDING 100MM, EACH LAYER BEING COMPACTED BY HAND TAMPING UNTIL THE PIPE HAS A MINIMUM OF 150MM COMPACTED COVER. CARE SHOULD BE TAKEN THAT THE PROCESS OF COMPACTION DOES NOT DISPLACE THE PIPE FROM ITS CORRECT LINE AND LEVEL. BACKFILL SHOULD BE PLACED IN LAYERS NOT EXCEEDING 300MM, EACH LAYER THEN BEING WELL COMPACTED. MECHANICAL COMPACTION EQUIPMENT SHOULD NOT BE USED, UNTIL THERE IS A MINIMUM OF 450MM OF COMPACTED MATERIAL ABOVE THE CROWN OF THE PIPE.

DRAIN TO SEWER CONNECTIONS

SUBJECT TO THE REQUIREMENTS OF CLAUSE 3.11, RSDWHA, THE CONNECTIONS OF DRAINS TO SEWERS SHOULD BE MADE IN SUCH A MANNER AS TO MINIMISE ANY INTERRUPTION OF THE FLOW, BY ONE OF THE FOLLOWING METHODS:

1. WHERE THERE IS AN ADJACENT MANHOLE, THE CONNECTION SHOULD BE MADE AT THE MANHOLE.
2. WHERE THERE IS NOT AN ADJACENT MANHOLE, IT MAY BE NECESSARY TO CONSTRUCT A NEW MANHOLE.
3. WHEN CONNECTING DIRECTLY TO A SEWER OR A DRAIN, AN OBLIQUE OR CURVED SQUARE JUNCTION PIPE INSERTED IN THE MAIN MAY BE USED.
4. AS AN ALTERNATIVE TO METHOD 3., AN OBLIQUE TYPE SADDLE MAY BE USED. SADDLES SHOULD NOT BE USED ON PIPES OF 100MM DIAMETER, NOR TO CONNECT PIPES OF THE SAME DIAMETER.

IN THE CASE OF METHODS 3. AND 4., AN APPROVED SLOW BEND MAY BE USED IN THE DRAIN, IMMEDIATELY UPSTREAM OF THE CONNECTION.

WATERMAINS

SERVICE PIPES

SERVICE PIPES SHALL BE MINUMIM 12MM INTERNAL DIAMETER AND SHALL BE A POLYETHYLENE PIPE, TYPE 50 TO THE REQUIREMENTS OF IS 135. FITTINGS AND SPECIALS SHALL BE SUBJECT TO APPROVAL

WATERMAIN PUPE SIZE AND LAYOUT
THE FOLLOWING GENERAL DESIGN CRITERIA SHALL APPLY

1. WATERMAINS SHALL BE LOOPED
2. WATERMAINS SHALL BE LAIDE UNDER FOOTWAYS OR GRASS MARGINS
3. NO PIPE CABLE, CONDUIT OR OTHER SERVICE SHALL BE LAID LONGITUDINALLY OVER THE LINE OF A WATERMAIN

WATERMAIN CLASS

THE WATERMAIN SHALL BE A CLASS C WATERMAIN

PIPE COVER

WATERMAIN PIPES SHALL HAVE A MINIMUM COVER OF 900MM SERVICE PIPES SHALL HAVE A MINIMUM COVER OF 750MM

PIPE LAYING

MAXIMUM TRENCH WIDTH SHALL BE THE PIPE DIAMTER PLUS 600MM. PIPES SHALL BE LAID ON A 50MM BED OF FINE GRAINED MATERIAL CONSISTING OF SAND, GRAVEL OR SOIL, PASSING A 10MM SIEVE. WHERE PIPES ARE LAID ON ROCK OR OTHER HARD MATERIAL THE BEDDING DEPTH SHALL BE INCREASED TO 100MM. SIMILAR MATERIAL SHALL BE PLACE AROUND AND OVER THE PIPE FOR A COVER O 100MM. PIPES LAID UNDER ROADS SHALL HAVE COVER MATERIALS INCREASED TO 150MM. SELECTED FILL FREE FROM STONES GREATER THAN 25MM IN SIZE, RUBBISH, TREE ROOTS, VEGETABLE MATTER, OR LUMPS OF CLAY GREATER THAN 75MM IN SIZE SHALL BE USED TO FILL THE NEXT 300MM.

PIPE JOINTING

JOINTS SHALL BE FORMED BY AN APPROVED METHOD RECOMMENDED BY THE MANUFACTURER. ELASTOMERIC SEALING RINGS, WHERE USED, SHALL COMPLY WITH THE REQUIREMENTS OF BS 2494.

MARKER TAPE

AN APPROVED MARKER TAPE CONTAINING A TRACER WIRE SHALL BE AFFIXED TO THE TOP SURFACE OF ALL WATERMAINS.

PIPE ANCHORAGE

CONCRETE ANCHOR BLOCKS SHALL BE PROVIDED ON WATERMAINS AT DEAD ENDS, TEES, BENDS OF CURVATURE GREATER THAN 22.5° AND AT BOTH SIDES OF A SLUICE VALVE CHAMBER. ANCHOR BLOCKS SHALL ENCASE THE PIPE IN CONCRETE (CLASS E, CLAUSE 1502, SPECIFICATION FOR ROADWORKS) TO A MINIMUM THICKNESS OF 150MM ALL ROUND AND SHALL BE A MINIMUM LENGTH OF 750MM.

SLUICE VALVES

SLUICE VALVES SHALL BE PROVIDED SUCH THAT BUILDING CAN AND LENGTHS OF WATERMAIN PASSING BENEATH THE ROADWAY CAN BE ISOLATED. SLUICE VALVES SHALL COMPLY WITH THE REQUIREMENTS OF BS 5163. THE DEPTH OF THE SLUICCE VALVE SPINDLE CAP BELOW FINISHED GROUND LEVEL SHALL NOT EXCEED 200MM.

HYDRANTS

HYDRANTS SHALL BE PROVIDED AS SHOWN AND SUCH THAT NO PART OF THE BUILDING IS MORE THAN 46M FROM A HYDRANT AND THAT A HYDRANT IS NOT LOCATED CLOSER THAN 6M FROM THE BUILDING. THE HYDRANTS SHALL NOT BE LOCATED IN AN AREA WHERE THEY CAN BE OBSTRUCTED. HYDRANTS SHALL BE SCREW DOWN TYPE IN COMPLIANCE WITH THE REQUIREMENTS OF BS 750. HYDRANT OUTLETS SHALL COMPLY WITH THE CHIEF FIRE OFFICERS REQUIREMENTS. THE DEPTH OF THE HYDRANT OUTLET BELOW FINISHED GROUND LEVEL, SHALL NOT EXCEED 200MM.

TRENCH COMPACTION & FILL

SELECTED FILL SHOULD BE FREE FROM STONES LARGER THAN 37.5MM, LUMPS OF CLAY OVER 75MM, TIMBER, FROZEN MATERIAL AND VEGETABLE MATTER. GRANULAR MATERIAL SHOULD BE EITHER 14MM TO 5MM GRADED AGGREGATE, OR 10MM SINGLE SIZED AGGREGATE, COMPLYING WITH THE REQUIREMENTS OF IS 5: PART 1: 1990, TABLE 7 AND SHOULD HAVE A COMPACTION FACTOR VALUE NOT GREATER THAN 0.2 WHEN MEASURED IN ACCORDANCE WITH BS 8301: 1985, APPENDIX D.

COVER

WHERE IT IS NOT POSSIBLE TO ACHIEVE THE MINIMUM COVER STIPULATED IN TABLE 3.3, PIPES SHOULD BE BEDDED AND SURROUNDED IN CONCRETE, 150MM THICK, CLASS E, IN ACCORDANCE WITH CLAUSE 1502 OF THE SPECIFICATION FOR ROADWORKS.

FLEXIBLE PIPES SHOULD BE LAID WITH A MINIMUM COVER OF 1.2M IN ROADS AND DRIVEWAYS, 0.9M IN OPEN SPACES AND FOOTPATHS NOT ADJACENT TO ROADWAYS AND 0.6M IN GARDENS. WHERE IT IS NOT POSSIBLE TO ACHIEVE THESE MINIMUM COVERS, ADDITIONAL MEASURES SHOULD BE TAKEN IN ORDER TO PROTECT THE PIPEWORK. THESE MEASURES MIGHT TAKE THE FORM OF A LAYER OF CONCRETE PAVING SLABS, WITH AT LEAST A 75MM LAYER OF GRANULAR MATERIAL BETWEEN PIPES AND SLABS, FOR GARDENS AND OPEN SPACES. IN THE CASE OF A ROAD, A REINFORCED CONCRETE SURROUND, OR REINFORCED CONCRETE BRIDGING SLABS MAY BE REQUIRED. ALL SUCH MEASURES ARE SUBJECT TO APPROVAL.

PIPE JOINTS

ALL PIPES SHOULD HAVE FLEXIBLE JOINTS FORMED BY A METHOD RECOMMENDED BY THE PIPE MANUFACTURER. ELASTOMERIC SEALING RINGS, COMPLYING WITH THE REQUIREMENTS OF BS 2494, TYPE D, SHOULD BE USED.

STOPCOCKS

A STOPCOCK COMPLYING WITH THE RQUIREMENT SOF BS 1010: PART 2 SHALL BE PROVIDED ON EACH SERVICE PIPE . TOP OF STOPCOCK SHALL BE 300-450MM BELOW FINISHED FOOTWAY LEVELS.

SURFACE BOXES

HYDRANTS, SLUICE VALVE, AIR VALVE AND STOPCOCK CHAMBERS SHALL BE PROVIDED WITH CAST IRON SURFACE BOXES IN COMPLIANCE WITH THE REQUIREMENTS OF IS 261. SURFACE BOXES FOR ROADWAYS AND AREAS ACCESSIBLE TO WHEELED TRAFFIC SHALL BE SUBJECT TO APPROVAL.

SURFACE BOXES SHALL BE BEDDED IN MORTAR ON THE CHAMBER WALLS AND WHERE THE CHAMBER IS LOCATED OTHER THAN ON A FOOTWAY, HARDSTANDING OR ROADWAY, SHALL BE SURROUNDED BY 150MM CONCRETE, 100MM IN DEPTH (CLASS E, CLAUSE 1502, SPECIFICATION FOR ROADWORKS).

INDICATOR PLATES AND MARKER POSTS

THE LOCATION OF HYDRANTS, AIR VALVES AND SLUICE VALVES SHALL BE SHOWN BY INDICATOR PLATES POSITIONED TO THE APPROVAL OF THE ENGINEER.

HYDRANT PLATES SHALL COMPLY WITH THE REQUIREMENTS OF BS 3251. THEY SHALL SHOW THE DIAMETER OF THE WATERMAIN IN MM ON THE UPPER PART OF THE PLATE AND THE DISTRANCE OF THE MARKER FROM THE HYDRANT ON THE LOWER PART OF THE PLATE. ALL CHARACTERS SHALL CONFIRM TO COLOUR REFERENCE NO. 309 (CANARY YELLOW) OF BS 381C

SLUICE VALVE AND AIR VALVE PLATES SHOULD BE IN CAST IRON MEASURING 200X200MM. THEY SHALL HAVE THE LETTERS SV AND AV AS APPROPRIATE, CAST IN RELIEF. THE PLATES SHALL HAVE A BACKROUND IN BLACK BITUMASTIC PAINT, WITH THE LETTERS IN WHITE ENAMEL.

INDICATOR PLATES MAY BE FIXED TO SOLID WALLS.

TESTING AND STERILISATION

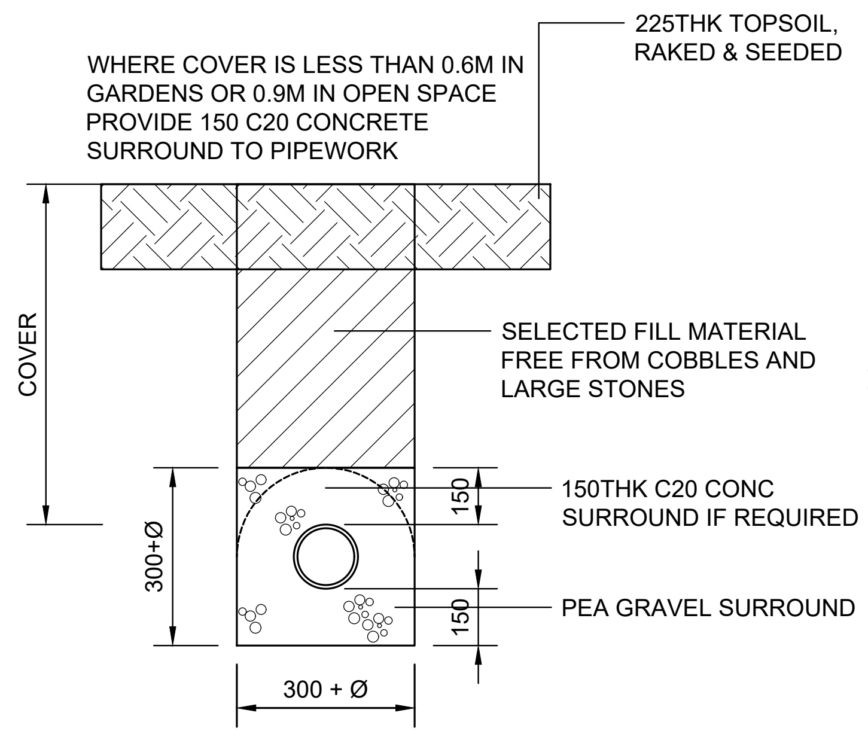
ALL WATERMAINS SHALL BE HYDRAULICALLY TESTED AFTER LAYING, FOR A PERIOD OF BETWEEN 1 AND 24 HOURS AS APPROVED, AT A TEST PRESSURE OF 1.5 TIMES THE SPECIFICED CLASS PRESSURE. THE PIPELINE SHALL BE ADEQUATELY ANCHORED OR RESTRAINED DURING THE TEST.

A TEST PUMP WITH STOPCOCK, WATER TANK AND PRESSURE GAUGE, IS CONNECTED TO THE WATERMAIN AND OPERATED UNTIL THE GAUGE SHOWS THE REQUIRED TEST PRESSURE. (IF IT IS CONSIDERED NECESSARY THE CALIBRATION OF THE PRESSURE GAUGE SHALL BE VALIDATED JUST PRIOR TO THE TEST). THE AMOUNT OF WATER IN THE TANK IS NOTED AT THE BEGINNING OF THE TEST PERIOD. AN HOUR LATER, GAUGE PRESSURE IS INSPECTED AND IF IT HAS FALLE, TEST PRESSURE IS RESTORED BY MEANS OF THE PUMP. THIS PROCESS IS REPEATED AT HOURLY INTERVALS DURING THE TEST PERIOD. THE TOTAL QUANTITY OF WATER PUMPED TO MAINTAIN THE PRESSURE DURING THE TEST IS TERMED THE "APPARENT LEAKAGE".

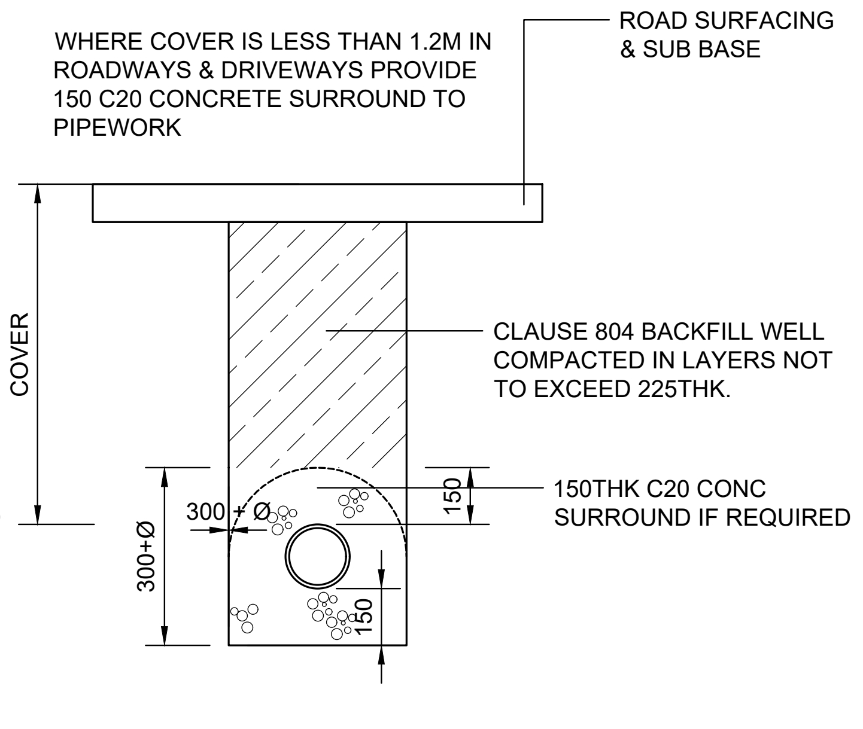
THE APPARENT LEAKAGE SHOULD NOT NORMALLY EXCEED 0.11LITRES PER MILLIMETER OF NOMINAL PIPE DIAMETER PER KILOMETRE LENGTH OF PIPE PER 24 HOURS. AN ALTERNATIVE TEST PROCEEDURE MAY BE APPROVED IN CONSULTATION WITH THE ENGINEER. SHOULD PIPELINES FAIL THE TEST REMEDIAL WORKS SHALL BE TO THE APPROVAL OF THE ENGINEER.

ON COMPLETING THE FINAL TEST, PIPELINES SHALL BE THOROUGHLY FLUSHED OUT. THE SYSTEM SHALL BE STERALISED IN SECTIONS BY ALLOWING WATER CONTAINING AT LEAST 10PPM RESIDUAL CHLORINE TO STAND IN THE MAINS AND SERVICE PIPES FOR AT LEAST 2 HOURS. THE SYSTEM SHALL AGAIN BE THOROUGHLY FLUSHED OUT ON COMPLETION OF THE STERALISATION.

CARE SHALL BE EXCERCISED IN FLUSING OUT THE STERALISED WATERMAINS THAT THE DRAINING LIQUID DOES NOT CAUSE ENVIRONMENTAL DAMAGE.



TRENCH BEDDING
(FLEXIBLE PIPEWORK IN OPEN SPACE)
SCALE 1:20



TRENCH BEDDING
(FLEXIBLE PIPEWORK IN ROADWAYS)
SCALE 1:20

PART 8 SUBMISSION
REF. NO. P82020.06

1	PART 8 PLANNING SUBMISSION	CD	CD	20/03/2020
ISSUE	DETAILS	CHK	DRN	DATE

MCD CIVIL
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CLIENT KARE
PROJECT HOUSING SCHEME AT CRADDOCKSTOWN, NAAS, CO. KILDARE
DRAWING DETAILS

IMPORTANT NOTES

1. THIS DRAWING IS COPYRIGHT. LICENCE IS GRANTED ONLY TO THE NAMED CLIENT AND THEIR REPRESENTATIVES TO SUCH EXTENT AS TO ALLOW THE SPECIFIC WORKS ON THE SPECIFIED SITE TO BE CONSTRUCTED. THIS LICENCE DOES NOT EXTEND TO ANY OTHER WORKS.
2. DO NOT SCALE FROM DRAWINGS. USE FIGURED DIMENSIONS ONLY. IF IN DOUBT, ASK. NOTIFY THE ENGINEER OF ANY ERRORS OR DISCREPANCIES.
3. ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT VERSION(S) OF THE BUILDING REGULATIONS, SAFETY HEALTH & WELFARE AT WORK (CONSTRUCTION REGULATIONS) AND APPLICABLE IS, BS AND EN STANDARDS. WORKS REFERRED TO ON THIS DRAWING WHICH DO NOT MEET THE REQUIREMENTS OF THE ABOVE STANDARDS OR ARE LIKELY TO CAUSE HAZARDOUS WORKING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY AND PRIOR TO THE WORK(S) BEING CARRIED OUT.
4. THE CONTRACTOR OR PERSON(S) RESPONSIBLE FOR CARRYING OUT THE WORKS SHALL CHECK THE ACCURACY OF THE DRAWINGS AND ANY DETAILS/INSTRUCTIONS/SPECIFICATIONS THEREON AGAINST THE SITE, ITS GEOMETERY AND CONDITIONS, PRIOR TO THE CARRYING OUT OF THE WORKS.

PROJECT NO
P17/01
DRAWING NO
02/01
PROJECT PHASE
PLANNING

A1

SCALE 1:20/1:25
DATE MAR 2020