

**DRAINAGE**

- ALL DRAINAGE WORKS TO BE CONSTRUCTED FROM THE OUTFALL TOWARDS THE HEAD OF RUN TO ENSURE THE OUTFALL CAN BE ACHIEVED.
- ALL EXISTING DRAINS & SERVICES (LINE & LEVELS) TO BE CHECKED & CONFIRMED BY THE CONTRACTOR PRIOR COMMENCEMENT OF ANY ON SITE DRAINAGE WORKS. ANY DISCREPANCY IN LEVELS IS TO BE REPORTED IMMEDIATELY TO APP.
- CCTV SURVEY TO BE CARRIED OUT TO VERIFY CONDITION OF ANY EXISTING DRAINAGE TO BE RE-USED.
- ALL DRAINAGE WORK TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS, BS EN 752 & TO THE SATISFACTION OF THE BUILDING INSPECTOR.
- IN ADDITION, ALL SEWERS INDICATED FOR ADOPTION TO BE BUILT IN ACCORDANCE WITH SEWERAGE SECTOR GUIDANCE PUBLISHED BY THE WATER SERVICES ASSOCIATION. SEE SEPARATE NOTES.
- ALL PROPRIETARY ITEMS TO BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S DETAILS, INSTRUCTIONS & SPECIFICATIONS.
- ALL COVER LEVELS ARE APPROXIMATE. EXACT LEVELS TO BE DETERMINED FROM THE EXTERNAL WORKS LAYOUT.
- INVERT LEVELS QUOTED AT MANHOLES & INSPECTION CHAMBERS ARE THOSE OF THE LARGEST CONNECTED PIPE DIAMETER. PIPES AT CHAMBERS TO BE LAID WITH SOFFIT'S LEVEL LINE NOT ACCEPTABLE FOR USE IN DRAINAGE SYSTEMS UNLESS AGREED.
- PIPE GRADIENTS WHERE STATED ARE APPROXIMATE - LEVELS AT THE CHAMBERS TAKE PRECEDENT.
- REFER TO ARCHITECT'S DRAWINGS FOR PRECISE LOCATION OF ALL GULLIES, RAINWATER PIPES, SOIL PIPES ETC.
- ALL SURFACE WATER GULLIES & RAINWATER PIPES ARE TO BE TRAPPED WHERE CONNECTING TO COMBINED DRAINS/SEWERS.
- ALL CONNECTIONS ARE TO HAVE AN ABOVE-GROUND OR FLOOR ACCESS POINT TO ENABLE FUTURE ACCESS FOR MAINTENANCE.
- PIPES & FITTINGS TO BE:
  - CONCRETE PIPES & ANCILLARY PRODUCTS TO BS 5911:2022 & BS EN 1916:2002.
  - VITRIFIED CLAY PIPES & FITTINGS TO BS EN 295:2013.
  - DUCTILE IRON TO BS EN 598:2007 & BS ISO 4179:2005.
  - PERFORATED VITRIFIED CLAY PIPES FOR LAND DRAINAGE TO BS 1196.
  - PLASTIC PIPES FOR LAND DRAINAGE TO BS 4892:1982.
  - PLASTIC PIPING SYSTEMS FOR NON-PRESSURE UNDERGROUND DRAINAGE & SEWAGE TO BS EN 1401 & BS 4890 - SOLID WALL ONLY. STRUCTURED WALL PIPES ARE NOT ACCEPTABLE FOR USE IN DRAINAGE SYSTEMS UNLESS AGREED.
  - PRECAST CONCRETE MANHOLE UNITS TO BS EN 1917:2002.
  - PLASTIC INSPECTION CHAMBERS FOR DRAINS & SEWERS TO BS EN 13598-1:2010.
  - GULLY & MANHOLE TOPS FOR VEHICULAR & PEDESTRIAN AREAS TO BS EN 124:1994.
  - DRAINAGE CHANNELS FOR VEHICULAR & PEDESTRIAN AREAS TO BS EN 1433:2002.
  - ALL MANHOLE COVERS, ROAD GULLY COVERS & FRAMES TO COMPLY WITH BS EN 124 NON ROCKING TYPE.
- UNLESS NOTED OTHERWISE USE CLASS:
  - A15 FOR USE IN PEDESTRIAN AREAS WHERE VEHICLES HAVE NO ACCESS.
  - B125 FOR USE IN CAR PARKS & PEDESTRIAN AREAS WHERE INFREQUENT LIGHT VEHICLE ACCESS IS LIKELY (INCLUDING DRIVEWAYS).
  - C250 FOR ACCESS COVERS & GULLY GRATINGS IN AREAS OF SLOW MOVING, HEAVY TRAFFIC; ALSO FOR GULLY GRATINGS IN CARRIAGEWAY WITHIN 500mm OF KERB & UP TO 200mm INTO THE FOOTWAY.
  - D400 FOR USE IN CARRIAGEWAYS OF ROADS & PARKING AREAS ACCESSED BY ALL TYPES OF VEHICLES.
  - E600 FOR USE IN AREAS WHERE HIGH WHEEL LOADS ARE PRESENT.
  - F900 FOR USE IN AREAS WHERE EXTREMELY HIGH WHEEL LOADS ARE PRESENT SUCH AS AIRCRAFT PAVEMENTS, DOCKS, HEAVY INDUSTRIAL SITES.
- THE INTEGRITY OF ANY REMAINING EXISTING MANHOLE COVERS, ROAD GULLY COVERS & FRAMES WITHIN THE SITE ARE TO BE CHECKED BY THE CONTRACTOR IN TERMS OF CONDITION AND COMPLIANCE WITH THESE REQUIREMENTS. REPAIR OR REPLACE AS NECESSARY, ADJUSTING FRAME LEVELS TO ACCOMMODATE ANY CHANGES REQUIRED TO SITE LEVELS.
- MANHOLES IN INTERNAL AREAS REQUIRE DOUBLE SEALED COVERS WITH LOCKING SCREWS, RECESSED WHERE REQUIRED TO ACCOMMODATE FLOOR FINISHES TO ARCHITECT'S SPECIFICATION.
- PIPE BEDDING
  - USE CLASS S BEDDING UNLESS NOTED OTHERWISE. NB PROTECT AGAINST CONSTRUCTION TRAFFIC AS NECESSARY.
  - USE CLASS Z CONCRETE BED & SURROUND CONCRETE SLAB PROTECTION AS FOLLOWS:
    - CLASS 120 CLAYWARE OR CLASS M CONCRETE (100 - 6000 PIPES)
    - LANDSCAPING - LESS THAN 600mm COVER TO CROWN.
    - HARDSTANDING - LESS THAN 1200mm COVER TO CROWN.
    - PLASTIC (100 - 3000 PIPES)
    - LANDSCAPING - LESS THAN 600mm COVER TO CROWN.
    - HARDSTANDING - LESS THAN 900mm COVER TO CROWN.
- PIPES BELOW CONCRETE GROUND FLOOR SLABS:
  - WHERE THE CROWN OF THE PIPE IS WITHIN 300mm OF THE UNDERSIDE OF SLAB. SPECIAL PROTECTION TO BE PROVIDED IN ACCORDANCE WITH BUILDING REGULATIONS H1 2.44 OR 150mm GEN'S CONCRETE BED & SURROUND CAST INTEGRALLY WITH SLAB.
  - OTHERWISE USE CLASS S BEDDING.
- MAIN BACKFILL TO BE WELL COMPACTED IN 150mm LAYERS OF:
  - SELECTED BACKFILL MATERIAL IN ALL SOFT LANDSCAPED AREAS
  - TYPE 1 GRANULAR MATERIAL IN ALL HARDSTANDING AREAS OR PUBLIC HIGHWAYS
- BACKFILL TO DRAINS NEAR FOUNDATIONS TO BE IN ACCORDANCE WITH BUILDING REGULATIONS H1 DIAGRAMS 8 & 12.

**GENERAL**

- THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT PROJECT DOCUMENTATION.
- OVERALL SETTING OUT DIMENSIONS AND LEVEL DATUMS TO BE CONFIRMED BY THE ARCHITECT.
- ANY DISCREPANCIES BETWEEN THIS DRAWING AND THE ARCHITECTURAL DRAWINGS SHOULD IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE CONTRACT ADMINISTRATOR, ARCHITECT & ENGINEER.
- UNLESS NOTED OTHERWISE, ALL DIMENSIONS ON DRAWINGS ARE IN MILLIMETRES, LEVELS ARE IN METRES.
- DO NOT SCALE OFF DRAWING. ONLY WRITTEN OR CALCULATED DIMENSIONS MUST BE USED FOR THE PURPOSE OF CONSTRUCTION.
- ALL DETAILS AND DIMENSIONS, PARTICULARLY THOSE RELATING TO EXISTING STRUCTURES, ARE TO BE CHECKED OR VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION OR FABRICATION AND ANY DISCREPANCIES REPORTED TO THE CONTRACT ADMINISTRATOR, ARCHITECT & ENGINEER.
- MATERIALS AND WORKMANSHIP MUST COMPLY WITH ALL RELEVANT BS SPECIFICATIONS, NATIONAL/UK CODES OF PRACTICE AND LOCAL AUTHORITY & STATUTORY APPROVALS.
- ANY NAMED PROPRIETARY PRODUCT OR MATERIAL IS PROVIDED AS A REFERENCE ONLY. CONTRACTORS MAY PROPOSE AN ALTERNATIVE PROVIDED THAT THE PRODUCT OR MATERIAL IS OF EQUIVALENT STANDARD SUBJECT TO AGREEMENT OF THE ENGINEER.
- ALL PROPRIETARY PRODUCTS ARE TO BE USED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S DETAILS AND REQUIREMENTS.
- CONTRACTORS MUST IDENTIFY IN THEIR TENDER SUBMISSION, ANY PRODUCTS THAT HAVE LONG LEAD-IN PERIODS FOR WHICH THE MATERIALS WOULD NEED TO BE PRE-ORDERED PRIOR TO THE AWARD OF THIS CONTRACT.

**ABANDONED/REDUNDANT DRAINAGE**

- CONTRACTORS MUST UNDERTAKE A CCTV SURVEY OF THE DRAINS TO BE ABANDONED TO CONFIRM THAT THERE ARE NO LIVE CONNECTIONS REMAINING.
- ALL ABANDONED DRAINAGE PIPES MUST BE EITHER GRUBBED OUT OR FILLED WITH A GROUT CONSISTING OF ONE OF THE FOLLOWING:
  - CLASS G3 GROUT TO CONSIST OF 1:10 CEMENT:SAND - MIXED WITH THE MINIMUM AMOUNT OF WATER TO ENSURE FLUIDITY.
  - CLASS G4 GROUT TO CONSIST OF 1:10 CEMENT:PPA - MIXED WITH THE MINIMUM AMOUNT OF WATER TO ENSURE FLUIDITY.
- GROUT TO BE PUMPED UNDER PRESSURE FROM THE HIGHER END OF THE PIPE BEING FILLED ENSURING THAT NO LENGTH OF PIPE IS FILLED UNTIL ALL UPSTREAM CONNECTING LENGTHS HAVE BEEN COMPLETED.
- SEALS AT THE LOWER END OF EACH PIPE LENGTH TO BE FITTED WITH A FLEXIBLE BREATHER PIPE, FIXED AT THE PIPE SOFFIT AND TURNED VERTICALLY UPWARDS TO A HEIGHT OF 600mm ABOVE THE SOFFIT OF THE HIGHER END OF THE PIPE.
- THE HEAD OF EXISTING PIPE LENGTHS 'CUT-OFF' AND EXPOSED DURING EXCAVATIONS FOR NEW WORKS SHALL BE SUITABLY SEALED AND A 150mm FLEXIBLE INJECTION PIPE CONSTRUCTED THROUGH THE SEAL AT THE PIPE SOFFIT. THIS SHALL BE TURNED VERTICALLY AND EXTENDED UPWARDS FOR AT LEAST 1m.
- ON COMPLETION OF GROUTING OPERATIONS, THE INJECTION PIPE SHALL BE SEALED WITH A PLUG OF CONCRETE AT LEAST 150mm DEEP AND HAVING 150mm BEARING OUTSIDE THE INJECTION PIPE.
- SURPLUS WATER SHALL BE DISPOSED OF WITHOUT CAUSING A NUISANCE.
- SHAFTS OF ABANDONED/REDUNDANT MANHOLES ARE TO BE BROKEN DOWN TO A LEVEL OF 1m BELOW FINISHED GROUND LEVEL AND THE REMAINING VOID FILLED WITH GENC CONCRETE.

**Notes**

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**KEY**

- SITE BOUNDARY
- EXISTING LEVELS
- PROPOSED LEVELS
- GRADIENT
- SUB-BASE LEVEL
- EXISTING DRAINAGE TO BE ABANDONED
- NEW ADAPTABLE STORM INSPECTION CHAMBER (SIZE VARIES). TO BE CONSTRUCTED IN ACCORDANCE WITH SSG APPENDIX C, DCG
- NEW PRIVATE STORM DRAIN
- NEW PRIVATE PERFORATED PIPE WITHIN PERMEABLE AREAS (PIPE TO BE STANDARD CONSTRUCTION OUTSIDE PERMEABLE AREAS)
- NEW PRIVATE PERMEABLE PAVING (LINED) 380mm<sup>2</sup>
- ADDITIONAL SHARED AREA ADOPTED UNDER S278 AGREEMENT
- 0.5m CONTOURS
- 0.1m CONTOUR
- STEPS (SHOWN AS 0.15m HEIGHT AND 0.3m WIDTH)

PROPOSED LEVELS SHOWN INDICATIVELY. A TOPOGRAPHIC SURVEY IS REQUIRED POST-DEMOLITION TO CONFIRM THE FINAL AS BUILT LEVELS

EXISTING SERVICES TO BE DIVERTED DUE TO POTENTIAL CLASHES WITH THE PROPOSED PERMEABLE PAVING. FURTHER CCTV SURVEY(S) REQUIRED.

EXISTING YORKSHIRE WATER NETWORK TO BE ABANDONED UP TO EXCMH4. S116/S116 APPLICATION IS REQUIRED DEPENDING IF THE NETWORK IS IN USE OR NOT.

A FURTHER CCTV SURVEY IS REQUIRED TO CONFIRM IF EXISTING DRAINAGE IS LIVE OR CAN BE ABANDONED. A S185 OR S116 WOULD BE REQUIRED DEPENDING ON WHETHER IS USE OR NOT.

ADDITIONAL SHARED AREA HIGHLIGHTED TO BE ADOPTED UNDER S278 AGREEMENT. ADDITIONAL AREA TO BE DRAINED INTO EXISTING HIGHWAYS GULLY ARRANGEMENT.

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EXCMH4. INVERT LEVEL TO BE CONFIRMED ON SITE BY THE CONTRACTOR.

LEVELS AT NORTHWEST BOUNDARY NOT KNOWN DUE TO ACCESS LIMITATIONS DURING TOPOGRAPHIC SURVEY

A FURTHER CCTV SURVEY IS REQUIRED TO CONFIRM IF EXISTING DRAINAGE IS LIVE OR CAN BE ABANDONED. A S185 OR S116 WOULD BE REQUIRED DEPENDING ON WHETHER IS USE OR NOT.

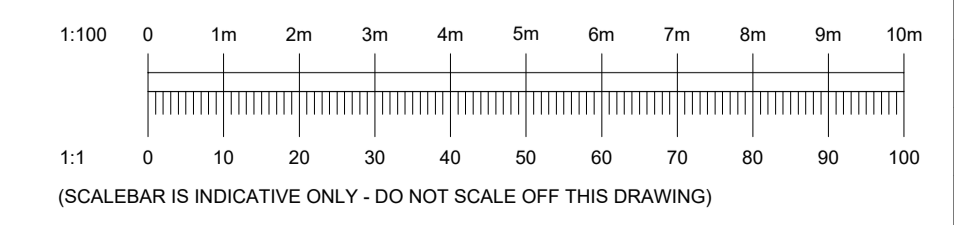
DUE TO EXPECTED LEVEL DIFFERENCE: 3NO. STEPS REQUIRED. IN ACCORDANCE WITH BUILDING REGULATIONS PART M. MIN. 150mm RISER 300mm-425mm GOING ALTERNATIVE GOINGS/RISERS SUBJECT TO AGREEMENT WITH BUILDING CONTROL.

ADDITIONAL SHARED AREA HIGHLIGHTED TO BE ADOPTED UNDER S278 AGREEMENT. ADDITIONAL AREA TO BE DRAINED INTO EXISTING HIGHWAYS GULLY ARRANGEMENT.

S1 HYDRO-BRAKE CL TO BE BASED ON THE LEVEL OF THE RAISED PLANTED. CURRENT CL IS TAKEN THAT THE RAISED PLANTED IN MAX 100mm ABOVE THE PROPOSED LEVELS.

S106 APPROVAL IS REQUIRED FOR THE FINAL CONNECTION. THIS IS TO BE CARRIED OUT BY THE CONTRACTOR.

S278 REQUIRED DUE TO ALTERATIONS TO EXISTING HIGHWAYS PUBLIC FOOTWAY AND DROPPED KERB TO ALLOW NPG ACCESS.



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**align** PROPERTY SERVICES

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Purpose: **PRELIMINARY**

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