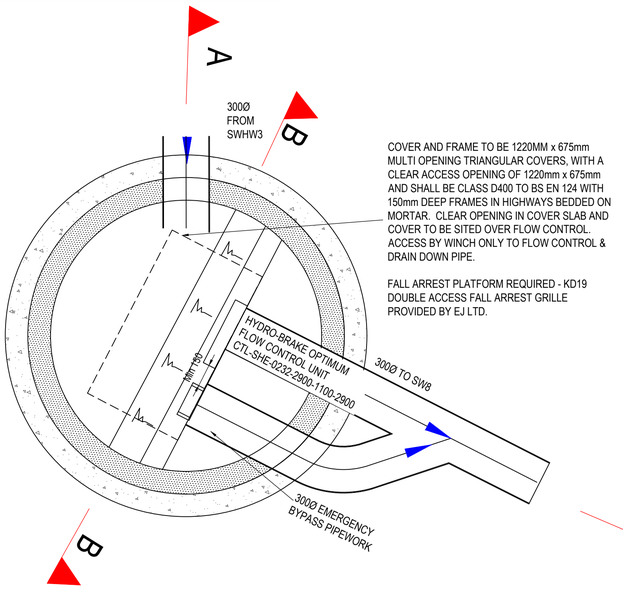
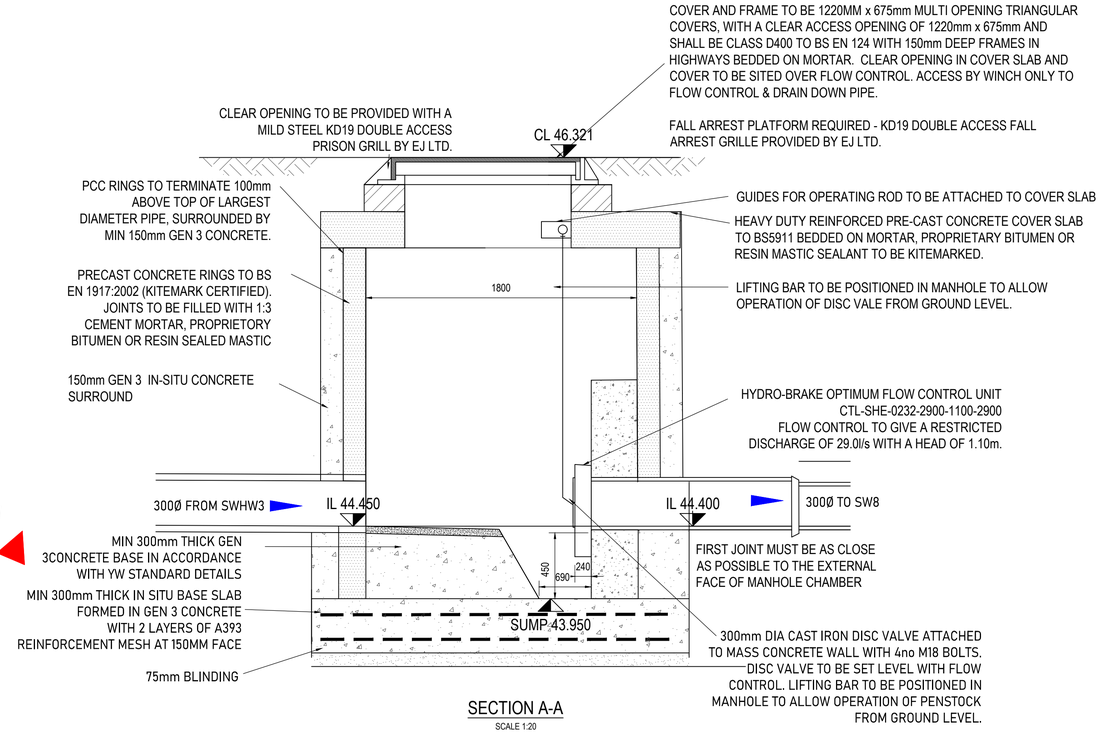
# YW REFERENCE NUMBER: S104-2026-036

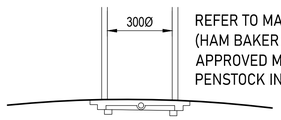



PLAN ON FLOW CONTROL MANHOLE SW7
SCALE 1:20




SECTION A-A
SCALE 1:20

| SW7 HYDROBRAKE DETAILS | | |
|---|---|---|
| REFERENCE: CTL-SHE-0232-2900-1100-2900<br>DESIGN HEAD: 1.100m<br>ORIFICE SIZE: 82mm<br>DESIGN FLOW: 29.00l/s<br>INVERT LEVEL: 44.450m | | |
| TECHNICAL SPECIFICATION | | |
| CONTROL POINT | HEAD (m) | FLOW (l/s) |
| PRIMARY DESIGN | 1.100 | 29.000 |
| FLUSH - FLO | 0.388 | 28.995 |
| KICK - FLO | 0.803 | 24.940 |
| MEAN FLOW | | 24.270 |



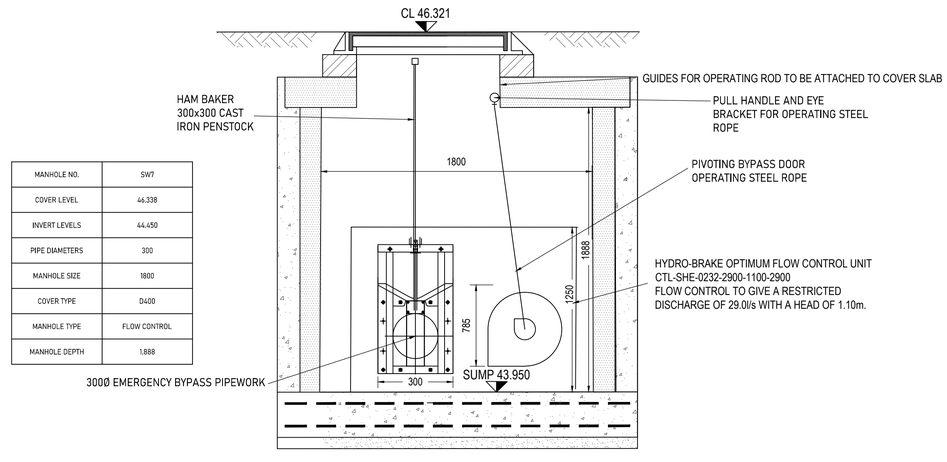

REFER TO MANUFACTURERS DETAILS (HAM BAKER - YORKSHIRE WATER APPROVED MANUFACTURER) FOR PENSTOCK INSTALLATION MANUAL.

PENSTOCK WALL MOUNT DETAIL
NOT TO SCALE

LIFTING BAR TO BE POSITIONED IN MANHOLE TO ALLOW OPERATION OF PENSTOCK FROM GROUND LEVEL. BYPASS PENSTOCK RISING STEM WITH CAP FOR TEE KEY OPERATION MANUFACTURED FROM CAST IRON BY EVS LIMITED. 375x375mm CLOSE FRAME WALL MOUNTED Bi-DIRECTIONAL NON RISING PENSTOCK ATTACHED TO MASS CONCRETE WALL WITH 12 No. M16 BOLTS. DISK VALVE TO BE SET LEVEL WITH FLOW CONTROL.

OPERATING ROD TO BE POSITIONED SO COVER CANNOT BE SHUT WHILST DISC VALVE IN OPEN POSITION. CONSTRUCTED FROM MILD STEEL TO BS4360 GRADE 43A.

IF TEE KEY IS TO BE USED WITH THE OPERATING ROD AND IS SPECIFIC TO THE PRODUCT USED THEN THE TEE KEY IS TO BE HANDED OVER TO THE YORKSHIRE WATER CLERK OF WORKS FOR FUTURE USE IF REQUIRED.




| | |
|---|---|
| MANHOLE NO. | SW7 |
| COVER LEVEL | 46.338 |
| INVERT LEVELS | 44.450 |
| PIPE DIAMETERS | 300 |
| MANHOLE SIZE | 1800 |
| COVER TYPE | D400 |
| MANHOLE TYPE | FLOW CONTROL |
| MANHOLE DEPTH | 1.888 |

SECTION B-B
SCALE 1:20

SUBJECT TO LOCAL AUTHORITY & WATER AUTHORITY APPROVAL

**DESIGN RISK NOTES:**

1. IN ACCORDANCE WITH THE CONSTRUCTION (DESIGN & MANAGEMENT) REGULATIONS 2015, IT IS THE POLICY OF THIS PRACTICE TO 'DESIGN OUT' AS MANY IDENTIFIABLE RISKS AS POSSIBLE FOR THE CONSTRUCTION, OPERATION AND MAINTENANCE OF THE PROJECT.
2. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE PRE CONSTRUCTION INFORMATION WHICH IS DEFINED IN THE CONSTRUCTION (DESIGN & MANAGEMENT) REGULATIONS 2015.
3. A COMPETENT CONTRACTOR SHOULD BE AWARE OF "NORMAL" RISKS INVOLVED WITH THE CONSTRUCTION PROCESS. HOWEVER ADDITIONAL PRECAUTIONS WILL NEED TO BE CONSIDERED FOR THE FOLLOWING ITEMS:
   A) NONE IDENTIFIED.
4. SAFE METHODS AND SYSTEMS OF WORK REMAIN THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE IDENTIFIED IN THE CONSTRUCTION PHASE PLAN. THE CONSTRUCTION PHASE PLAN MUST BE IN PLACE PRIOR TO THE START OF ANY MOBILIZATION OR SITE WORKS.
5. RESIDUAL RISKS THAT HAVE BEEN IDENTIFIED AND CANNOT BE 'DESIGNED OUT' ARE AS FOLLOWS:
   A) NONE IDENTIFIED.
6. IF ANY PARTY USING THIS DRAWING CONSIDERS THAT THERE ARE "ABNORMAL" RISKS THAT HAVE NOT BEEN IDENTIFIED ABOVE, THEN THE ENGINEER SHOULD BE NOTIFIED.

**ADDITIONAL HEALTH & SAFETY NOTES:**

ROADS & DRAINAGE
1. CONTRACTOR SHOULD BE AWARE OF GENERAL CONSTRUCTION RISKS TO PREVENT SLIPS, TRIPS AND FALLS AND TAKE NECESSARY PRECAUTIONS WITHOUT SPECIAL INSTRUCTION.
2. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE
3. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
4. CONNECTIONS TO EXISTING SEWERS TO BE MADE BY APPROVED CONTRACTOR ONLY.
5. CONTRACTOR TO MAKE OPERATIVES AWARE OF ASSOCIATED DANGERS TO HEALTH SUCH AS LEPTOSPIROSIS (WEILS DISEASE) AND RECOMMENDED PRECAUTIONS. ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING TO BE PROVIDED AS REQUIRED.
6. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.

PIPES & CABLES
7. CONTRACTOR TO OBTAIN ALL SERVICE RECORDS PRIOR TO WORKS COMMENCING.
8. SERVICE RECORDS TO BE REFERRED TO PRIOR TO WORK COMMENCING. CONTRACTOR TO PROCEED WITH CAUTION AND SERVICES TO BE LOCATED BY HAND DIG AND PROTECTED ACCORDINGLY.

EXCAVATION/FILL
9. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
10. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
11. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.
12.

**DESIGN NOTES:**

1. ALL WORKS TO COMPLY WITH CURRENT VERSION OF THE FOLLOWING DOCUMENTS:
   - DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB)
   - SPECIFICATION FOR HIGHWAY WORKS (SHW)
   - LOCAL AUTHORITY DESIGN GUIDE AND SPECIFICATION
2. PRIOR TO COMMENCING WORKS THE CONTRACTOR SHOULD INVESTIGATE AND LOCATE AS NECESSARY ANY STATUTORY UNDERTAKERS EQUIPMENT WITHIN THE NEW ACCESS AND DISCUSS REQUIREMENTS FOR LOWERING/DIVERSION AND PROTECTION WITH THE RELEVANT UNDERTAKER.
3. ALL WORKS WITHIN THE PUBLIC HIGHWAY TO MEET LOCAL AUTHORITY REQUIREMENTS. CONTRACTOR TO APPLY FOR ROAD OPENING NOTICES ETC AS REQUIRED.
4. CBR VALUE NOT AVAILABLE. ROAD CONSTRUCTION DETAIL SUBJECT TO CONFIRMATION OF CBR VALUES. CONTRACTOR TO ALLOW FOR LAB TESTS TO BE UNDERTAKEN IN AGREEMENT WITH LOCAL AUTHORITY HIGHWAY ENGINEER PRIOR TO WORKS COMMENCING.
5. PROPOSED LEVELS HAVE BEEN BASED ON THE EXISTING TOPOGRAPHICAL SURVEY PROVIDED BY THE CLIENT
6. PROPOSED DRAWING BASED ON THE LATEST ARCHITECTURAL LAYOUT PROVIDED BY THE CLIENT.
7. SLOPES GREATER THAN 1 IN 6 MAY REQUIRE STABILISATION. GEOTECHNICAL ENGINEER TO BE CONTACTED TO CONFIRM REQUIREMENTS

DRAINAGE NOTES:

1. ALL ADOPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH "DESIGN AND CONSTRUCTION GUIDANCE (DCG)/CODE FOR ADOPTION", THE RELEVANT BRITISH/ EUROPEAN AND YORKSHIRE WATER'S STANDARDS/REQUIREMENTS/ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED
2. MANHOLE COVERS SHALL/MUST HAVE A CLEAR OPENING OF 600MM AND SHALL BE CLASS D400 TO BS EN 124 WITH 150MM DEEP FRAMES IN HIGHWAYS.
3. FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.
4. YORKSHIRE WATER IS NOT OBLIGED TO ACCEPT FILTER DRAIN/LAND DRAINAGE RUN-OFF INTO THE PUBLIC SEWER NETWORK OR ADOPTABLE DRAINAGE SYSTEM (DIRECTLY OR IN-DIRECTLY). AN ALTERNATIVE METHOD OF DISPOSAL OF THE LAND DRAINAGE RUN-OFF WILL THEREFORE BE REQUIRED AND YOU WILL HAVE TO LIAISE WITH THE LOCAL AUTHORITY, LAND DRAINAGE SECTION REGARDING THE DISPOSAL OF THE FILTER DRAIN/LAND DRAINAGE RUN-OFF.
5. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.5M FROM KERB FACES AND SERVICE MARGINS.
6. SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES OR THE WIDTH OF THE CANOPY AT MATURE HEIGHT.
7. SEWERS TO BE LAID IN CLASS "S" BEDDING (150MM GRANULAR BED AND SURROUND). WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2M IN HIGHWAYS AND VERGES (OR LESS THAN 900MM IN NONVEHICULAR ACCESS AREAS) THEN A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
8. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-08-02 (TABLE A2).
9. YORKSHIRE WATER POLICY IS THAT TYPE "C" BRICK MANHOLES AND 1050MM DIAMETER MANHOLE RINGS ARE NOT PREFERRED. INSTEAD, IT IS PREFERRED THAT YOU USE A TYPE "B" MANHOLE WITH 1200MM DIAMETER OR 1500MM DIAMETER RINGS, WITH THE OPENING SITED OVER THE CHANNEL WHERE DEPTH OF COVER TO PIPE SOFFIT IS 1 - 1.5M.
10. ADOPTABLE PLASTIC SEWER PIPES TO BE BSI KITEMARKED (CERTIFIED TO WIS 4-35-01 AND BS/EN13476). ADOPTABLE PLASTIC SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS. PLASTIC CHANNEL SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND YORKSHIRE WATER WOULD REQUIRE CLAY WARE CHANNEL IN MANHOLES.
11. THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE AS FOLLOWS: 100MM DIA. 40KN/M, 150MM DIA. 40KN/M, 225MM DIA. 45KN/M AND 300MM DIA. 72KN/M. THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE - (CLASS 120 TO EN 976/BS5911-1 2002). PLASTIC PIPES SHOULD CONFORM TO WIS 4-35-01 AND BS EN13476.
12. WHERE A B125 COVER AND FRAME HAS BEEN APPROVED, THIS MUST NOT BE COATED IN PLASTIC AND MUST HAVE LIFTING EYES SUITABLY SIZED TO ACCOMMODATE STANDARD LIFTING KEYS. SCREW DOWN COVERS ARE NOT ACCEPTABLE.
13. THERE MUST BE ENOUGH CLEARANCE AT CROSSOVERS TO ACCOMMODATE BEDDING TO BOTH PIPES, APPROX. 300MM - IF CROSSOVER IS NEAR THE ROCKER THEN THE CLEARANCE NEEDED MAY NEED TO BE INCREASED".

**PIPE MATERIALS (YORKSHIRE WATER)**

- **150-225Ø: UPVC PIPES TO BE BSI KITEMARKED AND CERTIFIED TO WIS 4-35-01 & BS/EN13476.**
- **300-600Ø: HDPE PIPES TO BE BSI KITEMARKED AND CERTIFIED TO WIS 4-35-01 & BS/EN13476.**
- **675-1350Ø: CONCRETE PIPES TO BE BSI KITEMARKED, CLASS 120 CONCRETE & CERTIFIED TO BS5911 & 1916.**

**PIPE MATERIALS (BMBC)**

- **150-225Ø: VITRIFIED CLAY TO BE BSI KITEMARKED AND CERTIFIED TO BS EN 295.**
- **300-1350Ø: CONCRETE PIPES TO BE BSI KITEMARKED, CLASS 120 CONCRETE & CERTIFIED TO BS5911 & 1916.**

| Date | Revisions | Drawn | Checked | Rev |
|---|---|---|---|---|
| 07.09.2026 | MINOR CHANGES TO COVER LEVEL | SR | AE | 03 |
| 12.08.2026 | UPDATED TO SUIT S104 COMMENTS | SR | AE | 02 |
| 30.06.2026 | FIRST ISSUE | SR | AE | 01 |

Dwg Status: TENDER


NORTH EAST 0191 2585632
YORKSHIRE 0113 535 3500
RWO CONSULTING ENGINEERS
WWW.RWO.GROUP
INFO@RWO.GROUP


Client: VISTRY GROUP

Project: SHAW LANE CARLTON

Title: SW7 FLOW CONTROL DETAILS

| | | | | |
|---|---|---|---|---|
| DO NOT SCALE | Scale @ A1: NTS | Drawn SR | Checked AE | Date 30.06.2026 |
| Job No 24307 | | Dwg No D705 | | Rev 03 |