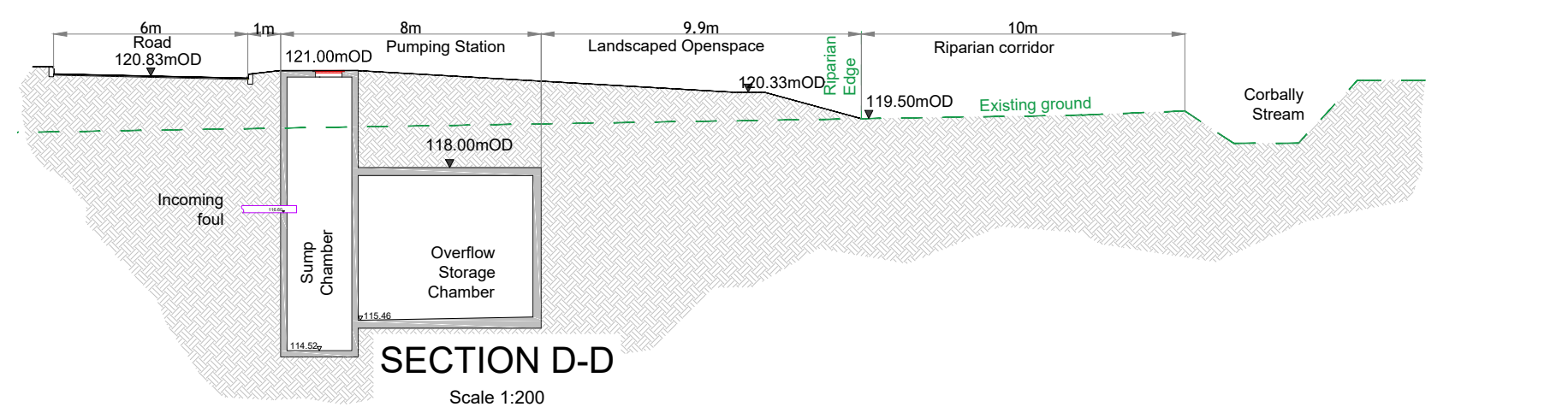


ANCHOR BLOCK SIZES LxH (mm).			
Pipe (diameter) :	100	150	200
Bend (degrees):			
90°	600x600	1000x600	1200x800
45°	600x600	600x600	800x800
22½°	600x600	600x600	600x600
11¼°	-	-	600x600

Refer also to Uisce Éireann STD-WW-14 for more thrust block



GENERAL

A. Step iron pits should be provided in manholes greater than 1m and all electrical equipment to be Extra-Low.

DESIGN

1. The equipment and installation must comply with all Safety Regulations and the latest editions of all relevant Irish, British and harmonized European Standards and the EUropean agreement.

2. The electrical installation must comply with the current requirements of the Electrical Technical Council of Ireland EN 101: National Rules for Electrical Installations, 3rd Edition & including Annexes 1, 2 and 3, with the National Rules of the Republic of Ireland, 1997.

3. The layout and positioning of equipment should facilitate its safe and efficient maintenance.

4. The layout of the wiring should be provided to protect the equipment, the equipment and 34 cable voltage (cables), Access to the power and telecommunications network should also be provided.

5. The pumping station shall be located as shown on plans and shall not give rise to noise or odour nuisance.

6. The layout of the piping should be provided to protect the equipment, the equipment and 34 cable voltage (cables), Access to the power and telecommunications network should also be provided.

7. The pumping station shall be located as shown on plans and shall not give rise to noise or odour nuisance.

8. The layout of the piping should be provided to protect the equipment, the equipment and 34 cable voltage (cables), Access to the power and telecommunications network should also be provided.

SUMP, STORAGE & VALVE CHAMBER

7. The sump and valve chamber which are classified as Hazardous Zone 1.

8. The sump design shall allow a free flow to the pumps without the formation of vortices and have an effective volume so as to limit the number of pump starts to less than 150 per hour.

9. The pump operating levels will be chosen to ensure that the pump motor housing shall be submerged at all times.

10. The inflow to the sump shall incorporate a macerating unit and/or screen located in a separate chamber.

11. The inflow pipe(s) shall be fitted with a penstock and buffer. The penstock spindle shall extend to the sump and be fitted with a penstock and buffer.

12. The overflow tank flow and return to the sump shall be fitted with penstock isolation.

13. The overflow tank shall be fitted with submersible jet aerators equipped with quick release couplings complete with galvanneal guide rails, galvanneal lifting chain, cable suspension and chain hook.

14. Tank(s) shall be fitted with approved access covers and ventilation.

RISING MAIN

15. The rising main chamber shall be chosen to ensure a velocity in the range of 0.8 to 2m/sec and empty at least 15 times per day to avoid sediment. In-circuit surge protection may arise, a separate chemical dosing system may be required where longer retention times may arise.

16. The rising main chamber shall be 1000mm diameter (min). All pipework (Cast Iron, Ductile Iron, MDPE or HDPE) shall be rated to 1.5 times the max hydraulic surge pressure and be BLACK-IN colour, blue pipes are not acceptable.

17. The rising main shall be adequately braced at any change in direction to detail with provision for air valves & air vents.

PUMP

18. The pumps, duty/standby, shall be of the centrifugal, uncheckable, submersible type, with a non-overloading characteristic.

19. The pumps shall operate at a maximum speed of 1500 rpm.

20. The impellers to be suited to the motor shaft and provide a solids passage of 50mm minimum.

21. The integrally coupled keyway cage induction motors to be suitable for a 400v, 50hz supply, designed for use in a Hazardous Zone 1, with protection as defined in BS EN 60079.

22. The pumps shall operate near maximum efficiency at the duty point.

23. The pumps to be equipped with quick release couplings complete with galvanneal guide rails, galvanneal lifting chain, cable suspension and chain hook.

24. Lifting chains shall be to BS EN 818 and BS EN 816 providing a larger 50mm link at 1m intervals to assist with pump lifting.

PIPEWORK

25. The pumping station, storage tank and valve chambers pipework shall be cast iron ductile flanged PN 16 (min).

26. All pipework shall be adequately braced and assembled with zinc plated bolts, nuts, washers and gaskets.

VALVES

27. The pump discharges shall be fitted with gate valves (clockwise closing) BS 5150 and non-return valves BS 5153 located in a valve chamber adjacent to the pump sump.

28. Disarming joints may be used where appropriate to facilitate valve removal.

29. The pump chamber shall also have a bypass connection to the rising main fitted with a gate valve and Ball valve coupling.

CHAMBER COVERS

30. The sump and valve chamber access covers shall be hinged, lockable, gas or spring assisted and provide a clear opening of at least 800mm to enable the removal of each pump unit vertically.

31. Tripod safety grids shall be provided for the covers.

32. The covers shall be capable of taking D400 loading.

MAGNETIC FLOW METER

33. A Magnetic Flow meter (MFB) shall be installed in a separate chamber.

34. The instrument display shall be provided in the same enclosure as the ultrasonic unit.

35. The meter shall record both forward and reverse flow and transmit outputs to telemetry system.

CONTROL BUILDING

6. The power supply and pump control panel will be located at control building adjacent to the pump supply.
7. The meter cabinet(s) will be a meter cabinet(s), main switch, fuse, distribution board and any required accessories.
8. A lightning protection system should be provided to control building and equipment/control panel to IS EN 62305 2006 standard.
9. All cables shall be run on cable tray or in trunking within the control building.
10. A twin 13amp socket outlet, twin polycarbonate fluorescent fitting, 20kw overhead lighting (with timer) and undersink water heater (for wash-hand basin) shall be provided.
11. All supplies to this equipment shall be in accordance with the specification BS 6858.
12. Ducting shall be provided for the ESB supply and telephone line (telephony) to the control building. The ducts between the control building and the pump building shall be adequately sealed against the sun and rain so as to preserve the control building as a non-hazardous area.
13. A 20M fire hose reel shall be located in the control building to facilitate the washing down of the pumps.
14. There shall be made for the installation of a key safe in the external wall of the control building as required by the client.

PUMP CONTROL

45. The pump operation (dry/standby or dry/assist) shall be controlled by means of an ultrasonic level controller with the transmitter head mounted in a convenient location in the sump.
46. Pump cabling shall be PVC (ISWAPVC) to BS E346
47. Pump and control cables shall be terminated in enclosures to comply with BS 5345 located in a minimalist enclosure to the sump.
48. Pump lock-stop shall also be located in this minimalist.
49. The pump control shall be a 24VDC system with a 10A fused 50 A supply as defined in BS 544 standard. The pump control equipment shall be to BS E8941 Parts 1, 2, 3 or 4 as appropriate.
50. Control circuit drawings must be approved by SDCG before the manufacture of the control panel. The control panel shall incorporate the following details:
 51. Power Factor equipment (corrected to 0.95) to be located in separate enclosure fitted to the main control panel.
 52. The power supply to the ultra sonic controller shall be fitted with a surge suppressor.
 53. The telemetry equipment, ultrasonic controller and magnetic flowmeter display units shall be located in a separate enclosure fitted to the main control panel.
 54. The panel(s) shall be complete with labelling, cable numbering and a circuit diagram.
55. A Completion Certificate shall be provided for the electrical installation to confirm compliance with the above.

TELEMETRY

56. The telemetry enclosure shall be fitted with relays to give volt free contacts for the following conditions:

- Pump no 1 run
- Pump no 2 run
- Pump no 1 trip
- Pump no 2 trip
- Phase Failure
- Pump no 1 overheat
- Pump no 2 overheat
- Pump not 1 construction
- Pump no 2 moisture
- Sump high level

57. All telemetry is to be fully integrated with the SDOCCU monitoring/management system and the specific details are to be agreed with the Local Authority in advance of construction commencing.

58. Signals from the magnetic flowmeter shall be available at terminals in the telemetry enclosure.

59. When the pumping station is being taken in charge, a replacement pump of equivalent specification to the duty pumps shall be supplied to the Local Authority prior to hand over stage. This is to be included in the price.

- 1. Inexhaustive list of Control Panel elements to include the following and TBC by SDCC & UE in advance of construction:
 - 1. Main interlocked isolator.
 - 2. DOL or ASDI contrainers & Overloads Drives greater than 5kW to have ASD Starters.
 - 3. Ammeters
 - 4. Hour run Meter.
 - 5. Run and trip light.
 - 6. Hand-off-auto switch.
 - 7. Duty select by ultrasonic unit (Pill/flop).
 - 8. Reset buttons.
 - 9. Moisture/Overheat indicators.
 - 10. Ultrasonic control unit with power surge controller.
 - 11. Voltmeter c/w select switch.
 - 12. Main H.C.R & control fuses.
 - 13. Low voltage transformer 240/240volt.
 - 14. Anti condensation heater.
 - 15. Phase failure relay.
 - 16. Generator connection/changeover facility.

REV	DATE	DESCRIPTION
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