



RIDGE

**ANCOATS DISPENSARY,
MANCHESTER
DRAINAGE STRATEGY REPORT
GREAT PLACES HOUSING GROUP LTD.
April 2021**

**ANCOATS DISPENSARY, MANCHESTER
DRAINAGE STRATEGY REPORT
GREAT PLACES HOUSING GROUP LTD.**

April 2021

Prepared for

Great Places Housing Group Ltd.

2a Derwent Avenue
Manchester
M217QP

Prepared by

Ridge and Partners LLP
Belvedere House
5th Floor
12 Booth Street
Manchester
M2 4AW

Contact

Philip Barrett
Senior Civil Engineer
pbarrett@ridge.co.uk

Tel: 07425637708

VERSION CONTROL

[illegible]

CONTENTS

1.	EXECUTIVE SUMMARY	1
2.	INTRODUCTION	3
3.	PLANNING POLICY AND CONSULTATION	4
3.1.	Strategic Flood Risk Assessment (SFRA)	4
4.	THE SITE	5
4.1.	Site Details	5
4.2.	Site Description	5
4.3.	Proposed Development	7
5.	OUTLINE DRAINAGE STRATEGY	8
5.1.	Existing Surface Water Runoff	8
5.2.	Geology	8
5.3.	Hydrology	9
5.4.	Existing Drainage	9
5.5.	Sustainable Drainage Systems	10
5.6.	Surface Water Drainage Strategy	15
5.7.	Pollution Control	16
5.8.	Foul Water Strategy	17
6.	MANAGEMENT MEASURES, OFF SITE IMPACTS AND RESIDUAL RISK	18
6.1.	Surface Water Flood Risk	18
6.2.	Off Site Impacts	18
6.3.	Residual Risk	18
7.	APPENDICES	19
▪	Appendix A – Architectural Site Layout	
▪	Appendix B – Site Topographical Survey	
▪	Appendix C – Ridge Design Drawings	
▪	Appendix D – Outline Surface Water Attenuation Calculations	
▪	Appendix E – UU Pre Development Enquiry	

1. EXECUTIVE SUMMARY

This report details the drainage strategy for a proposed residential development at the Grade 2 listed Ancoats Dispensary building on Old Mill Street, Ancoats, Manchester. Table 1 below provides a summary of the SuDS and drainage strategy for the scheme.

Table 1 – Drainage / SuDS Summary

Item	Brief Description
Geology	A Preliminary Geotechnical and Geoenviromental report was undertaken by Arup for the development immediately to the south of the site (referred to as Lampwick), on behalf of Manchester Life Development Company Ltd, report ref: LAMP/REP/GEO/002 – Issue 2, dated June 2017. The preliminary investigations indicate that the geology is likely to be made up of cohesive and granular Made Ground was recorded from ground level to depths of between 0.8m and 5m bgl and generally comprised sandy gravel and soft to firm sandy gravelly clay. The gravel typically comprised fine to coarse angular to subrounded brick, concrete, asphalt, ceramics, coal, clinker, ash, limestone, mudstone and sandstone, with wood, plastic and metal noted. The Made Ground was underlain by cohesive Glacial Till and granular Glaciofluvial Deposits to depths of between 19.5m and 23.5m bgl. The cohesive Glacial Till was described as firm to stiff sandy slightly gravelly clay and the Glaciofluvial Deposits described as dense to very dense sandy gravel.
Infiltration Rate	The proposed development footprint of the site means that there is not any location within the site boundary that is >5m from foundations. The site geology is made up of made ground overlying cohesive natural strata. Cohesive soils provide low infiltration rates and as such, the natural soils at the site are unsuitable for infiltration.
Nearest Watercourses	There are no watercourse in the vicinity of the site. The nearest watercourse is the River Medlock approximately 500m south east of the site. The nearest waterbody is Islington Marina and the Ashton Canal, approximately 70m south and west of the site.
Nearest Adopted Sewers	There are adopted combined sewers that pass along the northern and eastern boundaries of the site. See Figure 2
Surface Water Outfall and SuDS Hierarchal Approach	Based on the SuDS hierarchy of drainage options, as infiltration, watercourse and surface water sewer have been discounted above, surface water will discharge into the public combined sewer. United Utilities will a pass forward flow rate of 7.5 l/s, see Appendix E
Existing Discharge Rate	Brownfield – Existing discharge based on 50mm / hr rainfall intensity is 15.012 l/s
Proposed Discharge Rate	Runoff will be restricted to greenfield runoff rates, with a maximum discharge of 7.5l/s. This is a 50% reduction in the existing state.

Item	Brief Description
Allowance for Climate Change	40% - based on a residential >50-year design life to 'the 2080's'.
Proposed Attenuation Method and Volume	Geocellular storage crates or oversized pipes. 27.5 m³ to contain the 100year + 40% event.
SuDS features	Geocellular Storage
Maintenance Responsibility	Management Company / Site owner
Foul Drainage Outfall	The foul will drain to the UU combined sewer at a pass forward rate of 1.8 l/s

There is no residual flood risk from the development site to the surrounding district due to the 50% reduction of existing storm water flow rates. Therefore, the development does not increase the risk of flooding to the other adjacent properties and roads. Out of chamber or gully flooding for events in excess of the extreme 100-year plus climate change event may occur within the development site and is classed as exceedance flows. Flood water from this event will primarily be contained within the development site and directed away from the development building to the external hard areas apart from extreme events, which may overtop to Lampwick Lane and Old Mill Street. The principal of exceedance is discussed in Section 5.6 below, further modelling will be undertaken at detailed design.

2. INTRODUCTION

- 2.1 Ridge and Partners LLP (RDG)) has been appointed by Great Places Housing Group Ltd to prepare this Drainage Strategy Report to support the planning application for a proposed residential development at the old Ancoats Dispensary, Old Mill Street, Ancoats. The assessment has been undertaken in line with the new 'National Planning Policy Framework 2019' (NPPF), plus the accompanying 'Flood Risk and Coastal Change' chapter of the National Planning Practice Guidance.
- 2.2 This report has been commissioned by Great Places Housing Group Ltd and is specific to their interests in the development proposals as described by the Architectural plan in Appendix A.
- 2.3 The report has been commissioned to identify any drainage-related issues associated with the proposed development and which are subsequently addressed within this report.
- Determine the current surface water drainage regime and assess any potential increase in surface water runoff as a result of the proposed development.
 - Discuss Sustainable Drainage Systems (SuDS) as an option for reducing surface water flood risk.
 - Devise an appropriate outline surface water drainage strategy (including calculation where appropriate) to deal with any potential increase in surface water runoff and include for climate change.
 - Devise an appropriate outline foul water drainage strategy.
 - Consider the recommendations of Manchester, Salford and Trafford Strategic Flood Risk Assessment (SFRA).
 - Assess mitigation measures & off-site impacts and define any residual risks.

3. PLANNING POLICY AND CONSULTATION

3.1. Strategic Flood Risk Assessment (SFRA)

- 3.1.1. SFRA's assess the risk associated with all types of flooding and provide the information required to identify the amount of development permitted in an area; how drainage systems in the area should function and also how risks in vulnerable areas can be reduced and/or mitigated. The NPPF states that Regional Planning Bodies (RPB's) or Local Planning Authorities (LPA's) should prepare SFRA's in consultation with the EA.
- 3.1.2. Manchester City Council, Salford City Council and Trafford Council commissioned JBA Consulting to produce a Hybrid SFRA, published in March 2011, to fill the Level 1 data gaps and to undertake a Level 2 SFRA in key Potential Development Areas within the council areas.

The purpose of the SFRA is to assess and map all known sources of flood risk including fluvial, surface water, sewer, groundwater and all impounded water bodies, considering future climate change predictions.

- 3.1.3. A summary of the main elements from the SFRA associated with the development site is detailed below. The full report can be found on the Manchester City Council Website.
- SFRA provides a detailed understanding of flood risks across the borough from all sources.
 - All developments on greenfield land, within and outside of Critical Drainage Areas, should reduce runoff to greenfield rates, taking climate change into consideration.
 - Development should aim for a betterment on existing surface water runoff rates for brownfield sites, with a minimum of 50% reduction in existing flow rates for developments within Critical Drainage Areas
 - Development should be designed so that there is no flooding to the development in a 1 in 30 year event and so that there is no property flooding in a 1 in 100 year plus climate change event.
 - For all sites, development proposals should look at opportunities to incorporate SuDS to reduce the risk of surface water flooding.

4. THE SITE

4.1. Site Details

4.1.1. The site details are summarised in Table 2 below:

Table 2: Site Referencing Information

Item	Brief Description
Site name	Ancoats Dispensary,
Site address and location	Ancoats Dispensary, Old Mill Street, Ancoats, M4 6EB
Planning Authority	Manchester City Council
Lead Local Flood Authority	Manchester City Council
Drainage Statutory Undertaker	United Utilities
Site Area	0.11 ha
Critical Drainage Area	Yes
Flood Risk for Planning	Flood Zone 1 – As the site is within Flood Zone 1 and is <0.5 ha in a Critical Drainage Area – No Flood Risk Assessment is required
Approximate Grid Reference	OS: 385450, 398429
General Locality	The site is located within the New Islington City Centre Regeneration Area

4.2. Site Description

- 4.2.1. The site is currently unoccupied and is being maintained by Manchester City Council. The building had deteriorated rapidly from 2010 with the roof being removed and a partial demolition taking place which included the removal and storage of the historic tower. From 2013 additional scaffolding and façade retention have been installed to prevent further collapse of the structure and to allow the building to survive until refurbishment/redevelopment can take place.
- 4.2.2. The Site comprises of the three storey (with basement) gothic style Grade II Listed Building known as Ancoats Dispensary, which is located south of Old Mill Street in New Islington, Manchester.

- 4.2.3. There are small areas of hardstanding in front of the north elevation on Old Mill Street, to the west of the western façade and to the south of southern façade. These areas are mostly occupied by the large and complex scaffolding structure which is supporting the remaining structure of the Ancoats Dispensary from further collapse.
- 4.2.4. The building is currently derelict and the upstanding remains comprise principally of the internal and external load bearing walls. The building has been partially demolished which has included the removal of the roof and the internal floors have collapsed. Building, known as Ancoats Dispensary, which is located south of Old Mill Street in New Islington, Manchester.
- 4.2.5. The site is bound by Old Mill Street and Lampwick Lane to the north west and north east, respectively. To the south west and south east is a new residential development by Manchester Life Development Company which closely borders the site boundary.
- 4.2.6. An aerial photograph of the existing site (with proposed red line boundary) is shown in Figure 1 below.

Figure 1: Aerial Photograph of Existing Site (Google, 2021)



4.3. Proposed Development

- 4.3.1. The development is a *"Retention and refurbishment of the former dispensary building's two principal facades facilitated by: partial demolition works; extension of the building's footprint southwards; and, extension to its height by 1.5 storeys, together with the removal of the entrance steps and lowering of the ground floor level, and the re-instatement of a central tower, to provide affordable housing units (Use Class C3), with creation of an external secure cycle store, bin store, boundary treatments and associated works"*.
- 4.3.2. The development requires listed building consent for the *"Refurbishment, partial demolition and extension of the former dispensary building to increase the height by 1.5 storeys and extend the building footprint to the south, with the removal of the entrance steps and lowering of the ground floor level, and the re-instatement of a central tower with creation of external cycle store and bin store, boundary treatments and associated works"*.
- 4.3.3. The current outline Architectural Proposed Site Plan in Appendix A provides an indication of the proposals of the site.

5. OUTLINE DRAINAGE STRATEGY

5.1. Existing Surface Water Runoff

- 5.1.1. The existing site is currently 100% impermeable. A CCTV survey has been undertaken at the site, but, due to the presence of scaffolding, maintaining the existing building's integrity, due to its poor state of repair, the CCTV survey company could not access the manholes within the development area. Based on the Ciria SUDS Manual (C753), small sites with incomplete drainage surveys are suitable for run off calculation by the Modified Rational Method. Table 3 below details the existing run off rates at the site, based on the modified rational method ($Q=ciA$) with a rainfall intensity of 50 mm/hr.

Table 3: Existing Runoff Rates

	Impermeable Area (m ²)	Existing Discharge Rate ($Q=ciA$)
Existing site	1100	15.012 l/s

5.2. Geology

- 5.2.1. Previous investigation at the site have been assessed as part of the phase 1 Site Investigation Desk Study. The summary of these investigations is included below.
- 5.2.2. *Cohesive and granular Made Ground was recorded from ground level to depths of between 0.8m and 5m bgl and generally comprised sandy gravel and soft to firm sandy gravelly clay. The gravel typically comprised fine to coarse angular to subrounded brick, concrete, asphalt, ceramics, coal, clinker, ash, limestone, mudstone and sandstone, with wood, plastic and metal noted.*
- 5.2.3. *The Made Ground was underlain by cohesive Glacial Till and granular Glaciofluvial Deposits to depths of between 19.5m and 23.5m bgl. The cohesive Glacial Till was described as firm to stiff sandy slightly gravelly clay and the Glaciofluvial Deposits described as dense to very dense sandy gravel.*
- 5.2.4. *Solid strata of the Manchester Marls Formation were encountered beneath the glacial soils and proven to depths of between 29.6m and 31.05m bgl. The strata were described as extremely to very weak weathered mudstone and sandstone.*
- 5.2.5. *Groundwater monitoring undertaken as part of the Hydrock investigation recorded perched groundwater within the Made Ground and shallow glacial soils between 0.1m and 1.8m bgl. Deeper installations in the glacial soils and bedrock recorded groundwater levels between 6.56m and 17.44m bgl.*

- 5.2.6. Based on the proposed site layout (included in Appendix A) there is no area within the site boundary that is >5m from proposed or existing building foundations and highways.
- 5.2.7. Whilst granular made ground is present, this is overlayed by cohesive, low infiltration potential material.
- 5.2.8. Groundwater has been identified at depths of between 0.1m and 1.8m. This may indicate perched groundwater which would indicate that there is no route for surface water disposal to ground. Once seasonal fluctuations in groundwater are considered, the depth to unsaturated ground would not be sufficient to allow for an infiltration solution.
- 5.2.9. Based on the points above, infiltration is not feasible for the disposal of surface water at the site.

5.3. Hydrology

- 5.3.1. There are no watercourse within the vicinity of the site. The nearest watercourse is the River Medlock, approximately 500m east of the site, through existing development areas.
- 5.3.2. The nearest waterbody is the Islington Canal Junction Arm, approximately 70m south west of the site.

5.4. Existing Drainage

- 5.4.1. There is no surface water sewers in the vicinity of the site. Highway drainage in the vicinity of the site is believed to drain directly to the combined sewer network.
- 5.4.2. There is also a 225mm diameter combined sewer within Upper Kirby Street / Lampwick Lane Street to the north east and a 900mm x 600mm Brick Combined Sewer in Old Mill Lane to the north west. For further information see extract from UU Sewer Records in figure 2 below.

Figure 2: Extract from UU Sewer Records (2006)



5.5. Sustainable Drainage Systems

5.5.1. SuDS Objectives:

Sustainable drainage developed in line with the ideals of sustainable development is collectively referred to as Sustainable Drainage Systems (SuDS). At a particular site, these systems are designed both to manage the environmental risks resulting from the urban runoff and to contribute wherever possible to environmental enhancement. SuDS objectives are therefore to minimise the impacts from the development on the quantity and quality of the runoff and maximise amenity and biodiversity opportunities (CIRIA C753, 2015).

5.5.2. SuDS's Design Themes

A strong design theme is essential if the maximum aesthetic benefits are to be gained from the SuDS approach. At a more local scale the SuDS should link with the individuals plot structure, planting, public open space requirements and amenity areas, gaining multiple benefits from a limited area of land.

5.5.3. The SuDS Management Train

The 'Management Train Approach' should be central to the surface water drainage strategy of the proposed site. The main objective is treatment and control of runoff as near to the source as possible protecting downstream habitats and further enhancing the amenity value of the site. This concept uses a hierarchy of drainage techniques to incrementally reduce pollution, flow rates and volumes of storm water discharge from the site, and is as follows:

1. **Prevention** – The use of good site design and housekeeping measures to prevent runoff and pollution and includes the use of rainwater reuse / harvesting.
2. **Source Controls** – Control of runoff at source or as close to source as possible (e.g. soakaways, green roofs, pervious pavements).
3. **Site Control** – Management of water in a local area and can include below ground storage / attenuation, detention basins, large infiltration devices.
4. **Regional Control** – Management of water from a site or various sites and can include wetlands and balancing ponds.

5.5.4. SuDS Site Constraints

SuDS techniques are suitable for all sites; therefore, an assessment of the existing site is required so that SuDS limitations can be determined.

- Land Use Characteristics: The size and type of the development plot restricts the range of source control and site control SuDS devices to potentially be considered both above and below ground.
- Site Characteristics: Shallow groundwater found on site, the constrained nature of the development plot and cohesive nature of the natural strata at the site means infiltration is not a viable option.
- Catchment Characteristics: The site is currently classed as brownfield.
- Environmental and Amenity Performance: The inclusion of SuDS within the overall development is a key driver in providing both amenity and habitat creation. Safety to all future occupiers is paramount and so best practice guidance will be incorporated so that these devices blend into the surrounding without the need for significant safety precautions. Maintenance plans will be prepared for all SuDS devices that are included.

5.5.5. SuDS Methods

Tables 4 and 5, below, provide an assessment of various above and below ground SuDS methods that can provide water quality treatment and management of flows to reduce runoff rates and volumes and whether they can be suitably incorporated at this development site. The purpose of this assessment is to set out options to be considered at the planning stage with consideration to time constraints, viability and lifetime maintenance of the development.

Table 4: Surface SuDS Methods

Method	Comment	Suitability for Development
Green Roofs	Can be used on suitable low-rise buildings to provide retention, attenuation and treatment of rainwater, and promotes evaporation and local biodiversity.	<u>Not suitable:</u> Architectural proposals for the development and maintenance issues deem this unsuitable.
Water Butts	Plastic tanks placed at the base of rainwater down pipes to collect rainwater runoff from the roof areas.	<u>Not suitable:</u> - Internal RWP limit opportunity to install Water Butts. - External RWP to the listed façade of the building limit opportunity for the installation of Water Butts
Rainwater Harvesting	Rainwater harvesting reduces the total runoff volume from the developed site and reduces treated water consumption.	<u>Not Suitable:</u> - Additional costs of installation would have severe effect on viability of the development. - Running and maintenance costs would not be acceptable to our client and future occupiers. - Constrained nature of the development limit space for the installation of a tank to service rainwater harvesting.
Infiltration Options	Reduces total run off volume from the development.	<u>Not Suitable:</u> Shallow groundwater found during site investigations confirmed infiltration is not viable.
Permeable Surfacing (Infiltration)	- Reduces total run off volume from the development. - Can be used to enhance water quality.	<u>Not Suitable:</u> Shallow groundwater found during site investigations confirmed infiltration is not viable.
Permeable Surfacing (Standard)	- Can be used to enhance quality of runoff water. - Sub-base provides 'source' storage and reduces the volume of storage downstream. - The storage can be created with selection of the stone fill or use of plastic box stems. - Impermeable membrane at base of construction to prevent impact on pavement stability.	<u>Not Suitable:</u> - The two main benefits of permeable paving are source control (collection of rainwater at source and slowing its passage to the drainage system) and water quality improvements. - The majority of the paving to the southern elevation will be covered (bike and bin store). The use of permeable paving in the bin store would not be suitable due to its use for of domestic waste storage. The area of the bike

		sheds is covered and as such would not provide benefit. • The paving to the rear of the development (terraces) and to the front of the development (outside of the adopted highway) is small and wouldn't improve the time of concentration of the attenuation and as such would not provide the source control benefits. • As the only uncovered areas of permeable paving are within private terraces and to the front elevation, the water quality improvement would be negligible (the water entering would not be picking up pollutants at the surface). • MCC would not allow permeable paving to be installed within the adopted highway. • • As such, any benefits provided from the use of permeable paving would be negligible.
Swales, basins and ponds	• Provide areas for above ground surface runoff storage. • Swales also allow filtering of particulate matter, improving water quality	<u>Not suitable:</u> • Space constraints on site do not permit large above ground areas for surface water storage. • No scope to reduce development area due to site viability.

Table 5: Sub-Surface SuDS Methods

Method	Comment	Suitability for Development
Geocellular Storage	• Suitable for sites with insufficient space for basins etc. • Suitable for sites where topography prevents the use of open basins etc. • Can be very effective infiltration devices subject to ground conditions.	<u>Suitable:</u> • The use of geocellular attenuation may be possible to retain excess storm water.
Large Diameter Pipes, Culverts or Tanks	• Suitable for sites with insufficient space for basins etc. • Provide a volume of below ground storage with a high void ratio and good man entry	<u>Suitable:</u> • The use of oversized pipes may be possible to retain excess storm water.

	provision to allow for future maintenance and cleaning. • Generally suitable for adoption by the statutory water company.	
--	---	--

5.5.6. SuDS Hierarchal Approach

Based on the SuDS assessment in Tables 4 and 5, plus an assessment of the local site conditions, the SuDS hierarchy per the NPPF for discharge of surface water at the development site is considered in greater detail below:

Table 6: SuDS Hierarchal Approach

Method	Suitability	Suitability for Development
Re-use	No	The site is heavily constrained. Water Butts could be utilised, but with no soft landscaped areas to irrigate, no use for this water is available. Gray water recycling – due to the constrained nature of the site, no land is available for the tanks needed to provide a rainwater harvesting system. Rainwater harvesting offers no attenuation benefits (there is a need to consider the rainwater harvesting tank full at the time of storm).
Infiltration to Ground	No	Previous SI at the adjacent site encountered groundwater at depths ranging between 0.1m-1.8m bgl. There are no areas of the site that are 5m from existing and proposed foundations and/or adopted highways. Therefore, soakaways are not viable.
Connection to Watercourse	No	The proximity of waterbodies and watercourse makes the use for disposal of surface water unviable.
Connection to Surface Water Sewer	No	There are no surface water sewers in the vicinity of the site.
Connection to a Combined Sewer	Yes	The most suitable location for the disposal of surface water at the site is the combined sewer. As the site currently drains to the combined sewer, a reduction in the flow rate to the combined sewer would provide betterment to the local drainage network.

5.5.7. SuDS Design Philosophy

The SuDS assessment and hierarchal approach discussed in Tables 4, 5 and 6 above has defined the overall SuDS strategy. Thus, the SuDS philosophy for the development site is the promotion of Prevention, Source Control and Site Control techniques with discharge rates to be restricted to 7.5 l/s (50% of existing discharge rates), to reduce the risk of both site and downstream flooding.

The following design philosophy is proposed:

- Surface water treatment using the 'Management Train' approach to remove and isolate contamination at all SuDS facilities prior to conveyance to the ground.
- Discharge to the adjacent combined sewer at a rate of 50% less than that existing.
- Site control in the form of geocellular storage with restricted outflow.
- Aim to limit where possible the impermeable fraction of development.

5.6. Surface Water Drainage Strategy

- 5.6.1. The outline strategy is to collect runoff from the roof and other site areas and direct it to new below-ground surface water drainage pipework that will discharge into the public combined sewer in Upper Kirby Street / Lampwick Lane.
- 5.6.2. The discharge rate will be restricted to 50% of the existing brownfield rate. As the existing rate has been calculated to be 15.012 l/s, it is proposed to reduce the rate of surface water discharge to 7.5 l/s. The rate of discharge has been agreed with United Utilities, please see the UU pre Development Enquiry response included in Appendix E.
- 5.6.3. The reduction in discharge rate, and the increase in rainfall intensities of the 100 year event to allow for climate change will generate a surface water attenuation volume which will be contained in geocellular storage.
- 5.6.4. The proposed private drainage layout for the new development site will be designed in accordance with BS EN 752: 2008 and Building Regulations Part H guidance, i.e. up to the 30-year storm return period criterion and tested for the 1 in 100 year return period including a 40% increase to account for climate change to confirm that there is no flood risk to the properties.
- 5.6.5. Table 7 below defines the outline post-development attenuation volumes. The volumes identified below are preliminary for this outline assessment and are likely to alter at detailed design stage.
- 5.6.6. Any future drainage calculations carried out as part of a site-wide drainage strategy or for the development layouts themselves must include the appropriate increase in rainfall to satisfy the future Climate Change allowances.

Table 7: Outline Attenuation Volumes

	Impermeable Area (ha)	Proposed Discharge Rate (l/s)	1 in 30 year attenuation (m ³)	1 in 100 year attenuation + 40% Climate Change Allowance (m ³)
Proposed Residential Development	0.11	7.5	15.0	27.5

5.7. Pollution Control

- 5.7.1. Silt is to be prevented from entering the drainage system by the use of trapped gullies, channels with silt traps or Sustainable Drainage Systems.

5.8. Foul Water Strategy

- 5.8.1. The outline foul water drainage strategy is to connect to the public combined sewer in Upper Kirby Street / Lampwick Lane

6. MANAGEMENT MEASURES, OFF SITE IMPACTS AND RESIDUAL RISK

6.1. Surface Water Flood Risk

- 6.1.1. The surface water drainage strategy will restrict runoff to 7.5 l/s. Attenuation has been proposed in the form of geocellular storage. The new surface water networks will be designed in line with current British Standard and Design & Construction Guidance up to the 100-year storm return period including an allowance for climate change.
- 6.1.2. The use of SuDS in the form of Site Control measures, with controlled (restricted) outflow, will help to minimise the flood risk impact to the surrounding sewer network.
- 6.1.3. The long-term maintenance of the new drainage infrastructure will be the responsibility of a private management company, to be appointed at build completion. Annual inspections will need to be carried out and clearing of drainage channels undertaken. There will be a site management health and safety document prepared in respect of the final development. This will include the required maintenance regime for the on-site drains and drainage facilities such as the channels, gullies, pipes, manholes and all SUDS facilities. The property management team will be responsible for site cleanliness, gully emptying and drain cleansing to ensure that the surface water drainage system will always operate at its maximum efficiency.
- 6.1.4. Should any flooding occur from the new sewers and drains it will be directed away from the buildings to the external areas.

6.2. Off Site Impacts

- 6.2.1. Up to and including the 100-year plus increase in rainfall allowance due to climate change (CC) event, the report has justified that there is no risk of flooding.
- 6.2.2. Surface water runoff is reduced by 50% from the pre-development regime and utilises SuDS solutions to satisfy the site constraints, the proposed development will therefore not increase flood risk onto its locality.

6.3. Residual Risk

- 6.3.1. With careful design of the drainage elements as described above there will be no residual flood-related risks that will remain after the development has been completed.

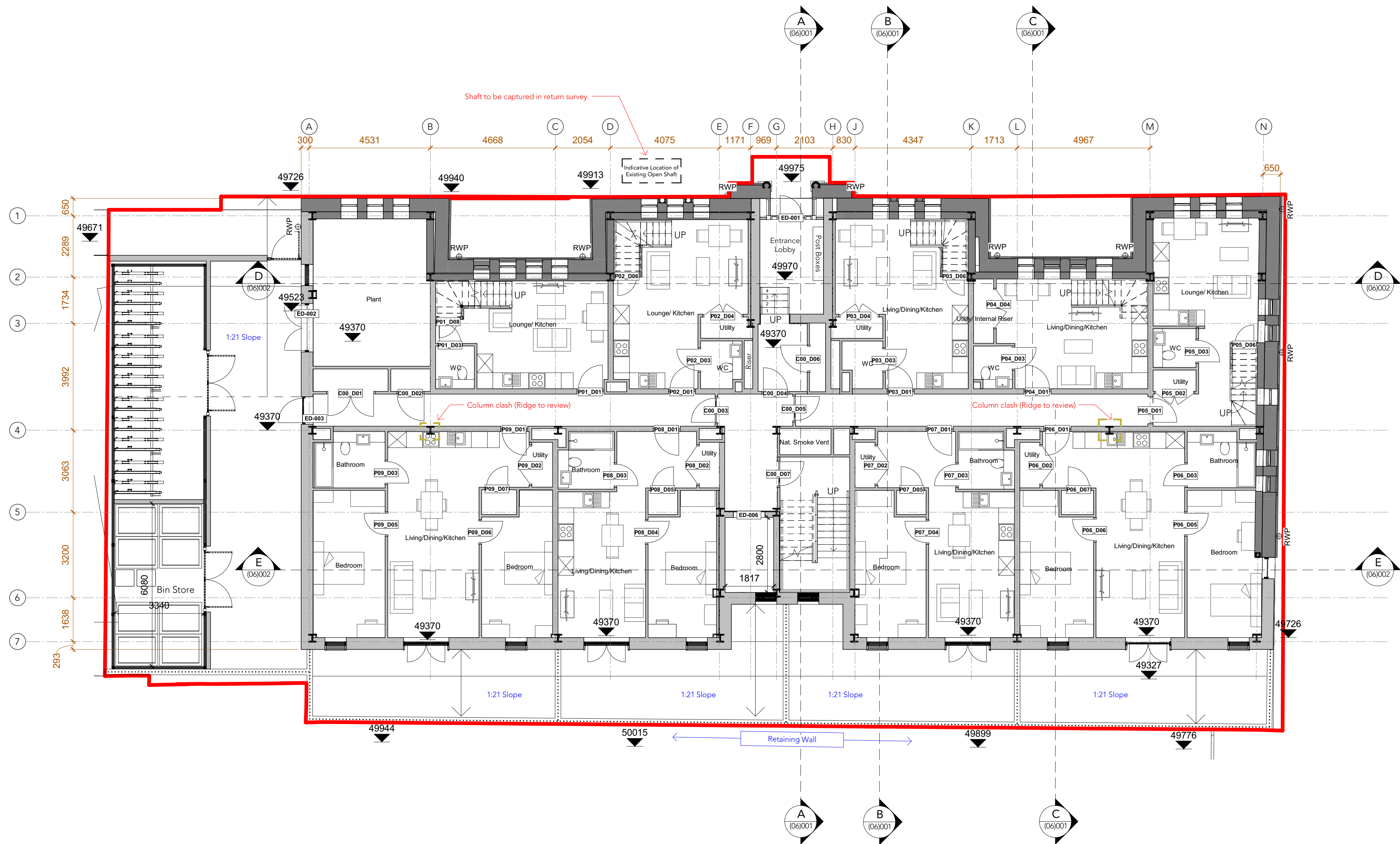
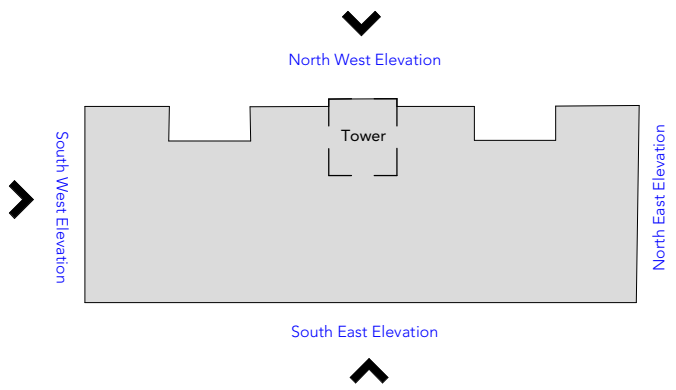
7. APPENDICES

- Appendix A – Architectural Site Layout
- Appendix B – Site Topographical Survey
- Appendix C – Ridge Design Drawings
- Appendix D – Outline Surface Water Attenuation Calculations
- Appendix E – UU Pre Development Enquiry

APPENDIX A – ARCHITECTURAL SITE LAYOUT



Note:
Do Not Scale from this drawing.
Dimensions are to be checked on site.
If in doubt please ask.



P8	09.07.2021	Revised bin store, corrected level arrows and red line
P7	05.07.2021	Ground Floor Levels updated following site survey/ red line boundary amended/ steps added to entrance lobby
P6	09.06.2021	Layout to Apt's 30, 32 & 36 amended. Kitchen layouts updated generally.
P5	07.05.2021	Red Line Boundary Updated/ PV Panels and Paving added to roofs
P4	23.04.2021	EWs comments incorporated
P3	08.01.2021	Plan reconfigured/ apartment areas and types updated
P2	11.12.2020	Plot areas and types updated/ Red Line Boundary updated
P1	07.12.2020	Walls added as clouded/ rear boundary line fixed/ areas updated
P0	25.11.2020	First Issue

Rev Date Ints Details

© The moral rights of the author are hereby asserted.
This drawing and design is the sole property of Buttress Ltd and must not be reproduced without permission.
Buttress Ltd is Registered in England and Wales: 5383973

Buttress

41 Bengal Street
Manchester
M4 6AF

T 0161 236 3303
E contact@buttress.net
W www.buttress.net

Project Title	Ancoats Dispensary
Client	Great Places Housing Group
Location	Ancoats, Greater Manchester

Drawing ref Proposed Ground Floor GA Plan

Date	09/07/2021 10:42:57	Scale	As indicated
Checker	AH	Orig Paper Size	A1

Job No: 8803 Status PRELIMINARY

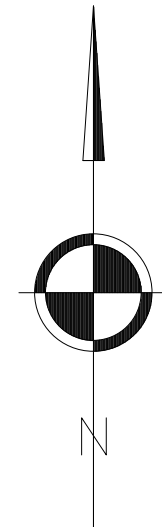
Project: Origin: Zone: Level: Type: Disc: Number: Rev:

8803-BA-XX-00-DR-A-(04)001- P8

00 Ground Floor Proposed

1 : 100

APPENDIX B – SITE TOPOGRAPHICAL SURVEY



SURVEY ORIENTATED TO REAL TIME GPS

NOTES AND AMENDMENTS

ONLY MANHOLES AND SERVICES VISIBLE AT TIME OF SURVEY SHOWN

DRAINAGE INFORMATION MUST BE CHECKED AND VERIFIED WITH LOCAL AUTHORITY RECORDS PRIOR TO WORK COMMENCING
Levels defining edge of carriageway are observed at channel (bottom of kerb). Unless otherwise stated.

TREE SPREADS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE THE AVERAGE SPREAD. THE DRIP LINE LAYER DENOTES THE TREES EXTREMITY

Topographical Survey Legend

BH	Letter bin	TL	Tie line
BH	Bore Hole	TP	Telegraph pole
BS	Bus stop	TPS	Tactile paving slabs
BT	British telecom ic	TS	Traffic signal light
CPS	Concrete paving slabs	TV	Television cover
DR	Drain	VP	Vent pipe
EL	Electrical ic	WM	Water meter
EP	Elec. pole	WO	Wash Out
ER	Earth rod	UTL	Unable to lift
FI	Fire Hydrant	W	W
FP	Flagpole	W	W
FT	Floodlight	W	W
G	Gully	W	W
GP	Gate post	W	W
GV	Gas valve	W	W
IC	Inspection cover	W	W
JB	Junction box	W	W
KO	Kerb outlet	W	W
LB	Letter box	W	W
LP	Lamp post	W	W
Mkr	Utility marker	W	W
MP	Mile post	W	W
MW	Monitoring Well	W	W
NP	Name plate	W	W
P	Post	W	W
PM	Parking meter	W	W
RE	Rodding eye	W	W
RS	Road sign	W	W
rap	Rain water pipe	W	W
SP	Sign post	W	W
ST	Stop tap	W	W
SV	Service valve	W	W
T	Telephone call box	W	W
TH	Threat Hole	W	W
W	Water level	W	W

BENCH MARK INFORMATION

All levels relate to OSBM Newlyn
Datum Generated by VRS GPS

SURVEY STATIONS

stn1	385461.115	398456.365	49.957
stn2	385507.863	398485.647	50.258
stn3	385480.453	398432.268	49.691
stn4	385446.082	398445.024	50.047
stn5	385436.711	398437.640	49.999
stn6	385430.221	398432.491	49.937
stn7	385418.995	398424.546	49.798
stn8	385469.168	398423.752	50.056
stn9	385448.727	398408.047	50.052
stn10	385437.082	398400.599	50.010

REVISIONS

REV	DESCRIPTION	SURVEYED	DRAWN	DATE

JLP Surveying

JLP Surveying Consultants Ltd,
Suite 45 Rodney House,
King Street,
Wigan
WN1 1BT
Tel - 01942 243313
Fax - 01942 492230
Mobile - 07710 428498
EMAIL:- peterhouston@jlp surveys.com

PROJECT
OLD MILL STREET
ANCOATS DISPENSARY
MANCHESTER

DRAWING TITLE
Topographical Land Survey

SCALE	SHEET SIZE	No. of SHEETS	DATE	REVISION
1:200	A1	1	23.09.2020	

DRAWING NUMBER
S20-695

APPENDIX C – RIDGE DESIGN DRAWINGS

NOTES

- Drawings to be read in conjunction with all services and structural engineers drawings & specifications.
- This document must not be altered, reproduced or distributed without prior written consent of the originator.
- Do not scale from this document – use figured dimensions only.
- All dimensions must be checked on site prior to commencement of any related works.
- Contractor to provide and have an approved method statement prior to works.
- This drawing shall be read in conjunction with the civil engineering specification, and all relevant Architect's and Engineer's drawings.
- All setting out to be in accordance with the Architects drawings. Any discrepancies between Ridge and the Architects drawings to be referred to the Architect before proceeding. Dimensions must not be scaled.
- All levels are in metres above ordnance datum.
- The Contractor is to comply full with CDM regulations in the course of constructing the works.
- At the commencement of the works, the Contractor is to carry out trial pits and liaise with utility companies in order to establish the exact position of all existing utility plant in the vicinity of the works and take adequate precautions for their protection.
- The Contractor is to refer to Health and Safety Executive 'Note 47 – Avoiding Danger from Underground Services' and 'Document C56 – Avoiding Danger from Overhead Electric Lines'.
- Works on or adjacent to existing public highway will be executed in accordance with the Traffic Safety Code for Road Works and Traffic Signs Manual: Chapter 8.
- The Contractor will ascertain the CBR value of the subgrade in order to determine the required sub-base / capping thickness.
- Prior to laying any material, the subgrade must be inspected and any soft spots removed and filled with 6F2 capping material.
- Prior to the construction of any drainage works, the Contractor is to confirm the invert levels of existing manholes, drains and sewers. Any variations from the designed levels shown on the drawings must be reported to the Drainage Engineer in advance of construction works commencing. All new sewers and drains are to be laid in sequence starting from the outfall location.
- All drains to be installed in accordance with relevant Building Regulation documents and current Sewers for Adoption. Connections to public sewers are to be agreed and inspection by the Water Authority.
- All drain and sewer pipes are #100mm and laid soffit to soffit, unless shown otherwise.
- Invert to base of soil stack bands to be 450mm below lowest branch connection for up to three storey buildings; for buildings up to five storeys, the invert to the base of soil stack bands should not be less than 750mm. All foul and surface water drainage stacks are to have above ground radding access. Refer to above ground drainage layout(s) by others.
- All RWP and SVP setting is to be confirmed by the Architect. All below ground connections are to match above ground outlet size, minimum #100mm.
- SVPs are to project 100mm above finished floor level.
- All internal manholes and inspection chambers to have double sealed recessed covers to suit floor finishes as defined by the Architect.
- All external covers in non-tarmac areas are to have recessed covers to suit the paving material.
- This drawing has been produced in colour and should be reproduced in colour for clarity.
- A CCTV survey and report in WINCAN format for all new drainage will be required prior to 'as built' drawing being issued.
- The Contractor is responsible for the traffic safety and management associated with the construction of the works. Works will not commence on the existing highway until their traffic management proposals have been agreed with Highway Authority.
- Where the works involve the obstruction of a footway, the Contractor will provide an alternative safe footway properly signed, guarded and lit.
- Where one-way traffic is unavoidable, traffic will be controlled by a proper system of vehicle-actuated traffic signals or manual stop / go signs and during the hours of darkness, by a proper system of vehicle-actuated traffic signals, all to the approval of Highway Authority.
- 65mm Minimum thickness tactile paving, coloured buff will be incorporated at all pedestrian crossings in accordance with the Department for Transport and Regions document "Guidance on the Use of Tactile Paving Surfaces." (DETR No. 1998)
- All signs and road markings will be in accordance with the "Traffic Signs Regulations and General Directions 2016". (TSRGD 2016)
- All excavation and backfilling work in the existing highway to be in accordance with the provisions of the New Street Works Act 1991 or that specified on the working drawings.
- All highways works to be carried out in accordance with Highway Authority's highway standards, to the satisfaction of the Highway Authority Section 278 Inspector and in accordance with the Specification for Highway Works.
- Gullies, gully connections, drains, manholes, catch pit, soakways, headwalls and other drainage structures intended to convey only highway water are to be constructed in accordance with the specification of Highway Authority and to the satisfaction of the Highway Inspector.
- Where existing junctions and accesses are to remain in operation within the works during the construction process, the Contractor will ensure that access to these units remains available at all times.
- Highways in the vicinity of the works must be kept free from mud, debris and dust falling from vehicles or wheels of vehicles connected with the works. Where the deposits of debris and mud are unavoidable, warning signs must be displayed whilst work is in progress and affected carriageways / footways must be regularly cleaned.

- Source:
- Topographical survey by ? Drawing No. ? dated ?
 - Architect's layout by ? Drawing No. ? dated ?

DRAINAGE STRATEGY

INFILTRATION - A HIGH WATER TABLE, COHESIVE NATURAL GROUND AND LACK OF SPACE >5m FORM FOUNDATIONS MAKE INFILTRATION UNFEASIBLE

WATERCOURSE - THE NEAREST WATERCOURSE IS THE RIVER MEDLOCK, 500m EAST OF THE SITE. THE NEAREST WATER BODY IS ANCOATS MARINA, 200m SOUTH OF THE SITE.

SURFACE WATER SEWER - THERE ARE NO SURFACE WATER SEWERS IN THE VICINITY OF THE SITE. THE HIGHWAY DRAINS DRAIN TO THE COMBINED SEWER

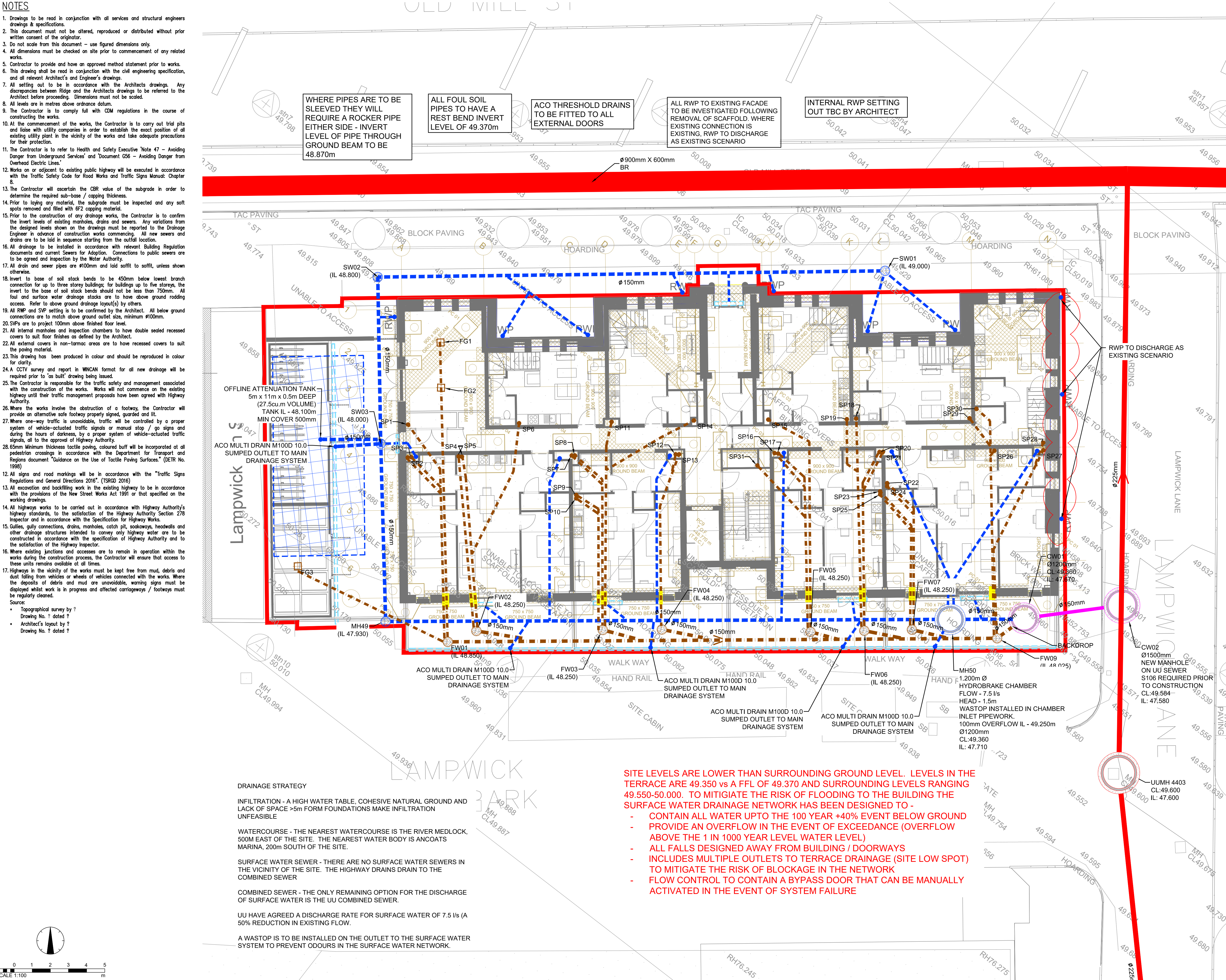
COMBINED SEWER - THE ONLY REMAINING OPTION FOR THE DISCHARGE OF SURFACE WATER IS THE UU COMBINED SEWER.

UU HAVE AGREED A DISCHARGE RATE FOR SURFACE WATER OF 7.5 l/s (A 50% REDUCTION IN EXISTING FLOW.

A WASTOP IS TO BE INSTALLED ON THE OUTLET TO THE SURFACE WATER SYSTEM TO PREVENT ODOURS IN THE SURFACE WATER NETWORK.

SITE LEVELS ARE LOWER THAN SURROUNDING GROUND LEVEL. LEVELS IN THE TERRACE ARE 49.350 vs A FFL OF 49.370 AND SURROUNDING LEVELS RANGING 49.550-50.000. TO MITIGATE THE RISK OF FLOODING TO THE BUILDING THE SURFACE WATER DRAINAGE NETWORK HAS BEEN DESIGNED TO -

- CONTAIN ALL WATER UP TO THE 100 YEAR +40% EVENT BELOW GROUND
- PROVIDE AN OVERFLOW IN THE EVENT OF EXCEEDANCE (OVERFLOW ABOVE THE 1 IN 1000 YEAR LEVEL WATER LEVEL)
- ALL FALLS DESIGNED AWAY FROM BUILDING / DOORWAYS
- INCLUDES MULTIPLE OUTLETS TO TERRACE DRAINAGE (SITE LOW SPOT) TO MITIGATE THE RISK OF BLOCKAGE IN THE NETWORK
- FLOW CONTROL TO CONTAIN A BYPASS DOOR THAT CAN BE MANUALLY ACTIVATED IN THE EVENT OF SYSTEM FAILURE



- DISCLAIMER NOTES:
- THIS DOCUMENT IS COPYRIGHT OF THE ORIGINATOR AND MUST BE TREATED AS CONFIDENTIAL.
 - THIS DOCUMENT MUST NOT BE ALTERED, REPRODUCED OR DISTRIBUTED WITHOUT PRIOR WRITTEN CONSENT OF THE ORIGINATOR.
 - THIS DOCUMENT MUST NOT BE ALTERED - THE ORIGINATOR ACCEPTS NO RESPONSIBILITY FOR ANY DISCREPANCIES ARISING AS A RESULT OF THE ORIGINATOR'S INFORMATION BEING ALTERED BY OTHERS.
 - ANY DISCREPANCY MUST BE REPORTED TO THE ORIGINATOR.
 - DO NOT SCALE THIS DOCUMENT - USE FIGURED DIMENSIONS ONLY.
 - ALL DIMENSIONS MUST BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF ANY RELATED WORKS.
 - THIS DOCUMENT MUST BE READ IN CONJUNCTION WITH ALL SUPPORTING DOCUMENTS PRODUCED BY THE ORIGINATOR AND OTHER PROJECT DISCIPLINES.
 - THE ORIGINATOR ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES - THIS MUST BE TREATED AS INDICATIVE ONLY.
 - USERS OF THIS DOCUMENT ARE RESPONSIBLE FOR CHECKING WHICH REVISION IS CURRENT.
 - THE DOCUMENT STATUS "INFORMATION" OR "PRELIMINARY" INDICATES THAT THIS DRAWING IS FOR REFERENCE PURPOSES ONLY - THE ORIGINATOR WILL ACCEPT NO RESPONSIBILITY FOR THE COMPLETENESS OF INFORMATION UNDER THIS STATUS.
 - THE DOCUMENT STATUS "RECORD" OR "AS BUILT" HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ORIGINATOR ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS "RECORD" OR "AS BUILT" DOCUMENT OR FOR ANY ERRORS OR OMISSIONS THAT MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT OF INCORRECT INFORMATION PROVIDED TO THE ORIGINATOR. THOSE RELYING ON THE "RECORD" OR "AS BUILT" DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY.

DRAWING NOTES:

CDM REGULATIONS 2015

SIGNIFICANT OR NON-OBVIOUS RISKS AND RISKS WHICH ARE DIFFICULT TO MANAGE ARE IDENTIFIED ON THIS DRAWING USING THE FOLLOWING SYMBOL IDENTIFIED TO THE RIGHT WITH BRIEF ACCOMPANYING TEXT. FOR FURTHER DETAILS OF THE RISKS IDENTIFIED BY DESIGNERS, REFERENCE SHOULD BE MADE TO CDM HAZARD REGISTER

- KEY
- EXISTING UU COMBINED SEWER
 - PROPOSED FOUL DRAIN
 - PROPOSED SURFACE DRAIN
 - PROPOSED ACO
 - PROPOSED ATTENUATION
 - PIPE SLEEVED THROUGH GROUND BEAM

P05	SITE LEVELS LOWERED	09.07.21	PB	PB
P04	RED LINE BOUNDARY UPDATE	05.05.21	PB	PB
P03	M&E FOUL POP UP CO-ORDINATION	20.04.21	PB	PB
P02	PRELIMINARY ISSUE	20.04.21	PB	PB
P01	ISSUED FOR PLANNING	06.04.21	PB	PB

REV	DESCRIPTION	DATE	BY	CHKD
-----	-------------	------	----	------

ORIGINATOR:

RIDGE
PROPERTY & CONSTRUCTION CONSULTANTS

8TH FLOOR
BELVEDERE HOUSE
12 BOOTH STREET
MANCHESTER M2 4AW

TEL: 0161 833 9579
WWW.RIDGE.CO.UK

CLIENT:
ERIC WRIGHT

IN ASSOCIATION WITH:
GREAT PLACES HOUSING GROUP LTD

PROJECT:
ANCOATS DISPENSARY

TITLE:

**PROPOSED DRAINAGE
GENERAL ARRANGEMENT**

ENG/TECH:	CSE:	ICSE:	SCALE:	1:100	@ A1
PB	PB	ED	STATUS ISSUE:	D2	

STATUS:
PRELIMINARY

"UNLESS ISSUED FOR CONSTRUCTION - WORKS AT CLIENT/CONTRACTORS RISK"

SUITABILITY: S2 - Issued for Information

PROJECT:	ORG:	ZONE:	LEVEL:	TYPE:	ROLE:	NUMBER:	REV:
5014349	RDG	XX	XX	DR	C	0100	P05

NOTES

600 X 600 CLEAR OPENING
DUCTILE IRON COVER AND FRAME TO BE
BS EN124 KITEMARKED, CLASS D400 AND
150mm DEEP IN HIGHWAY. BEDDED ON
CLASS M1, M2 OR EPOXY MORTAR.
APPROVED PACKING MATERIAL MAY BE
USED IF REQUIRED. MANUFACTURERS
NAME TO BE CLEARLY VISIBLE

CLASS M1, M2 OR EPOXY
MORTAR HAUNCHING TO
M.H. COVER AND FRAME
COVER SLAB WITH 675 X 675 ACCESS
(BS5911 KITEMARKED) BEDDED ON
MORTAR.

LIFTING EYES IN CONCRETE
RING TO BE POINTED

DOUBLE WIDTH STEP IRONS
AT 250mm CENTRES
VERTICALLY SHOULD BE
INSTALLED IN ALL MANHOLES
UPTO 6m DEEP

ALL INSITU CONCRETE TO BE C20
WITH SULPHATE RESISTING CEMENT
UNLESS OTHERWISE AGREED

HIGH STRENGTH CONCRETE
TOPPING TO BE BROUGHT UP
TO A DENSE SMOOTH FACE
NEATLY SHAPED AND FINISHED
TO ALL BRANCH CONNECTIONS
(MIN THICKNESS 20mm)

CONSTRUCTION JOINT

DISTANCE BETWEEN TOP OF PIPE
AND UNDERSIDE OF PRECAST
SECTION TO BE MIN 50mm

INVERTS TO BE FORMED
USING CHANNEL PIPES

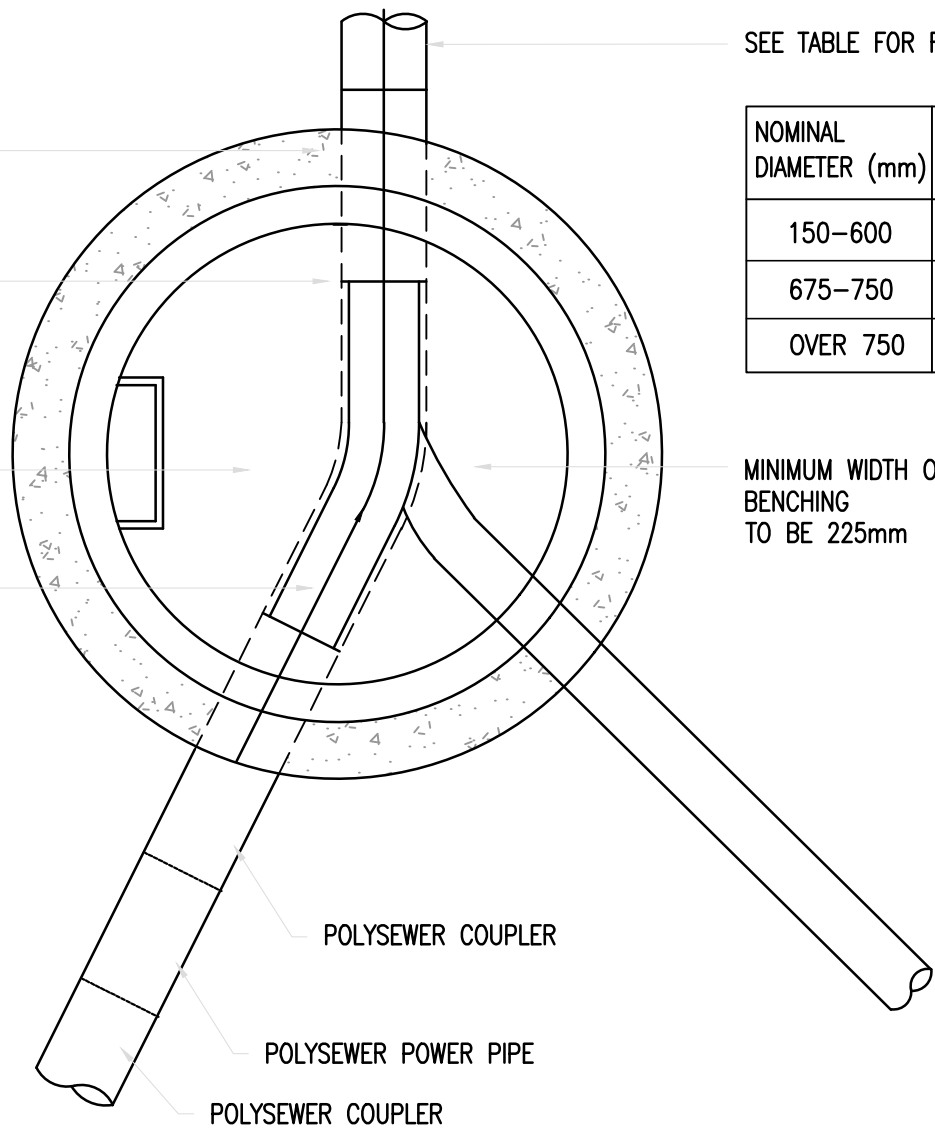
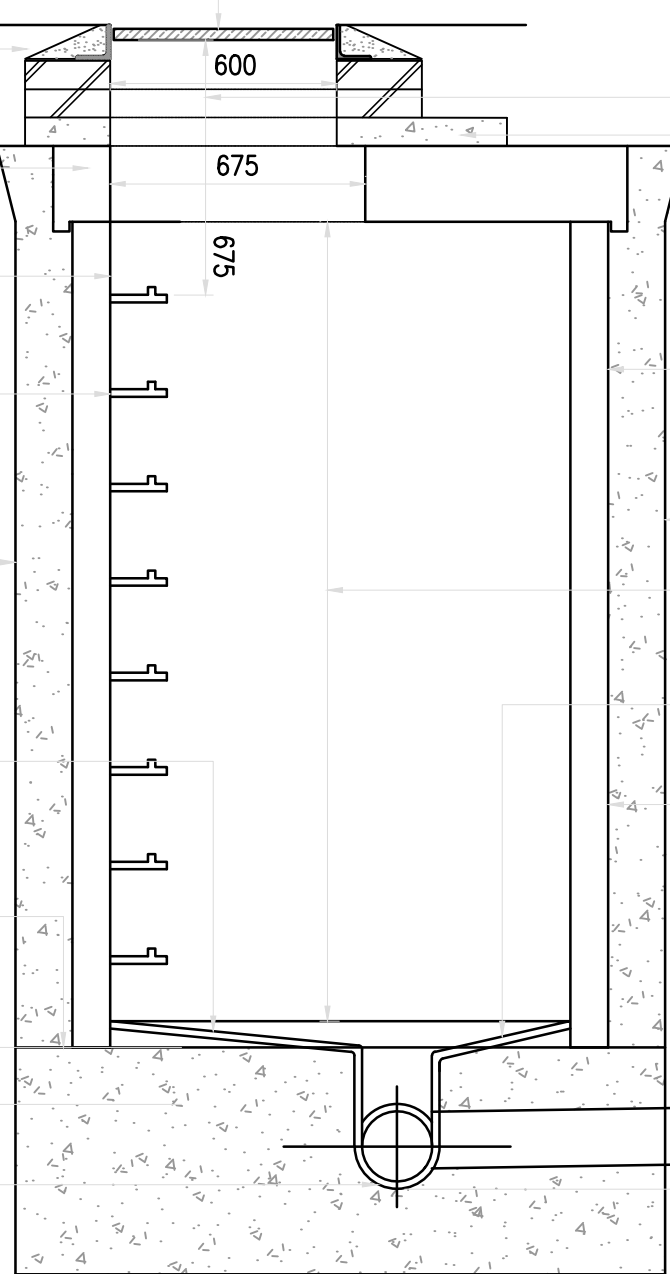
JOINT TO BE AS CLOSE AS POSSIBLE
TO FACE OF MANHOLE TO PERMIT
SATISFACTORY JOINT AND
SUBSEQUENT MOVEMENT

PIPE JOINT WITH CHANNEL
TO BE LOCATED MIN 100mm
INSIDE FACE OF MANHOLE

MINIMUM WIDTH OF BENCHING
TO BE 500mm

ALL CHANNELS IN MANHOLES
TO BE CLAYWARE

MANHOLES WITH OUTGOING
PIPES GREATER THAN 600mm
DIA SHOULD BE FITTED WITH GAIRD
BARS, SAFETY CHAINS
OR OTHER SAFETY DEVICES



TYPICAL MANHOLE DETAIL-TYPE B

SEWERS FOR ADOPTION - 6th EDITION.
MAX DEPTH FROM GROUND LEVEL TO SOFFIT OF PIPE 3.0m AND
600mm X 600mm CLEAR OPENING ACCESS.
THE DESIGN OF MANHOLES WILL NEED TO COMPLY WITH THE
UNDERTAKER'S SAFETY POLICY.

675mm MAX TO FIRST STEP
PROPRIETARY ADJUSTING UNIT (LOAD
BEARING SLAB) (BS5911
KITEMARKED) WITH 600 X 600
ECCENTRIC ACCESS HOLE (BS752)
BEDDED ON MORTAR.

PRECAST CONCRETE CHAMBER
SECTIONS AND COVER SLAB TO
BE BEDDED WITH MORTAR,
PROPRIETARY BITUMEN OR
RESIN MASTIC SEALANT

150mm CONCRETE SURROUND
CHAMBER HEIGHT
(NOT LESS THAN 900mm)

BENCHING SLOPE TO
BE 1 IN 10 TO 1 IN 30

THE BOTTOM PRECAST MANHOLE
RING TO BE BUILT INTO BASE
CONCRETE MIN 100mm

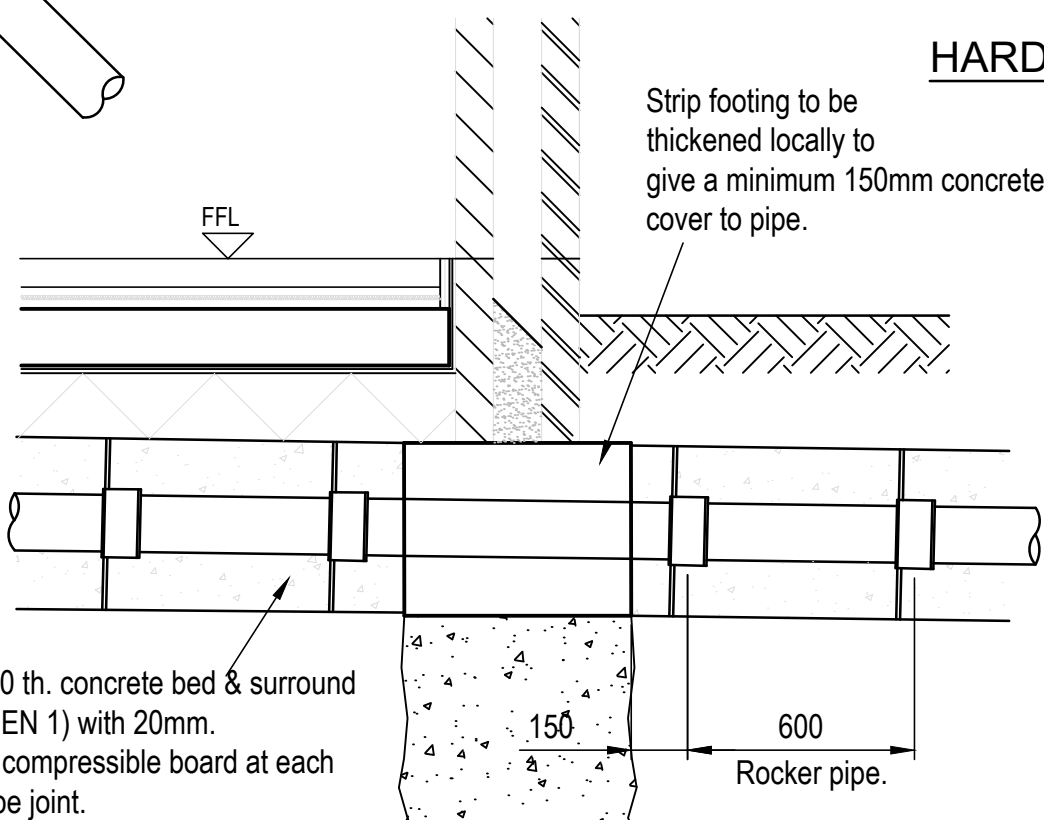
500mm ROCKER PIPE

225mm TO BARREL OF PIPE

SEE TABLE FOR ROCKER PIPE DETAILS

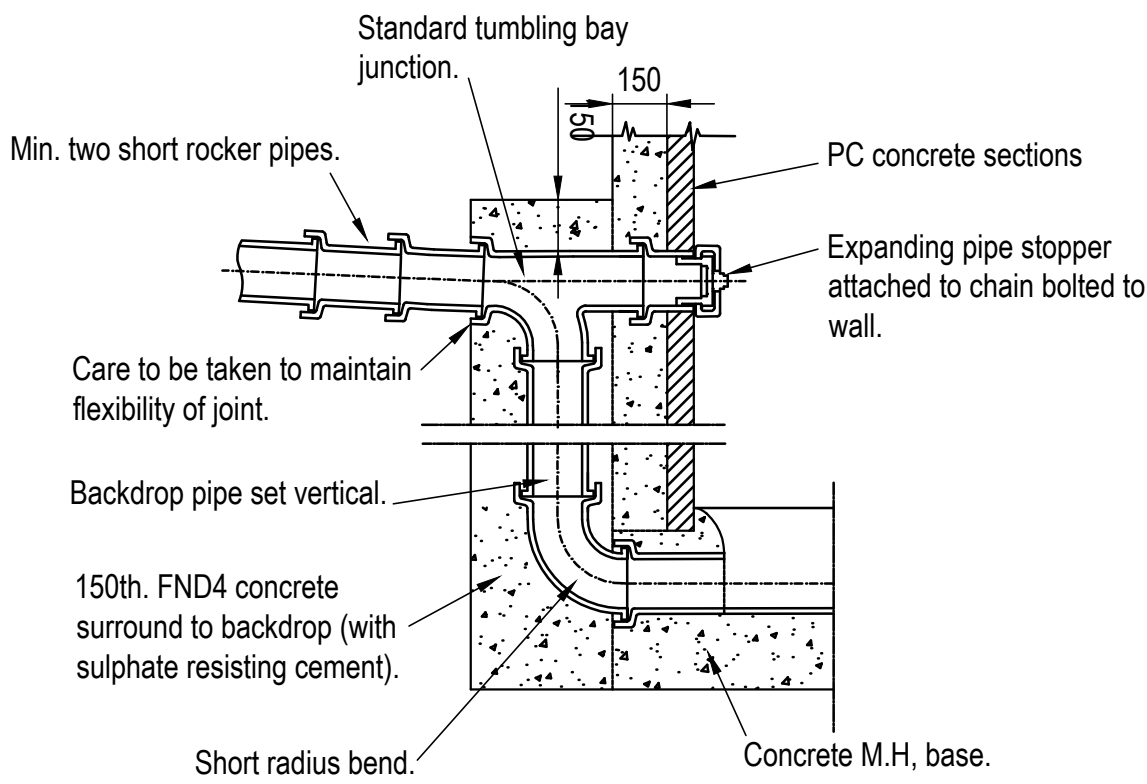
NOMINAL DIAMETER (mm)	EFFECTIVE LENGTH (m)
150-600	0.6
675-750	1.0
OVER 750	1.25

MINIMUM WIDTH OF
BENCHING
TO BE 225mm

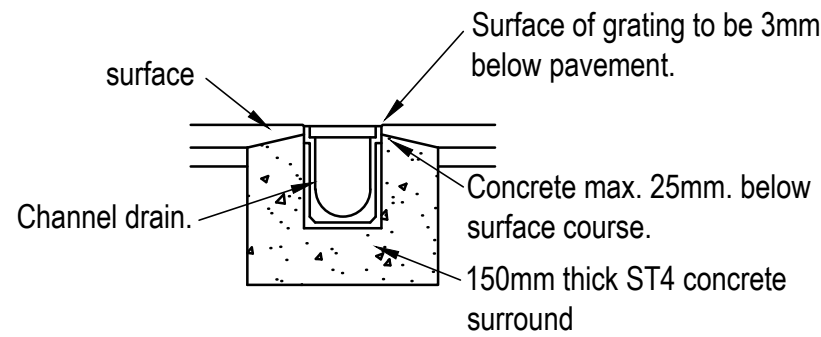


DETAIL OF PIPE THROUGH FOUNDATION

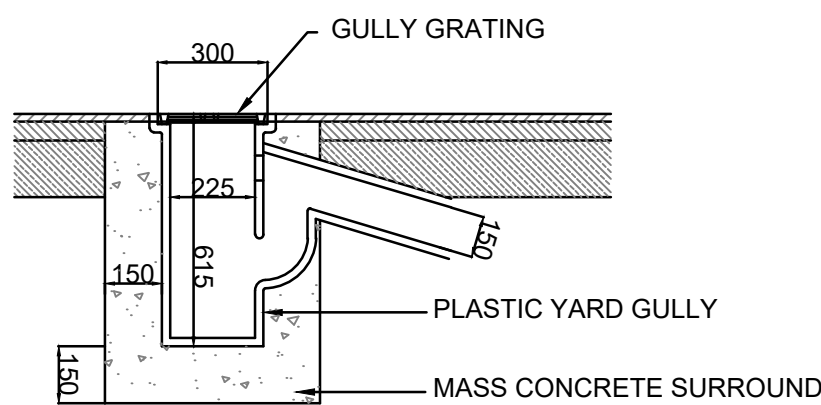
SCALE 1:25



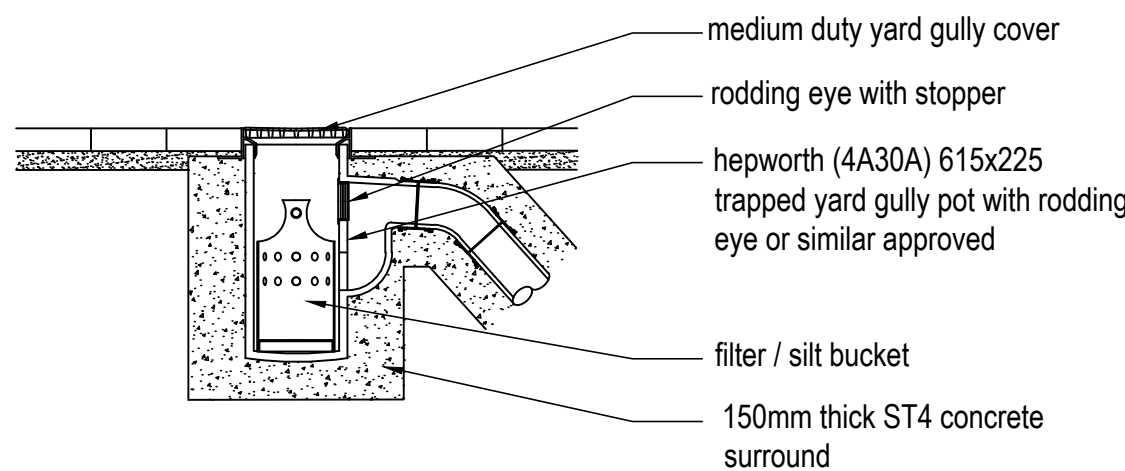
VERTICAL BACKDROP DETAIL



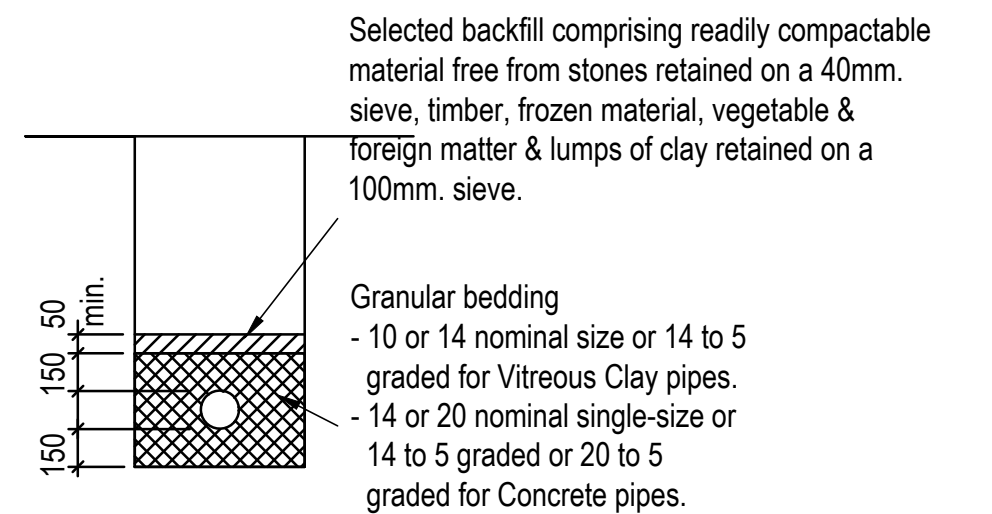
CHANNEL DRAIN



HARD LANDSCAPE GULLY

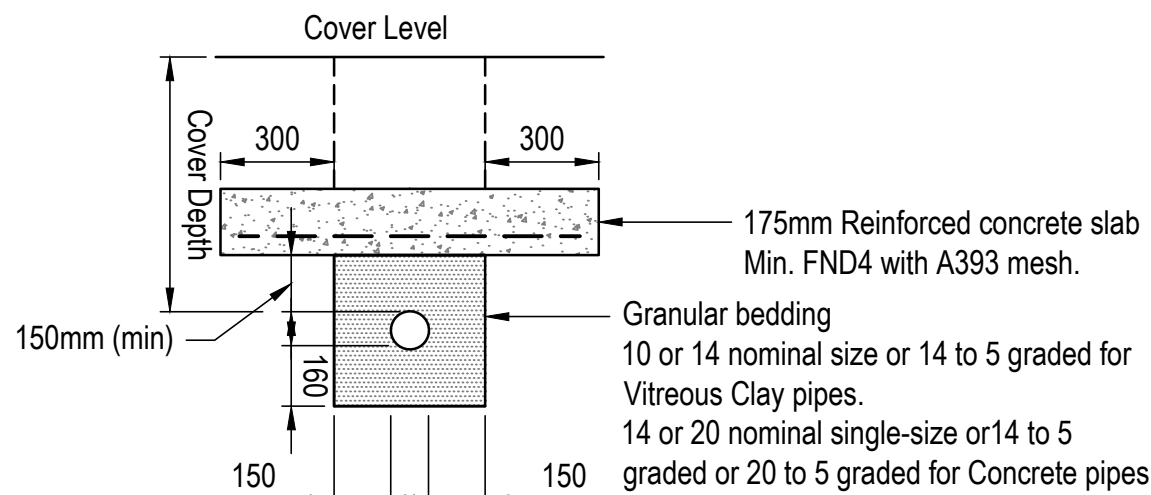


YARD GULLY



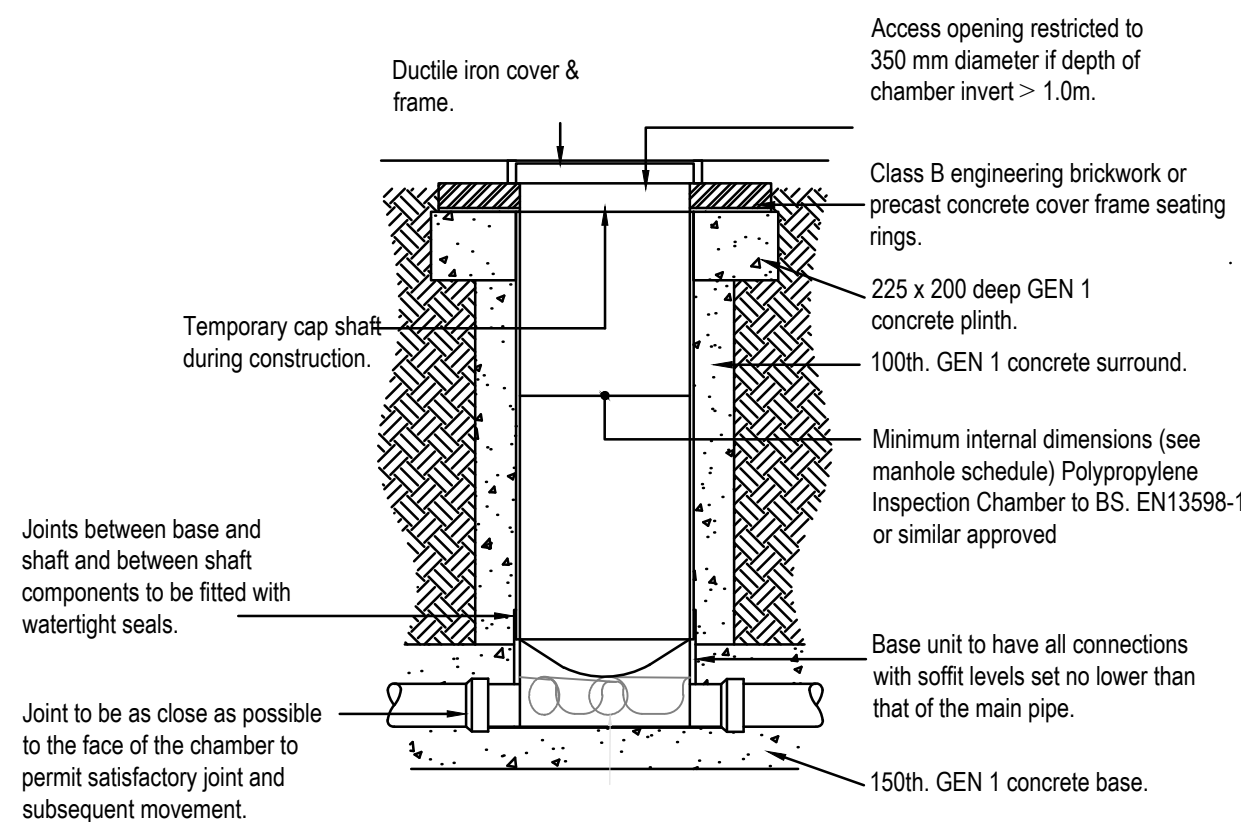
BEDDING DETAIL - CLASS S

(Where depth of cover is grater than 900mm in
landscaped areas and 1200mm in roads &
footpaths / highway verge)



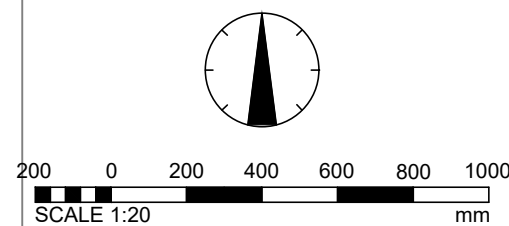
Bedding Detail - Concrete
Slab Protection

(Where depth of cover is less than 900mm in landscaped
areas or 1200mm in roads & footpaths)
Scale 1:25



450mm. DIA. INSPECTION CHAMBER (PPIC)
DETAIL 100 & 150 DIA. Max Depth 3m

SCALE 1:20



DISCLAIMER NOTES:

- THIS DOCUMENT IS COPYRIGHT OF THE ORIGINATOR AND MUST BE TREATED AS CONFIDENTIAL.
- THIS DOCUMENT MUST NOT BE ALTERED, REPRODUCED OR DISTRIBUTED WITHOUT PRIOR WRITTEN CONSENT OF THE ORIGINATOR.
- THIS DOCUMENT MUST NOT BE ALTERED - THE ORIGINATOR ACCEPTS NO RESPONSIBILITY FOR ANY DISCREPANCIES ARISING AS A RESULT OF THE ORIGINATOR'S INFORMATION BEING ALTERED BY OTHERS.
- ANY DISCREPANCY MUST BE REPORTED TO THE ORIGINATOR.
- DO NOT SCALE THIS DOCUMENT - USE FIGURED DIMENSIONS ONLY.
- ALL DIMENSIONS MUST BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF ANY RELATED WORKS.
- THIS DOCUMENT MUST BE READ IN CONJUNCTION WITH ALL SUPPORTING DOCUMENTS PRODUCED BY THE ORIGINATOR AND OTHER PROJECT DISCIPLINES.
- THE ORIGINATOR ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES - THIS MUST BE TREATED AS INDICATIVE ONLY.
- USERS OF THIS DOCUMENT ARE RESPONSIBLE FOR CHECKING WHICH REVISION IS CURRENT.
- THE DOCUMENT STATUS "INFORMATION" OR "PRELIMINARY" INDICATES THAT THIS DRAWING IS FOR REFERENCE PURPOSES ONLY - THE ORIGINATOR WILL ACCEPT NO RESPONSIBILITY FOR THE COMPLETENESS OF INFORMATION UNDER THIS STATUS.
- THE DOCUMENT STATUS "RECORD" OR "AS BUILT" HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ORIGINATOR ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS "RECORD" OR "AS BUILT" DOCUMENT OR FOR ANY ERRORS OR OMISSIONS THAT MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT OF INCORRECT INFORMATION PROVIDED TO THE ORIGINATOR. THOSE RELYING ON THE "RECORD" OR "AS BUILT" DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY.

DRAWING NOTES:

CDM REGULATIONS 2015

SIGNIFICANT OR NON-OBVIOUS RISKS AND RISKS WHICH ARE DIFFICULT TO MANAGE ARE IDENTIFIED ON THIS DRAWING USING THE FOLLOWING SYMBOL IDENTIFIED TO THE RIGHT WITH BRIEF ACCOMPANYING TEXT. FOR FURTHER DETAILS OF THE RISKS IDENTIFIED BY DESIGNERS, REFERENCE SHOULD BE MADE TO CDM HAZARD REGISTER



P02	PRELIMINARY	30.04.21	PB	PB
P01	ISSUED FOR TENDER	15.04.21	PB	PB

REV	DESCRIPTION	DATE	BY	CHKD
-----	-------------	------	----	------

ORIGINATOR:

RIDGE
PROPERTY & CONSTRUCTION CONSULTANTS

6th FLOOR
BELVEDERE HOUSE
BOOTH STREET
MANCHESTER, M2 4AW

TEL: 0151 236 0946

WWW.RIDGE.CO.UK

CLIENT:

ERIC WRIGHT

IN ASSOCIATION WITH:

GREAT PLACES HOUSING GROUP LTD

PROJECT:

ANCOATS DISPENSARY

TITLE:

PROPOSED DRAINAGE
TYPICAL DETAILS

ENG/TECH:	CSE:	ICSE:	SCALE:	1:100	@	A1
PB	PB	ED	STATUS ISSUE:	S0		

STATUS:

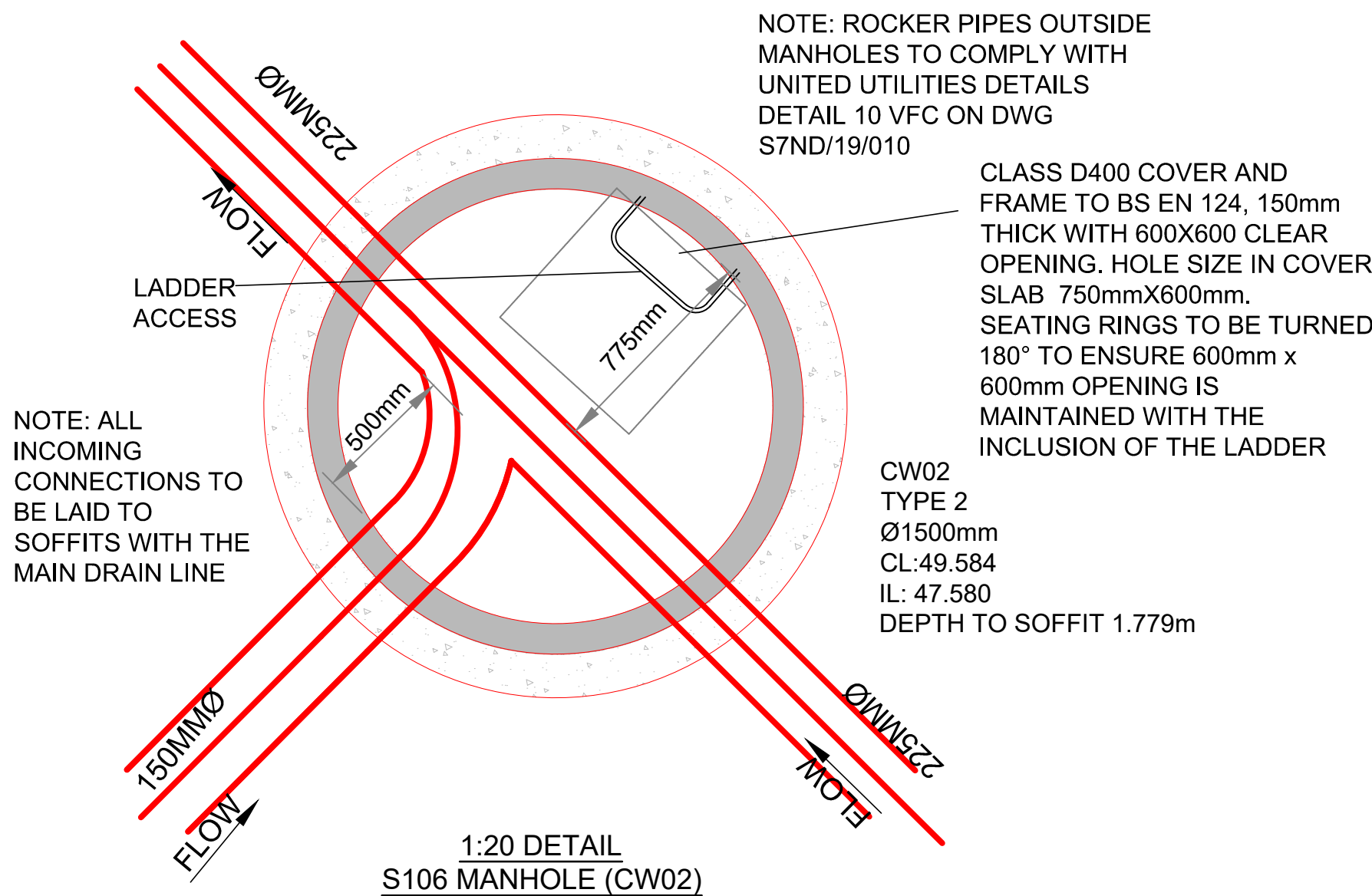
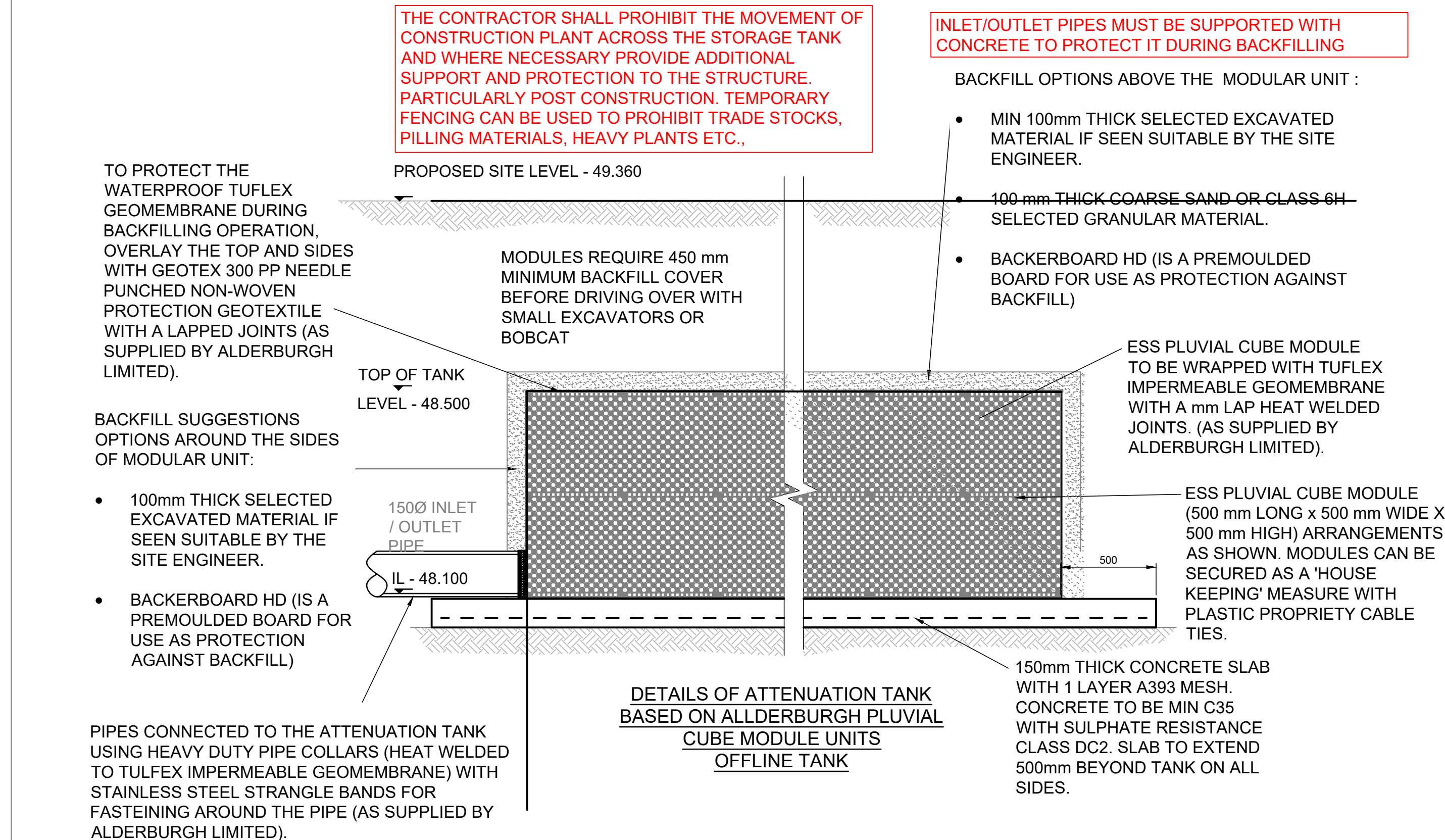
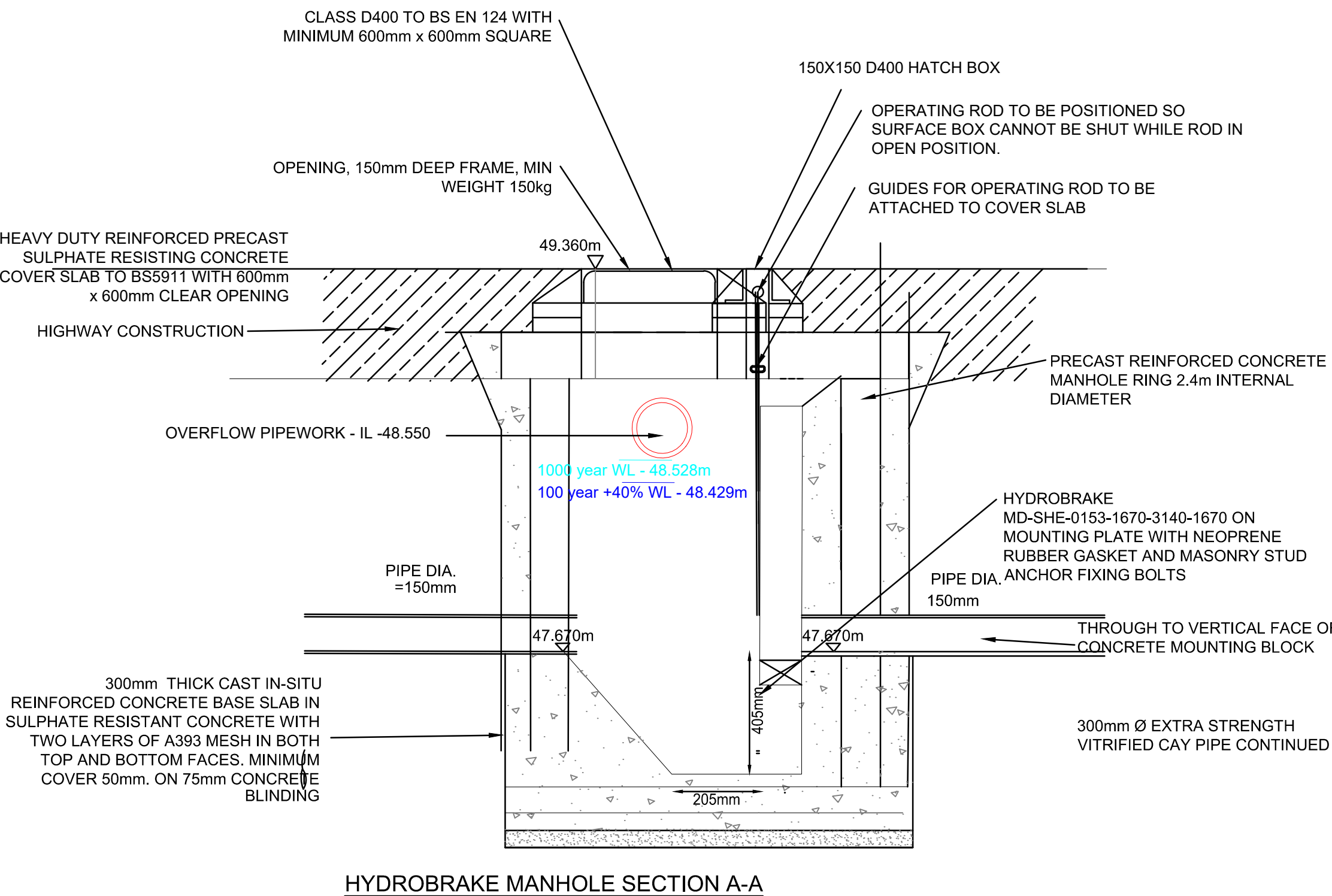
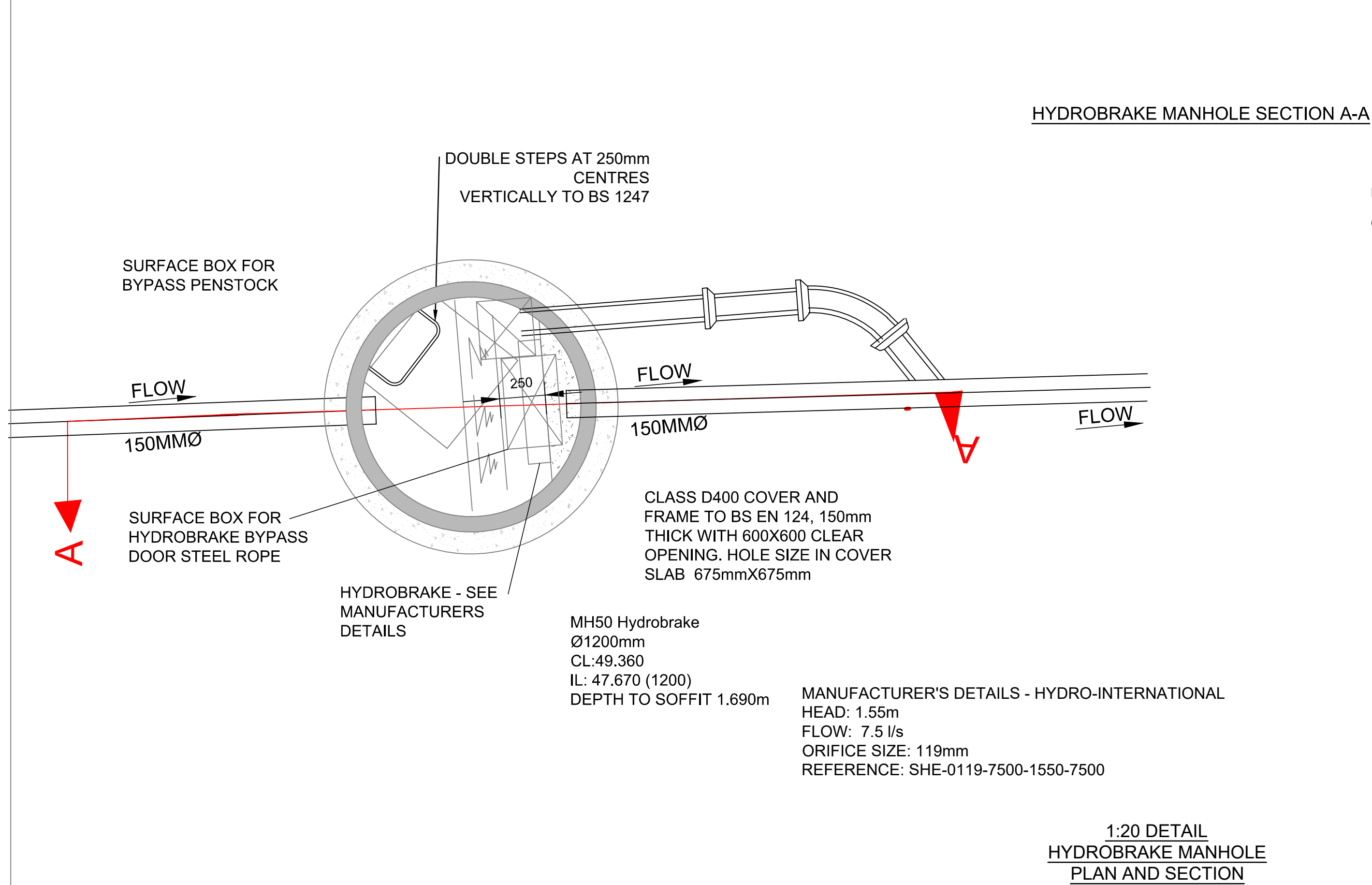
PRELIMINARY

"UNLESS ISSUED FOR CONSTRUCTION - WORKS AT CLIENT/CONTRACTORS RISK"

SUITABILITY: S2 - Issued for Information

PROJECT:	ORG:	ZONE:	LEVEL:	TYPE:	ROLE:	NUMBER:	REV:
5014349	RDG	XX	XX	DR	C	0105	P02

NOTES



DISCLAIMER NOTES:

- THIS DOCUMENT IS COPYRIGHT OF THE ORIGINATOR AND MUST BE TREATED AS CONFIDENTIAL.
- THIS DOCUMENT MUST NOT BE ALTERED, REPRODUCED OR DISTRIBUTED WITHOUT PRIOR WRITTEN CONSENT OF THE ORIGINATOR.
- THIS DOCUMENT MUST NOT BE ALTERED - THE ORIGINATOR ACCEPTS NO RESPONSIBILITY FOR ANY DISCREPANCIES ARISING AS A RESULT OF THE ORIGINATOR'S INFORMATION BEING ALTERED BY OTHERS.
- ANY DISCREPANCY MUST BE REPORTED TO THE ORIGINATOR.
- DO NOT SCALE THIS DOCUMENT - USE FIGURED DIMENSIONS ONLY.
- ALL DIMENSIONS MUST BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF ANY RELATED WORKS.
- THIS DOCUMENT MUST BE READ IN CONJUNCTION WITH ALL SUPPORTING DOCUMENTS PRODUCED BY THE ORIGINATOR AND OTHER PROJECT DISCIPLINES.
- THE ORIGINATOR ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES - THIS MUST BE TREATED AS INDICATIVE ONLY.
- USERS OF THIS DOCUMENT ARE RESPONSIBLE FOR CHECKING WHICH REVISION IS CURRENT.
- THE DOCUMENT STATUS "INFORMATION" OR "PRELIMINARY" INDICATES THAT THIS DRAWING IS FOR REFERENCE PURPOSES ONLY - THE ORIGINATOR WILL ACCEPT NO RESPONSIBILITY FOR THE COMPLETENESS OF INFORMATION UNDER THIS STATUS.
- THE DOCUMENT STATUS "RECORD" OR "AS BUILT" HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ORIGINATOR ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS "RECORD" OR "AS BUILT" DOCUMENT OR FOR ANY ERRORS OR OMISSIONS THAT MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT OF INCORRECT INFORMATION PROVIDED TO THE ORIGINATOR. THOSE RELYING ON THE "RECORD" OR "AS BUILT" DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY.

DRAWING NOTES:

CDM REGULATIONS 2015

SIGNIFICANT OR NON-OBVIOUS RISKS AND RISKS WHICH ARE DIFFICULT TO MANAGE ARE IDENTIFIED ON THIS DRAWING USING THE FOLLOWING SYMBOL IDENTIFIED TO THE RIGHT WITH BRIEF ACCOMPANYING TEXT. FOR FURTHER DETAILS OF THE RISKS IDENTIFIED BY DESIGNERS, REFERENCE SHOULD BE MADE TO CDM HAZARD REGISTER

P02	PRELIMINARY	09.07.21	PB	PB
P01	PRELIMINARY	20.04.21	PB	PB
REV	DESCRIPTION	DATE	BY	CHKD

ORIGINATOR:

RIDGE
PROPERTY & CONSTRUCTION CONSULTANTS

26 FLOOR
BELVEDERE HOUSE
BOOTH STREET
MANCHESTER, M2 4AW

TEL: 0161 833 9579

WWW.RIDGE.CO.UK

CLIENT:

ERIC WRIGHT

IN ASSOCIATION WITH:

GREAT PLACES HOUSING GROUP LTD

PROJECT:

ANCOATS DISPENSARY

TITLE:

**PROPOSED DRAINAGE
SPECIFIC DETAILS**

ENG/TECH:	CSE:	ICSE:	SCALE:	1:20	@	A1
PB	PB	ED	STATUS ISSUE:	D2		

STATUS:

PRELIMINARY

"UNLESS ISSUED FOR CONSTRUCTION - WORKS AT CLIENT/CONTRACTORS RISK"

SUITABILITY: S2 - Issued for Information

PROJECT:	ORG:	ZONE:	LEVEL:	TYPE:	ROLE:	NUMBER:	REV:
5014349	RDG	XX	XX	DR	C	0107	P02

Technical Specification

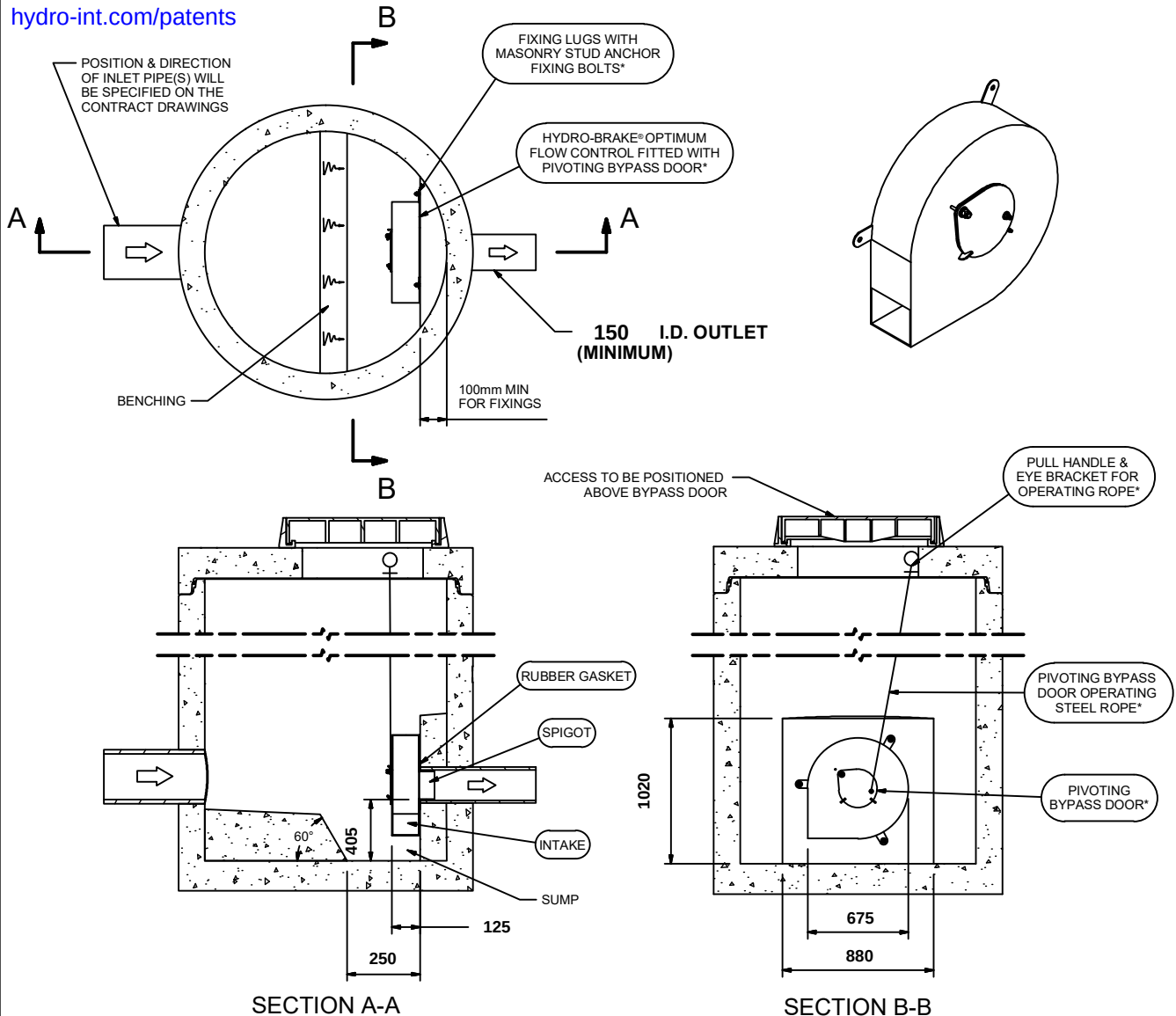
Control Point	Head (m)	Flow (l/s)
Primary Design	1.550	7.500
Flush-Flo™	0.454	7.492
Kick-Flo®	0.946	5.955
Mean Flow		6.560

Hydro-Brake® Optimum Flow Control including:

- 3 mm grade 304L stainless steel
- Integral stainless steel pivoting by-pass door allowing clear line of sight through to outlet, c/w stainless steel operating rope
- Beed blasted finish to maximise corrosion resistance
- Stainless steel fixings
- Rubber gasket to seal outlet



hydro-int.com/patents



IMPORTANT:

○ LIMIT OF HYDRO INTERNATIONAL SUPPLY

THE DEVICE WILL BE HANDED TO SUIT SITE CONDITIONS
FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL
ALL CIVIL AND INSTALLATION WORK BY OTHERS

* WHERE SUPPLIED

HYDRO-BRAKE® FLOW CONTROL & HYDRO-BRAKE® OPTIMUM FLOW CONTROL ARE REGISTERED TRADEMARKS FOR FLOW CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

**DESIGN
ADVICE**



The head/flow characteristics of this SHE-0119-7500-1550-7500 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

**Hydro
International**

DATE 4/6/2021 6:13 AM

SITE Ancoats Dispensary

DESIGNER Philip Barrett

REF ACD - HYD - 01

SHE-0119-7500-1550-7500

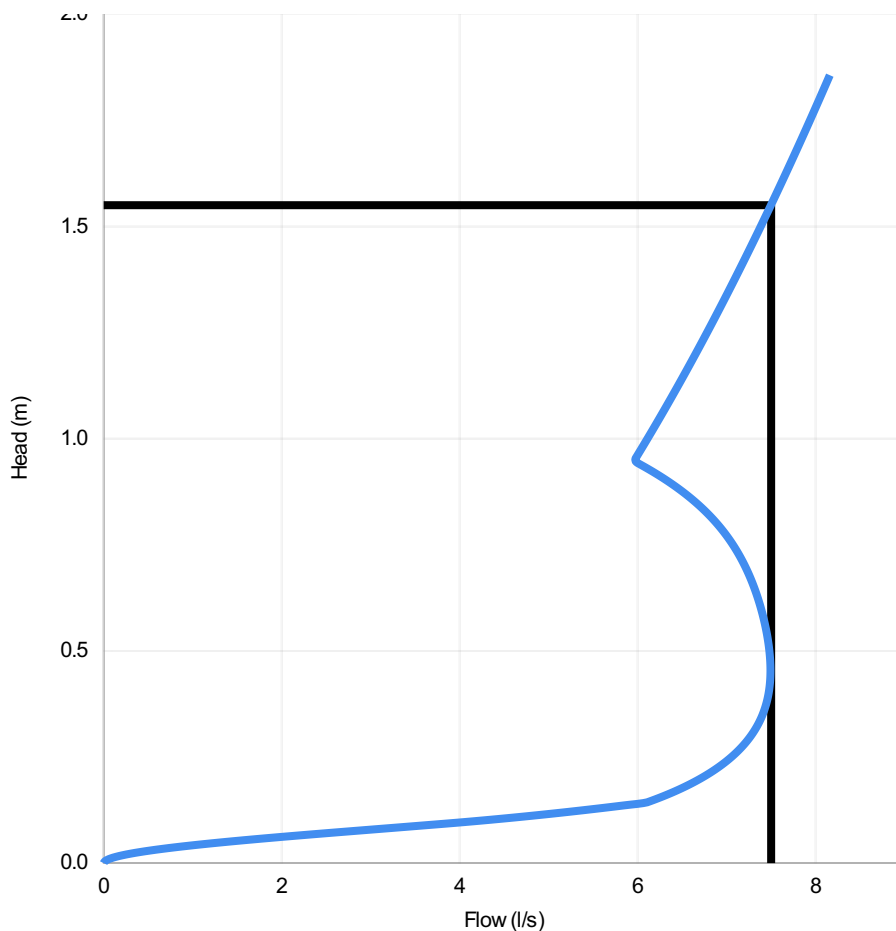
Hydro-Brake® Optimum

Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	1.550	7.500
Flush-Flo	0.454	7.492
Kick-Flo®	0.946	5.955
Mean Flow		6.560



hydro-int.com/patents



Head (m)	Flow (l/s)
0.000	0.000
0.053	1.550
0.107	4.586
0.160	6.320
0.214	6.822
0.267	7.141
0.321	7.337
0.374	7.443
0.428	7.488
0.481	7.488
0.534	7.457
0.588	7.401
0.641	7.323
0.695	7.217
0.748	7.076
0.802	6.883
0.855	6.623
0.909	6.275
0.962	6.002
1.016	6.154
1.069	6.303
1.122	6.448
1.176	6.589
1.229	6.727
1.283	6.862
1.336	6.994
1.390	7.124
1.443	7.250
1.497	7.375
1.550	7.497

DESIGN ADVICE



The head/flow characteristics of this SHE-0119-7500-1550-7500 Hydro-Brake Optimum® Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.

The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro
International

DATE	06/04/2021 06:13
Site	Ancoats Dispensary
DESIGNER	Philip Barrett
Ref	ACD - HYD - 01

SHE-0119-7500-1550-7500
Hydro-Brake Optimum®

APPENDIX D – OUTLINE SURFACE WATER ATTENUATION CALCULATIONS

Scott Hughes Design Ltd		Page 0
The Flint Glass Works 64 Jersey Street Manchester M4 6JW		
Date 08/07/2021 11:06	Designed by pbarrett	
File ACD-RDG-00-ZZ-M3-C-0001 - Proposed Drainage.mdx	Checked by	
Micro Drainage		Network 2018.1

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SURFACE WATER

Pipe Sizes Pipe Manhole Sizes Manhole

FSR Rainfall Model - England and Wales

Return Period (years)	1	Foul Sewage (l/s/ha)	0.000	Maximum Backdrop Height (m)	0.000
M5-60 (mm)	18.000	Volumetric Runoff Coeff.	0.750	Min Design Depth for Optimisation (m)	0.820
Ratio R	0.357	PIMP (%)	100	Min Vel for Auto Design only (m/s)	0.75
Maximum Rainfall (mm/hr)	80	Add Flow / Climate Change (%)	0	Min Slope for Optimisation (1:X)	300
Maximum Time of Concentration (mins)	30	Minimum Backdrop Height (m)	0.400		

Designed with Level Soffits

Network Design Table for SURFACE WATER

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	27.979	0.200	139.9	0.015	10.00	0.0	0.600	o	150	Pipe/Conduit	👤
S1.001	9.199	0.800	11.5	0.019	0.00	0.0	0.600	o	150	Pipe/Conduit	👤
S1.002	9.814	0.070	140.2	0.020	0.00	0.0	0.600	o	150	Pipe/Conduit	👤
S1.003	31.135	0.220	141.5	0.020	0.00	0.0	0.600	o	150	Pipe/Conduit	👤
S1.004	5.203	0.040	130.1	0.023	0.00	0.0	0.600	o	150	Pipe/Conduit	👤

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	32.48	10.55	49.000	0.015	0.0	0.0	0.0	0.85	15.0	1.3
S1.001	32.40	10.60	48.800	0.034	0.0	0.0	0.0	2.99	52.8	3.0
S1.002	32.08	10.79	48.000	0.054	0.0	0.0	0.0	0.85	15.0	4.7
S1.003	31.11	11.41	47.930	0.074	0.0	0.0	0.0	0.84	14.9	6.2
S1.004	30.96	11.51	47.710	0.097	0.0	0.0	0.0	0.88	15.5	8.1

Manhole Schedules for SURFACE WATER

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
SW01	49.970	0.970	Open Manhole	450	S1.000	49.000	150				
SW02	49.970	1.170	Open Manhole	450	S1.001	48.800	150	S1.000	48.800	150	
SW03	49.370	1.370	Open Manhole	450	S1.002	48.000	150	S1.001	48.000	150	
MH49	49.370	1.440	Open Manhole	450	S1.003	47.930	150	S1.002	47.930	150	
MH50	49.370	1.660	Open Manhole	1500	S1.004	47.710	150	S1.003	47.710	150	
	49.970	2.300	Open Manhole	0		OUTFALL		S1.004	47.670	150	

Scott Hughes Design Ltd		Page 2
The Flint Glass Works 64 Jersey Street Manchester M4 6JW		
Date 08/07/2021 11:06	Designed by pbarrett	
File ACD-RDG-00-ZZ-M3-C-0001 - Proposed Drainage.mdx	Checked by	
Micro Drainage		Network 2018.1

PIPELINE SCHEDULES for SURFACE WATER

Upstream Manhole

PN	Hyd	Diam	MH	C.Level	I.Level	D.Depth	MH	MH DIAM., L*W
	Sect	(mm)	Name	(m)	(m)	(m)	Connection	(mm)
S1.000	o	150	SW01	49.970	49.000	0.820	Open Manhole	450
S1.001	o	150	SW02	49.970	48.800	1.020	Open Manhole	450
S1.002	o	150	SW03	49.370	48.000	1.220	Open Manhole	450
S1.003	o	150	MH49	49.370	47.930	1.290	Open Manhole	450
S1.004	o	150	MH50	49.370	47.710	1.510	Open Manhole	1500

Downstream Manhole

PN	Length	Slope	MH	C.Level	I.Level	D.Depth	MH	MH DIAM., L*W
	(m)	(1:X)	Name	(m)	(m)	(m)	Connection	(mm)
S1.000	27.979	139.9	SW02	49.970	48.800	1.020	Open Manhole	450
S1.001	9.199	11.5	SW03	49.370	48.000	1.220	Open Manhole	450
S1.002	9.814	140.2	MH49	49.370	47.930	1.290	Open Manhole	450
S1.003	31.135	141.5	MH50	49.370	47.710	1.510	Open Manhole	1500
S1.004	5.203	130.1		49.970	47.670	2.150	Open Manhole	0

Free Flowing Outfall Details for SURFACE WATER

Outfall	Outfall	C. Level	I. Level	Min	D,L	W
Pipe Number	Name	(m)	(m)	I. Level	(mm)	(mm)
				(m)		
S1.004		49.970	47.670	0.000	0	0

Scott Hughes Design Ltd		Page 3
The Flint Glass Works 64 Jersey Street Manchester M4 6JW		
Date 08/07/2021 11:06	Designed by pbarrett	
File ACD-RDG-00-ZZ-M3-C-0001 - Proposed Drainage.mdx	Checked by	
Micro Drainage	Network 2018.1	
Simulation Criteria for SURFACE WATER Volumetric Runoff Coeff 0.750 Manhole Headloss Coeff (Global) 0.500 Inlet Coeffiecient 0.800 Areal Reduction Factor 1.000 Foul Sewage per hectare (l/s) 0.000 Flow per Person per Day (l/per/day) 0.000 Hot Start (mins) 0 Additional Flow - % of Total Flow 0.000 Run Time (mins) 60 Hot Start Level (mm) 0 MADD Factor * 10m³/ha Storage 2.000 Output Interval (mins) 1 Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0 Synthetic Rainfall Details Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750 Return Period (years) 1 Ratio R 0.357 Cv (Winter) 0.840 Region England and Wales Profile Type Summer Storm Duration (mins) 30		
©1982-2018 Innovyze		

Scott Hughes Design Ltd		Page 4
The Flint Glass Works 64 Jersey Street Manchester M4 6JW		
Date 08/07/2021 11:06	Designed by pbarrett	
File ACD-RDG-00-ZZ-M3-C-0001 - Proposed Drainage.mdx	Checked by	
Micro Drainage		Network 2018.1

Online Controls for SURFACE WATER

Hydro-Brake® Optimum Manhole: MH50, DS/PN: S1.004, Volume (m³): 3.5

Unit Reference	MD-SHE-0117-7500-1700-7500	Sump Available	Yes
Design Head (m)	1.700	Diameter (mm)	117
Design Flow (l/s)	7.5	Invert Level (m)	47.710
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	150
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.700	7.5	Kick-Flo®	1.038	5.9
Flush-Flo™	0.509	7.5	Mean Flow over Head Range	-	6.6

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.1	0.600	7.4	1.600	7.3	2.600	9.1	5.000	12.5	7.500	15.1
0.200	6.5	0.800	7.1	1.800	7.7	3.000	9.8	5.500	13.0	8.000	15.6
0.300	7.1	1.000	6.2	2.000	8.1	3.500	10.5	6.000	13.6	8.500	16.0
0.400	7.4	1.200	6.4	2.200	8.4	4.000	11.2	6.500	14.1	9.000	16.5
0.500	7.5	1.400	6.8	2.400	8.8	4.500	11.8	7.000	14.6	9.500	16.9

Scott Hughes Design Ltd		Page 5
The Flint Glass Works 64 Jersey Street Manchester M4 6JW		
Date 08/07/2021 11:06	Designed by pbarrett	
File ACD-RDG-00-ZZ-M3-C-0001 - Proposed Drainage.mdx	Checked by	
Micro Drainage		Network 2018.1
<u>Offline Controls for SURFACE WATER</u> <u>Pipe Manhole: MH49, DS/PN: S1.003, Loop to PN: S1.004</u> Diameter (m) 0.225 Length (m) 8.000 Coefficient of Contraction 0.500 Section Type Pipe/Conduit Roughness k (mm) 0.600 Upstream Invert Level (m) 48.650 Slope (1:X) 100.0 Entry Loss Coefficient 0.100		
©1982-2018 Innovyze		

Scott Hughes Design Ltd		Page 6
The Flint Glass Works 64 Jersey Street Manchester M4 6JW		
Date 08/07/2021 11:06	Designed by pbarrett	
File ACD-RDG-00-ZZ-M3-C-0001 - Proposed Drainage.mdx	Checked by	
Micro Drainage		Network 2018.1

Storage Structures for SURFACE WATER

Cellular Storage Manhole: SW03, DS/PN: S1.002

Invert Level (m) 48.100 Infiltration Coefficient Side (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Base (m/hr) 0.00000 Safety Factor 2.0

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	55.0	0.0	0.500	55.0	0.0	0.501	0.0	0.0

Scott Hughes Design Ltd		Page 7
The Flint Glass Works 64 Jersey Street Manchester M4 6JW		
Date 08/07/2021 11:06	Designed by pbarrett	
File ACD-RDG-00-ZZ-M3-C-0001 - Proposed Drainage.mdx	Checked by	
Micro Drainage		Network 2018.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SURFACE WATER

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
 Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800
 Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.357 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep 2.5 Second Increment (Extended) Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 1, 30, 100, 200, 1000
 Climate Change (%) 0, 0, 40, 0, 0

										Water	Surcharged	Flooded	Pipe			
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status	Level Exceeded
S1.000	SW01	15 Winter	1	+0%					49.030	-0.120	0.000	0.09		1.2	OK	
S1.001	SW02	15 Winter	1	+0%					48.825	-0.125	0.000	0.07		3.1	OK	
S1.002	SW03	15 Winter	1	+0%	30/15 Summer				48.064	-0.086	0.000	0.38		5.1	OK	
S1.003	MH49	15 Winter	1	+0%	30/15 Summer			0	48.020	-0.060	0.000	0.49	0.0	7.0	OK	
S1.004	MH50	15 Winter	1	+0%	1/15 Summer				47.987	0.127	0.000	0.56		7.0	SURCHARGED	

Scott Hughes Design Ltd		Page 8
The Flint Glass Works 64 Jersey Street Manchester M4 6JW		
Date 08/07/2021 11:06	Designed by pbarrett	
File ACD-RDG-00-ZZ-M3-C-0001 - Proposed Drainage.mdx	Checked by	
Micro Drainage		Network 2018.1

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SURFACE WATER

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
 Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800
 Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.357 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep 2.5 Second Increment (Extended) Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 1, 30, 100, 200, 1000
 Climate Change (%) 0, 0, 40, 0, 0

									Water	Surcharged	Flooded	Pipe				
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status	Level Exceeded
S1.000	SW01	15 Winter	30	+0%					49.046	-0.104	0.000	0.21		3.0		OK
S1.001	SW02	15 Winter	30	+0%					48.844	-0.106	0.000	0.18		8.5		OK
S1.002	SW03	30 Winter	30	+0%	30/15 Summer				48.211	0.061	0.000	0.53		7.0	SURCHARGED	
S1.003	MH49	15 Summer	30	+0%	30/15 Summer			0	48.207	0.127	0.000	0.66	0.0	9.5	SURCHARGED	
S1.004	MH50	15 Winter	30	+0%	1/15 Summer				48.232	0.372	0.000	0.59		7.4	SURCHARGED	

Scott Hughes Design Ltd		Page 9
The Flint Glass Works 64 Jersey Street Manchester M4 6JW		
Date 08/07/2021 11:06	Designed by pbarrett	
File ACD-RDG-00-ZZ-M3-C-0001 - Proposed Drainage.mdx	Checked by	
Micro Drainage		Network 2018.1

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SURFACE WATER

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
 Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800
 Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.357 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep 2.5 Second Increment (Extended) Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 1, 30, 100, 200, 1000
 Climate Change (%) 0, 0, 40, 0, 0

PN	US/MH		Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth	Flooded Volume	Flow / Overflow		Pipe Flow	Status	Level Exceeded
	Name	Storm							(m)	(m)	(m³)	Cap.	(l/s)	(l/s)		
S1.000	SW01	15 Winter	100	+40%					49.064	-0.086	0.000	0.38		5.5		OK
S1.001	SW02	15 Winter	100	+40%					48.860	-0.090	0.000	0.33		15.4		OK
S1.002	SW03	30 Winter	100	+40%	30/15	Summer			48.436	0.286	0.000	0.54		7.1	SURCHARGED	
S1.003	MH49	30 Winter	100	+40%	30/15	Summer		0	48.422	0.342	0.000	0.54	0.0	7.8	SURCHARGED	
S1.004	MH50	15 Winter	100	+40%	1/15	Summer			48.429	0.569	0.000	0.59		7.5	SURCHARGED	

Scott Hughes Design Ltd		Page 10
The Flint Glass Works 64 Jersey Street Manchester M4 6JW		
Date 08/07/2021 11:06	Designed by pbarrett	
File ACD-RDG-00-ZZ-M3-C-0001 - Proposed Drainage.mdx	Checked by	
Micro Drainage		Network 2018.1

200 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SURFACE WATER

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
 Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800
 Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.357 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep 2.5 Second Increment (Extended) Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 1, 30, 100, 200, 1000
 Climate Change (%) 0, 0, 40, 0, 0

PN	US/MH		Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Surcharged Flooded			Pipe		Status	Level Exceeded
	Name	Storm							Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	
S1.000	SW01	15 Winter	200	+0%					49.058	-0.092	0.000	0.32		4.5	OK
S1.001	SW02	15 Winter	200	+0%					48.854	-0.096	0.000	0.27		12.7	OK
S1.002	SW03	30 Winter	200	+0%	30/15 Summer				48.347	0.197	0.000	0.54		7.2	SURCHARGED
S1.003	MH49	30 Winter	200	+0%	30/15 Summer			0	48.331	0.251	0.000	0.56	0.0	8.1	SURCHARGED
S1.004	MH50	15 Summer	200	+0%	1/15 Summer				48.344	0.484	0.000	0.59		7.5	SURCHARGED

Scott Hughes Design Ltd		Page 11
The Flint Glass Works 64 Jersey Street Manchester M4 6JW		
Date 08/07/2021 11:06	Designed by pbarrett	
File ACD-RDG-00-ZZ-M3-C-0001 - Proposed Drainage.mdx	Checked by	
Micro Drainage		Network 2018.1

1000 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SURFACE WATER

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
 Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800
 Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.357 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep 2.5 Second Increment (Extended) Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 1, 30, 100, 200, 1000
 Climate Change (%) 0, 0, 40, 0, 0

									Water	Surcharged	Flooded	Pipe				
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status	Level Exceeded
S1.000	SW01	30 Winter	1000	+0%					49.070	-0.080	0.000	0.44		6.4		OK
S1.001	SW02	15 Winter	1000	+0%					48.865	-0.085	0.000	0.38		17.9		OK
S1.002	SW03	60 Winter	1000	+0%	30/15 Summer				48.563	0.413	0.000	0.53		7.1	SURCHARGED	
S1.003	MH49	60 Winter	1000	+0%	30/15 Summer			0	48.549	0.469	0.000	0.50	0.0	7.2	SURCHARGED	
S1.004	MH50	15 Winter	1000	+0%	1/15 Summer				48.528	0.668	0.000	0.59		7.5	SURCHARGED	

APPENDIX E – UU PRE DEVELOPMENT ENQUIRY

Philip Barrett

From: Perry, Graham <Graham.Perry@uuplc.co.uk>
Sent: 18 March 2021 21:22
To: Philip Barrett
Cc: Wastewater Developer Services
Subject: Pre Development Enquiry for : Ancoats Dispensary, Old Mill St, Ancoats, Manchester
M4 6EB UU reference Number : 4200038016

Dear Sirs

Pre Development Enquiry for: Ancoats Dispensary, Old Mill St, Ancoats, Manchester M4 6EB UU reference Number : 4200038016

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 3723223 or refer to the link below:

<https://www.unitedutilities.com/builders-developers/working-near-our-assets/>

Foul Water

Foul flow from this site will be allowed to drain into the public foul water/combined sewer system.

Our preferred point of discharge would be to the 225mm diameter public combined sewer within Upper Kirkby Street located to the east of your proposed development at an unrestricted rate.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

This is outlined as follows, in order of priority:

- 1. into the ground (infiltration);**
- 2. to a surface waterbody;**
- 3. to a surface water sewer or highway drain;**
- 4. to a combined sewer.**

For guidance, The North West SuDS Pro-Forma provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Infiltration

Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible.

A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:

<https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs>

If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:

<https://www.gov.uk/government/publications/groundwater-protection-position-statements>

Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

Public Sewer

In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma.

Once evidence is provided as outlined above, United Utilities will consider a connection to the 225mm diameter public combined sewer within Upper Kirkby Street located east of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 7.5l/s.

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the public sewerage network under any circumstances

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address:

DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

<https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/>

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

<https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-connections/>

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.

If we can be of any further assistance please don't hesitate to contact us further.

Kind regards,

Graham Perry



Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

If you have received a great service today why not tell us?
Visit: unitedutilities.com/wow

EMGateway3.uuplc.co.uk made the following annotations

The information contained in this e-mail is intended only for the individual to whom it is addressed. It may contain legally privileged or confidential information or otherwise be exempt from disclosure. If you have received this Message in error or there are any problems, please notify the sender immediately and delete the message from your computer. You must not use, disclose, copy or alter this message for any unauthorised purpose. Neither United Utilities Group PLC nor any of its subsidiaries will be liable for any direct, special, indirect or consequential damages as a result of any virus being passed on, or arising from the alteration of the contents of this message by a third party.

United Utilities Group PLC, Haweswater House, Lingley Mere
Business Park, Lingley Green Avenue, Great Sankey,
Warrington, WA5 3LP
Registered in England and Wales. Registered No 6559020

www.unitedutilities.com
www.unitedutilities.com/subsidiaries



RIDGE



www.ridge.co.uk