

Glossop Fire Station Site Drainage: Management and Maintenance Plan

Ref: LM21003-DYSE-XX-ZZ-GD-C-0001

Rev: P01

Date: 15/08/2022

Client: Derbyshire Fire & Rescue Service

Document Revision

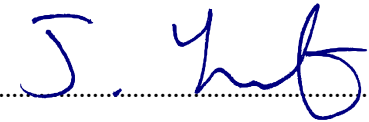
Originator: P Graveney BEng CEng MICE

Date: 15/08/2022



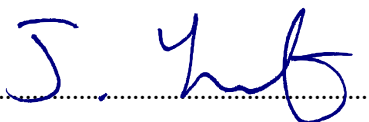
Checker: J Yusuf MEng CEng MStructE

Date: 15/08/2022



Approver: J Yusuf MEng CEng MStructE

Date: 15/08/2022



Rev	Description	Date	Originator	Checker	Approver
P01	First Issue	15/08/2022	PG	JDY	JDY

DYSE Ltd
79 Thomas Street
Manchester
M4 1LQ

0161 278 9072
studio@dyse.com
www.dyse.com

©Copyright 2022 DYSE Ltd.

DYSE Ltd. is a Private Limited Company registered in England and Wales No. 10984286 Registered Office 79 Thomas Street, Manchester, M4 1LQ

This document has been prepared on behalf of DYSE Ltd. No individual is personally liable for its content. By receiving this document, the client of DYSE Ltd. or any third party relying on it accepts that no individual is personally liable in contract, tort or breach of statutory duty (including negligence).

This document has been prepared on behalf of, and for the private and confidential use of the client of DYSE Ltd. This document should not be reproduced in whole or in part or relied upon by third parties without express authority of DYSE Ltd.

Table of Contents

1	Introduction	1
2	SuDS at Glossop Fire Station	2
3	Management.....	3
4	Inspection.....	4
5	Maintenance.....	5

Appendix A - Maintenance inspection record

Appendix B - Drainage Drawings

1 Introduction

1.1 Overview

This plan has been prepared to set out the Maintenance and Management for the drainage to the proposed Glossop Fire Station Development.

1.2 Purpose

The purpose of this plan is to set out the requirements of maintenance to the drainage in order to ensure the body responsible for maintenance is entrusted with a robust inspection and maintenance programme, ensuring the optimum operation of the surface water drainage network is continually maintained for the lifetime of the assets.

The activities listed in this plan are specific to this site and represent minimum maintenance and inspection requirements, however, additional tasks or varied maintenance frequency may be required. Specific maintenance needs of the drainage should be monitored and maintenance schedules should be adjusted to suit requirements.

All those responsible for maintenance should follow relevant health and safety legislation for all activities and risk assessments and method statements should always be provided.

2 SuDS at Glossop Fire Station

The surface water drainage utilises SuDS to manage rainfall and deal with surface water runoff.

The scheme comprises SuDS components including:

- Offline attenuation
- Flow control devices.

3 Management

3.1 Overview

There are two levels of inspection proposed in this plan:

- **Yearly inspection.** Consists of a site walkover and visual inspection of the drainage.
- **5 yearly inspection.** Consists of a site walkover and visual inspection, and review of a CCTV drainage survey.

There are three categories of maintenance activities referred to in this plan.

- **Regular maintenance** (including inspections and monitoring). Consists of basic tasks done on a frequent and predictable schedule.
- **Occasional maintenance.** Comprises tasks that are likely to be required periodically, but on a much less frequent and predictable basis than routine tasks.
- **Remedial maintenance.** Comprises intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events.

3.2 Responsibilities

A management company is to be formed by the Derbyshire Fire & Rescue Service and will take on the responsibility for inspection and maintenance of all the drainage.

3.3 Further information or advice

In the event of concern over any matter to do with this drainage please contact DYSE.

DYSE Structural Engineers

www.dyse.com

4 Inspection

4.1 Yearly

The below table provides recommendations to be included within the management and maintenance companies regular inspection regime for the structure.

	Yearly inspection
Y1	Manholes and inspection chambers. Annual visual inspection to check free flow from ground level.
Y2	Offline attenuation Annual visual inspection to check free flow from ground level.
Y3	Flow control devices Annual inspection to check outlet is free flowing and serviceable.

4.2 5 yearly

In addition to the yearly inspection, all drainage should be surveyed by a specialist drainage CCTV company and a report should be provided to document the condition of the drainage and make any recommendations for remedial repair works.

5 Maintenance

5.1 Regular maintenance

The below table summarises the regular maintenance required.

	Regular Maintenance	Frequency
A1	Litter management Pick up all litter on hard surfaces and in landscaped areas.	Monthly
A2	Grass maintenance Mow all grass and remove cuttings from site.	As required or monthly
A3	Hard surfaces Sweep regularly.	Monthly
A4	Flow control devices Normally, little maintenance is required as there are no moving parts within the device. However, it is recommended that the unit should be inspected for debris or blockages.	6 monthly

5.2 Occasional maintenance

The below table summarises the occasional maintenance required.

	Regular Maintenance	Frequency
B1	Inspection chambers Inspect chamber cover and frame for any defects, repair and replace as necessary. Inspect chamber interior and incoming/ outgoing pipes for the build-up of silt and debris. Removal of silt and debris by means of vacuum suction and or jetting/ rodding. Ensure manhole access steps/ ladders are secured and inspect for corrosion.	Yearly
B2	Inlets, outlets, gulleys and channels Inspect and remove silt and leaves from gullies and channels. Inspect cover and frame for any defects, repair and replace as necessary. Inspect sumps and outgoing pipework for the build-up of silt and debris. Removal of silt and debris by means of vacuum suction and or jetting/ rodding.	Initially a 6 monthly inspection and if found to be acceptable, reduce to yearly.
B3	Geo-cellular attenuation Inspect and identify any areas that are not operating correctly. If required take remedial actions. Remove sediment from inlet manhole. Repair/ rehabilitate inlets, outlet, overflows and vents. Inspect/ check all inlets, outlets, vents and overflows to ensure they are in good conditions and operating as designed. Survey inside of tank for sediment build-up and remove if necessary	Yearly

5.3 Remedial maintenance

The below table summarises the occasional maintenance required.

	Remedial Maintenance	Frequency
C1	Inlet and outlet repairs Repair damage to inlets and outlets.	As required.
C2	Inspection chamber repairs Repair damage to inspection chambers.	As required.
C3	Carrier drain repairs	As required based on 5 yearly CCTV survey.

Appendix A - Maintenance inspection record

This maintenance inspection record should be completed yearly during an annual inspection. A photographic record should be completed and stored with the maintenance inspection record.

The below template should be amended or developed as required.

General information	
Site location	Glossop Fire Station
Inspection frequency	Annual.
Type of development	Fire Station with car parking, training yard and landscaping areas.
Inspection date	

Inspection items	Details	Action required (Y/N, description)
Evidence of erosion, ponding, channelling or other poor hydraulic performance.		
Evidence of accidental spillages, oils, odours, nuisance insects.		
Deterioration of hardstanding, or ponding water.		
Sediment accumulation at inlets.		
Sediment accumulation in filter drains.		
Evidence of litter accumulation in the system.		
Evidence of clogging or blockage of inlet, outlets and chambers.		
Accidental damage to the system.		
Evidence of cross connections or unauthorised inflows.		
Other comments		

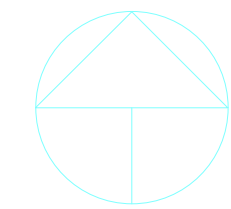
Suitability of current and proposed future maintenance regime	
Suitability of current maintenance regime (circle as appropriate)	Continue as current Increase maintenance Decrease maintenance
Proposed date of next inspection	

Appendix B - Drainage Drawings

Below Ground Drainage

LM21003-DYSE-XX-ZZ-DR-C-1002

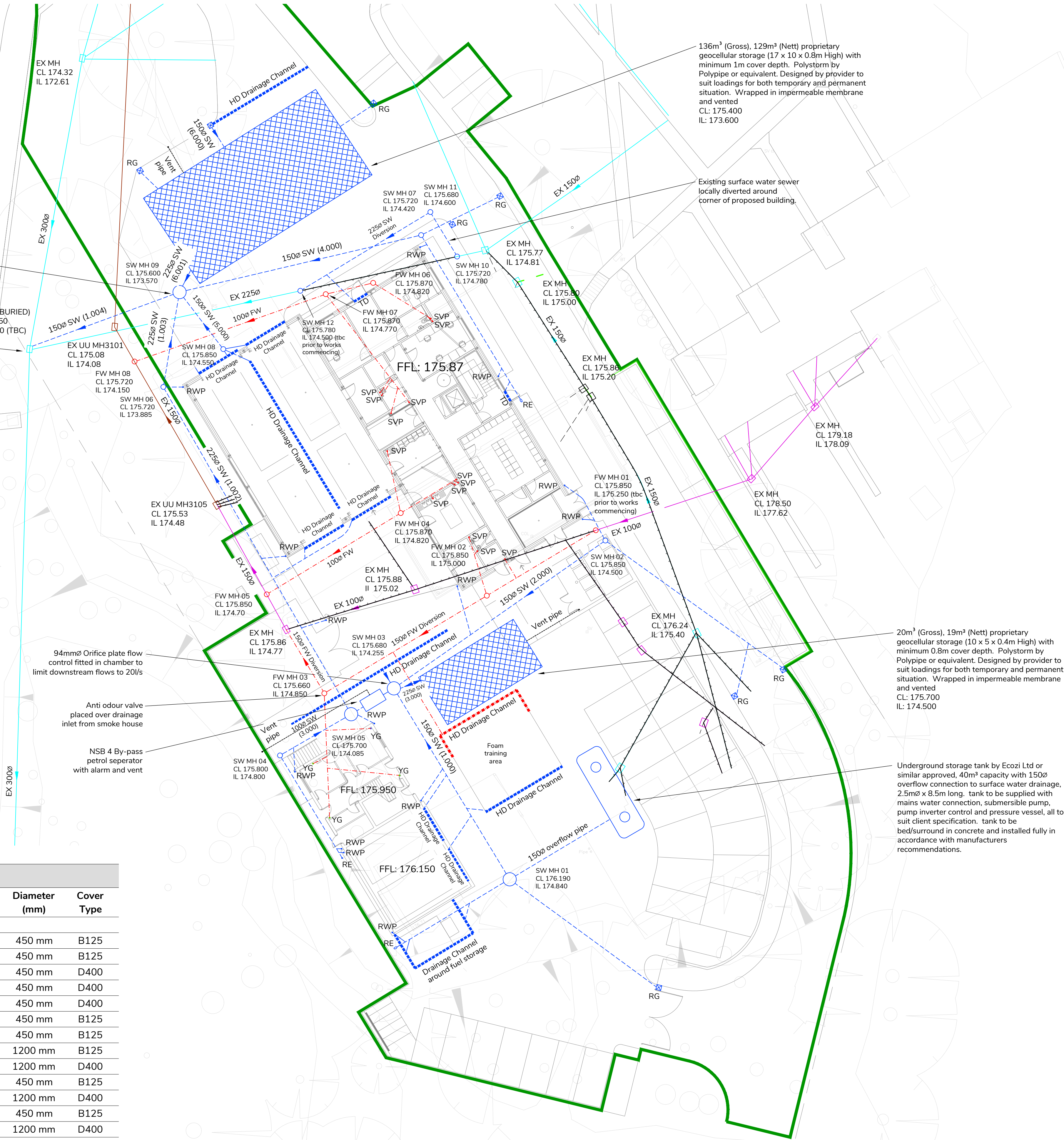
P02



Drainage GA

1:200

IC Schedule					
Mark	CL	IL	Depth (mm)	Diameter (mm)	Cover Type
FW01	+175.850 m	+175.250 m	600 mm	450 mm	B125
FW02	+175.850 m	+175.000 m	850 mm	450 mm	B125
FW03	+175.660 m	+174.850 m	810 mm	450 mm	D400
FW04	+175.870 m	+174.820 m	1050 mm	450 mm	D400
FW05	+175.850 m	+174.700 m	1150 mm	450 mm	D400
FW06	+175.870 m	+174.820 m	1050 mm	450 mm	B125
FW07	+175.870 m	+174.770 m	1100 mm	450 mm	B125
FW08	+175.720 m	+174.150 m	1570 mm	1200 mm	B125
SW01	+176.190 m	+174.840 m	1350 mm	1200 mm	D400
SW02	+175.850 m	+174.500 m	1350 mm	450 mm	B125
SW03	+175.680 m	+174.255 m	1425 mm	1200 mm	D400
SW04	+175.800 m	+174.800 m	1000 mm	450 mm	B125
SW05	+175.700 m	+174.085 m	1615 mm	1200 mm	D400
SW06	+175.700 m	+174.085 m	870 mm	450 mm	B125
SW07	+175.720 m	+174.420 m	1300 mm	450 mm	D400
SW08	+175.850 m	+174.550 m	1300 mm	450 mm	D400
SW09	+175.600 m	+173.570 m	2030 mm	1500 mm CP	D400
SW10	+175.720 m	+174.780 m	940 mm	450 mm	D400
SW11	+175.680 m	+174.600 m	1080 mm	450 mm	D400
SW12	+175.780 m	+174.500 m	1280 mm	450 mm	D400



Above ground storage

- Southern main yard area to retain 8m³ on the surface adjacent the drainage channel for the extreme 100yr + 40% CC peak storm event.

Attenuation

- The proposed attenuation tank has been designed to accommodate a 1in100 year + 40% storm event.
- Chamber to be owned and maintained by Derbyshire Fire & Rescue Service

SuDS Maintenance Requirements

Monthly

- Litter management: pick up all litter in landscaped areas.
- Grass maintenance: mow all grass verges and paths.
- Inlets and outlets: Inspect and remove silt and leaves from gullies and channels.
- Hard surfaces: sweep regularly.

Yearly

- Gutters: clear out gutters of leaves and debris.

Occasional

- Inspection chambers: Annual inspection remove silt and check free flow.
- Carrier drain runs: Annual inspection to check free flowing. Rod as required and remove silt.
- Attenuation: Annual inspection to check silt. Clean and remove silt as required in accordance with manufacturers recommendations.

Drainage notes

- This drawing is subject to change depending on further development of the site layout, detailed design development and coordination with the Architect. It is the contractor's responsibility to confirm presence and location of services prior to commencing works.
- The proposed building outlines shown on this drawing are for information only. Refer to Architects drawings for precise setting out information and details including locations of all popups and gullies.
- Cover levels shown on this drawing are approximate and shall be adjusted to suit finished pavement levels on site by Contractor. Covers shall be orientated to suit pavement finishes where appropriate.
- All existing drainage shall be assumed to be 'live' and shall be maintained at all times during the works. Existing drainage shall be reconnected to the new drainage system unless proven to be redundant for abandonment. All existing drainage to be fully removed.
- Upon completion all new drainage installation together with any existing drainage retained shall be jetted and CCTV surveyed upon completion. Contractor to ensure that the drainage system is fully operational, free of excess debris/silt and all identified faults rectified.

Outline specification

- All drainage to comply with BS EN 16933-2:2017 Drain and sewer systems outside buildings together with parts H1, 2 and 3 of the current Building Regulations.
- All rain water gullies to be access gullies with integral back inlets for rodding installed to manufacturer's recommendations.
- All underslab drainage shall be clear of foundations unless shown otherwise with long radius bends kept to a minimum and used where shown when unavoidable.
- At least one soil pipe at the head of each foul run shall be vented to the atmosphere.
- Proposed pipework with <1.2m depth to soffit in roads to <0.9m in pedestrian/landscaped areas require a concrete surround.
- Where new drainage is situated within 5 metres of new or existing trees the pipework shall be encased in Z Class concrete surround to reduce the risk of root ingress.
- Concrete encasement of the pipework shall be required where the vertical clearance between two pipes crossing is less than 300mm.
- All external carrier drains to be vitreous clay pipework. Jointing shall be either UPVC pushfit couplings or by sealing rubber 'O' rings in polyester moldings.
- All carrier drains which are located within 2000mm of external walls or pass under buildings are to be encased in min. 150mm concrete of full width of trench.
- Manhole covers to be seated in rebated steel frames and sealed with grease on 100mm thick concrete frame base with 600mm minimum openings.

Residual Risks

These drawings should be read in conjunction with the designer's risk assessment (DRA) which communicates significant residual design risks that have been identified and suggests mitigating actions.

General Notes

- Do not scale off these drawings. Work to stated dimensions only.
- All dimensions are in millimetres unless noted otherwise.
- These drawings should be read in conjunction with all other relevant drawings, specifications, schedules and other information including all other consultants drawings.
- The contractor is responsible for the temporary stability of all structure including ground during the works and is to undertake the necessary temporary All works are subject to all necessary approvals.
- Setting out information to be co-ordinated by lead designer.

Drainage Legend

	Existing combined water sewer
	Existing foul water sewer
	Existing foul water drainage
	Existing surface water drainage
	Proposed foul water (private)
	Existing drainage to be abandoned
	Proposed surface water (private)
	Proposed drainage channel
	Proposed mini PPIC (Depth 600mm)
	Proposed 450ø PPIC
	Proposed PCC Manhole
RWP	Roddable rain water gully
SVP	Soil and vent pipe
SS	Substack
RE	Rodding eye
RG	Road gully
YG	Yard gully
TD	Threshold drain at doorways
	Geocellular attenuation
	site boundary

P02	15/06/22	Issued for Tender	PG	MS	JDY	JDY
P01	10/06/22	First Issue	PG	MS	JDY	JDY
Rev	Date	Description	Drw	Chk	Revd	App

Status:

TENDER

Client:

Derbyshire Fire & Rescue Service

Project:

Glossop Fire Station

Drawing:

Drainage GA

Drawing Number:	Revision:
LM21033-DYSE-XX-ZZ-DR-C-1002	P02