



Dixon Newall Green Academy, Manchester.

Flood Risk Assessment and Drainage Strategy.

Prepared for Morgan Sindall.

06/04/2023

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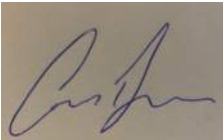
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1.0 INTRODUCTION

1.1 Project Background

- 1.1.1 Clancy Consulting Ltd has been appointed by Morgan Sindall to provide a Flood Risk Assessment (FRA) and Drainage Strategy (DS) for the proposed development at Dixon Newall Green Academy, Manchester.
- 1.1.2 The proposed development encompasses a full planning application for the demolition of several of the existing buildings on the site and construction of a new two storey classroom extension and new sports hall, interlinked with the existing/retained building. The existing retained building is to be refurbished and parts of the external grounds reconfigured. Refer to Figure 3
- 1.1.3 The report provides information on the nature of flood risk at the site and follows Government guidance regarding development and flood risk.
- 1.1.4 The report is based on current available information and preliminary discussions.
- 1.1.5 Proposals contained or forming part of this report represent the design intent and may be subject to alteration or adjustment in completing the detailed design for this project. Where such adjustments are undertaken as part of the detailed design and are deemed a material deviation from the intent contained in this document, prior approval shall be obtained from the relevant authority in advance or commencing such works.
- 1.1.6 Where the proposed works to which this report refers are undertaken more than twelve months following the issue of this report, Clancy Consulting Ltd shall reserve the right to re-validate the findings and conclusions by undertaking appropriate further investigations at no cost to Clancy Consulting Ltd.
- 1.1.7 This report is prepared solely for the benefit of the Client. This report may not be assigned without prior written permission from Clancy Consulting Ltd.

1.2 Scope of Assessment

- 1.2.1 The assessment is to be undertaken in accordance with the standing advice and requirements of the Environment Agency (EA) for the Flood Risk Assessment as outlined in the communities and local Government Planning Policy Guidance to the National Planning Policy Framework (NPPF).
- 1.2.2 The assessment will:
 - Investigate all potential risks of flooding to the site,
 - Consider the impact the development may have elsewhere with regards to flooding,
 - Consider design proposals to mitigate any potential risk of flooding determined to be present, and
 - Consider foul and surface water drainage proposals for the proposed development.

- 1.2.3 The total site area is approximately 3.0ha and following scrutiny of the EA flood maps it has been identified that the site lies within Flood Zone 1. See figure 1 below.

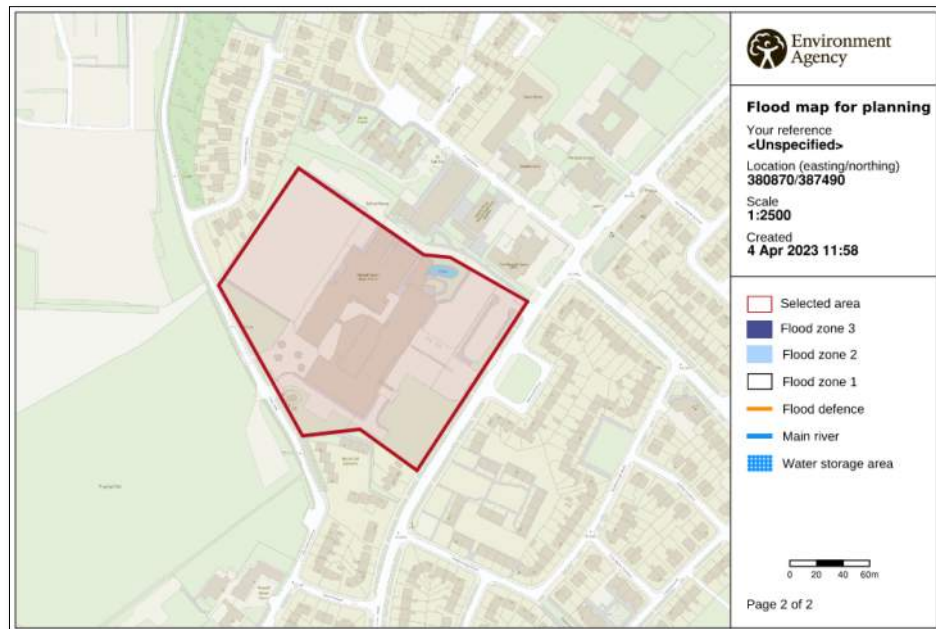


Figure 1 – EA Flood map for planning

- 1.2.4 The site lies within the Critical Drainage Area (CDA). See below figure 2, extract from Manchester, Salford and Trafford Strategic Flood Risk Assessment (SFRA) identifying the proposed development area as being in the Manchester and Trafford South area, with the red dot highlighting the approximate site location.

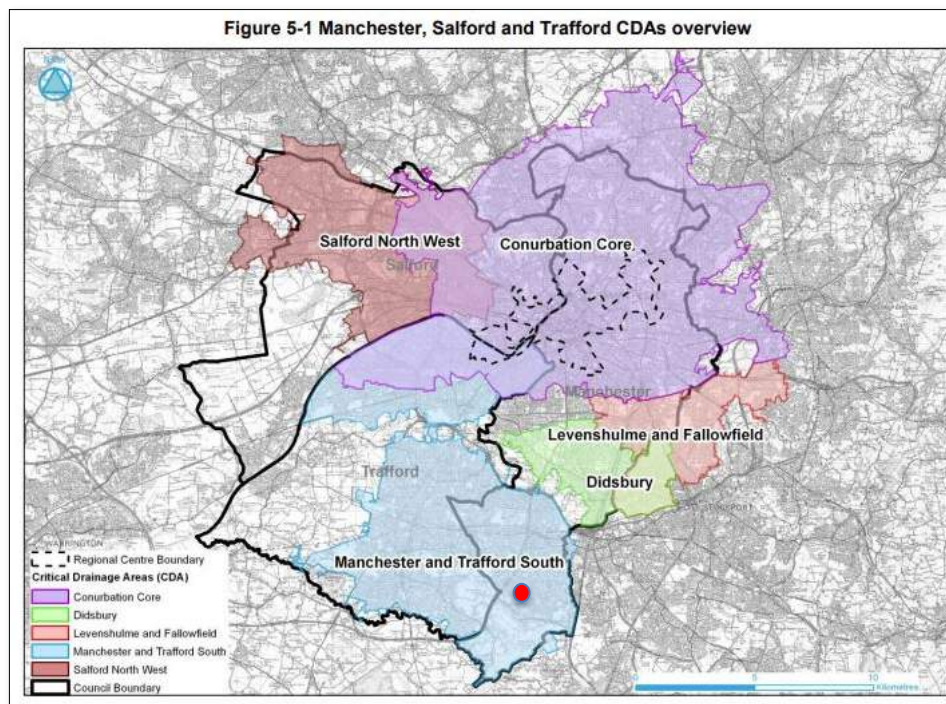


Figure 2 – Manchester, Salford and Trafford CDAs overview.

- 1.2.5 As the site is greater than 1 ha and is located within Manchester and Trafford South CDA, a Flood Risk Assessment of the site is required. It's worth noting that the proposed area of works associated with the drainage design is circa 0.6ha.
- 1.2.6 In April 2015, the Government made changes to the NPPF which made Sustainable Urban Drainage Systems (SuDS) a material consideration in the determination of planning applications for 'Major' developments.
- 1.2.7 A Drainage Strategy will therefore be required as part of the Planning Application for the development, as the site is considered to be a 'major' development by the Town and County Planning Order 2015.
- 1.2.8 The Flood Risk Assessment and Drainage Strategy reviews the following information:
- *Flood maps from the Environment Agency published online.*
 - *UK Government Flood Warning Information Service maps for surface water flooding and reservoir flooding.*
 - *Strategic Flood Risk Assessment (SFRA) for Manchester, Salford and Trafford.*
 - *Environment Agency ground water vulnerability maps*
 - *United Utilities Sewer Mapping records.*
 - *Topographical Survey – FS0998-AME-XX-XX-D-Y-0001*
 - *Utility Survey - FS0998-AME-XX-XX-D-Y-003*
 - *CCTV Survey information – FS0998-KEN-XX-XX-D-W-0001 & FS0998-KEN-XX-XX-T-W-0002*
 - *Phase 2 Geo environmental Site Investigation Report - FS0998-AGB-XX-XX-T-G-0002-GEO-REPORT-PH2-S03*
 - *BRE Digest 365 Infiltration Testing – Structural Soils Ltd, March 2023*

1.3 Proposed Development

- 1.3.1 The proposed development encompasses a full planning application for the demolition of several of the existing buildings on the site and construction of a new two storey classroom extension and new sports hall, interlinked with the existing/retained building. The existing retained building is to be refurbished and parts of the external grounds reconfigured. The total site area is circa 3.0ha, however only circa 0.6ha is to be developed as mentioned above, with the remaining area largely remaining as existing.
- 1.3.2 The proposed ground floor of the main building to be refurbished, will comprise of office space, reception, classrooms, changing facilities, toilet facilities, plant areas, kitchen and assembly hall. The extension to the west of the school will comprise of a new sports hall and the extension to the centre of the site will comprise of classrooms.
- 1.3.3 The proposed first floor of main building to be refurbished, will comprise of classrooms, toilet facilities, storerooms and plant areas. The sports hall first floor will be void area and central extension will comprise of classrooms.
- 1.3.4 To the northwest part of the site, an existing MUGA is to remain and to the south and east of the site, existing external areas, car parking and access road are to remain. Reconfiguration to the car park layout is proposed.
- 1.3.5 The main access to the site for staff parking and drop off is off Greenbrow Road with additional access to the western part of the site.
- 1.3.6 It is anticipated that the proposed development will be constructed in a single phase and construction will commence in 2023 and fully operational end of 2024.
- 1.3.7 Refer to Appendix A for the development proposals.
- 1.3.8 See figure 3 below showing an extract of the proposed development.



Figure 3 – Site Layout Extract taken from FS0998-IBI-A-14-XX-D-L-700-0001.

2.0 EXISTING SITE DETAILS

2.1 History and Current Use

- 2.1.1 The site is located in the Newall Green area, Wythenshawe, Greater Manchester. It is approximately 11km south of Manchester City Centre. The approximate National Grid Reference of the centre of the site is E380858, N387485.
- 2.1.2 Greenbrow Road is located directly east of the site and Clay Lane directly to the West. The site is located circa 500m south of Wythenshawe Hospital, circa 800m west of the M56 Junction 4 and circa 2km south of the A560. See figure 4 below for site location (denoted with a red marker point).

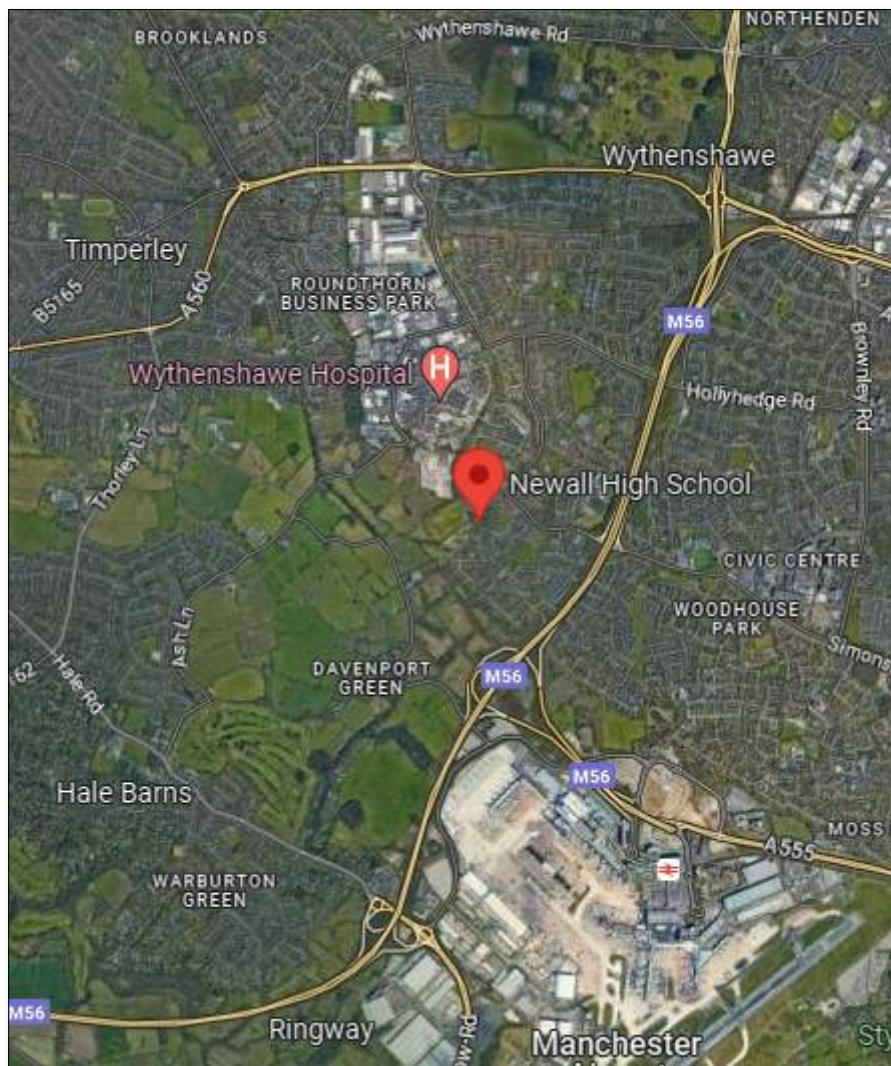


Figure 4 – Site Location Plan.

- 2.1.3 The existing site is currently a disused secondary school, comprising of existing buildings, MUGA pitch, play areas and car park. Existing main access to the school parking and drop off area is off Greenbrow Road. This access is shared with the neighbouring sixth form centre.
- 2.1.4 The site is located within a residential area.
- 2.1.5 The site area that is already developed is made up of 70% hardstanding and 30% soft landscaping. On this basis, we have classified this as an existing predeveloped brownfield site.

2.2 Topography

- 2.2.1 The topographical survey suggests the site typically falls in a southwest to east direction.

2.2.2 Site level to the southwest part of the site is 56.4m AOD. Site level to the southern part of the site is 57.08m AOD. Site level to the northwest part of the site is 54.5-55m AOD and site level to the northeast part of the site is 55m AOD.

2.2.3 Greenbrow Road directly to the east fall in a south to north direction and Clay Lane directly to the west fall in a south to north direction.

2.2.4 Refer to Appendix B for Topographical Survey.

2.3 Existing Drainage

2.3.1 Existing drainage records and CCTV survey information can be found in Appendix C.

2.3.2 To the eastern boundary and within the site is an existing 525mm combined public sewer. It is assumed that this sewer has a 3m easement (6m in total).

2.3.3 To the north west of the site, existing foul (150mm diameter) and surface water (225mm diameter) sewers are present in Capenhurst Close and Scout Drive. These are approximately 200m from the site.

2.3.4 The drainage records confirm that the site is positively draining via separate foul and surface water drainage systems, which convey flows from the existing site to the public combined sewer to the east of the site.

2.4 Existing Watercourses and Other Waterbodies

2.4.1 No above ground watercourses have been identified within the proposed site or immediately adjacent to the site.

2.4.2 The closest watercourse to the site is Mill Brook located circa 300m to the east of the site and Fairywell Brook is located circa 600m to the west of the site. Both are classified as main river at this location.

2.5 Geology

2.5.1 Made ground was encountered to a maximum depth of 0.80m below ground level. Underlying this natural bedrock geology of the Bollin Mudstone Member was encountered to a maximum depth of 3.70m below ground level. The bedrock comprised very stiff clays and dense sands grading to very weak to weak mudstone at depth.

2.5.2 The superficial geology on site is recorded as Till, Devensian (Diamicton). Underlying the superficial geology, the bedrock on site is recorded as the Bollin Mudstone Member, predominantly comprising mudstones with subordinate siltstones.

2.5.3 The site is not located with a Groundwater Source Protection Zone.

2.5.4 Refer to FS0998-AGB-XX-XX-T-G-0002-GEO-REPORT-PH2-S03 for the Phase 2 Geo Environmental report for further information.

2.6 Hydrogeology and Hydrology

- 2.6.1 The superficial geology is classified as a Secondary (Undifferentiated) Aquifer. The bedrock is classed as a Secondary (Undifferentiated) Aquifer. The study site is not located within a source protection zone designation. There are no historical or active groundwater abstractions, surface or potable water abstractions within 1km.
- 2.6.2 There are 11 records of water network features within 250m; these are all for inland rivers on the ground surface, which contain water year-round in normal circumstances. The closest feature is 3m north-west.
- 2.6.3 There are no recorded flood defences, areas benefitting from flood defences, historical flood events or flood storage areas within 250m of the site. The highest risk from surface water flooding on site and within 50m is 1 in 30 year, greater than 1.0m. The risk from groundwater flooding on site and within 50m is low.
- 2.6.4 Refer to FS0998-AGB-XX-XX-T-G-0002-GEO-REPORT-PH2-S03 for the Phase 2 Geo Environmental report for further information.

3.0 DEVELOPMENT AND FLOOD RISK

3.1 NPPF and PPG

- 3.1.1 The Department of Communities and Local Government published the National Planning Policy Framework document (NPPF – published on 27th March 2012 with recent revision date 25th August.2022) and the Planning Practice Guidance (PPG – published 6th March 2014) which provided guidance on how flood risk should be assessed during the planning and development process.

3.1.2 See below Table 1 extract from PPG flood zone classifications. These Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Maps for Planning, available online.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

Table 1 – Flood Zone classification.

3.1.3 See below Table 2 extract from PPG - Flood Risk Vulnerability Classification.

Annex 3: Flood risk vulnerability classification

Information on flood risk vulnerability classification.

Essential infrastructure

- Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.
- Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems; including electricity generating power stations, grid and primary substations storage; and water treatment works that need to remain operational in times of flood.
- Wind turbines.
- Solar farms.

Highly vulnerable

- Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding.
- Emergency dispersal points.
- Basement dwellings.
- Caravans, mobile homes and park homes intended for permanent residential use.
- Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure'.)

More vulnerable

- Hospitals
- Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.
- Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.
- Non-residential uses for health services, nurseries and educational establishments.
- Landfill* and sites used for waste management facilities for hazardous waste.
- Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

Less vulnerable

- Police, ambulance and fire stations which are not required to be operational during flooding.
- Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure.
- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill* and hazardous waste facilities).
- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do not need to remain operational during times of flood.
- Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.
- Car parks.

Water-compatible development

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence installations.
- Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (excluding sleeping accommodation).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.
- Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

Table 2 - Flood Risk Vulnerability Classification.

3.1.4 See below Table 3 extract from PPG - Flood Risk Vulnerability and Flood Zone Compatibility.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *

Key:

✓ Exception test is not required

X Development should not be permitted

Notes to table 2:

- This table does not show the application of the [Sequential Test](#) which should be applied first to guide development to the lowest flood risk areas; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and [Exception Tests](#) do not need to be applied to those developments set out in [National Planning Policy Framework footnote 56](#). The Sequential and Exception Tests should be applied to 'major' and 'non major' development;
- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

“†” In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

“*” In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

Paragraph: 079 Reference ID: 7-079-20220825

Revision date: 25 08 2022

Table 3 - Flood Risk Vulnerability and Flood Zone Compatibility.

3.2 Flood Risk Category

- 3.2.1 To assess the flood risk classification for the site, UK Government online 'Flood Maps for Planning' has been reviewed. This is used to inform planning of the sites Flood Zone and the probability of flooding from Rivers and Seas. This doesn't consider the presence of flood defences or climate change.
- 3.2.2 UK Government online 'Long Term Flood Risk Assessment for Locations in England' should also be assessed to identify the long-term flood risks from rivers and seas, surface water and reservoirs.
- 3.2.3 The flood Map for Planning report is included in Appendix E and it can be noted that the proposed development site is classified as within Flood Zone 1.
- 3.2.4 Refer to Section 4 of this report for site specific Flood Risk assessment.

3.3 Flood Zone Compatibility

- 3.3.1 The proposed development site is likely to fall in the category shown in Table 2 above as.
- Non-residential uses for health services, nurseries and **educational establishments**.
- 3.3.2 Educational establishments are classed as '**More Vulnerable**' development in the above Table 2 - Flood Risk Vulnerability Classification.
- 3.3.3 The site has been identified as located in Flood Zone 1, for which a 'More Vulnerable' development is deemed to be appropriate.

3.4 Sequential Test

- 3.4.1 Sequential test is not necessary for this site due to the site being categorised as a 'More Vulnerable' development and lies within Flood Zone 1. See Table 3 above.

4 HYDROLOGICAL ASSESSMENTS

4.1 Sources of Flood Risk

4.1.1 This section assesses the risk of flooding from different sources of flooding to and from the development, taking into consideration climate change as well as how flood risk should be managed.

4.1.2 The sources of flooding to be assessed are.

- Flooding from Rivers and Seas (Fluvial, Coastal or Estuarine).
- Reservoir Flooding.
- Flooding from Groundwater.
- Flooding from Public Sewers or Highway Drains.
- Canal Flooding.
- Surface Water flooding to the site.
- Surface Water flooding from the site.

4.2 Flooding from Rivers and Seas (Fluvial)

4.2.1 The map shown below in figure 5 shows that the site is located within Flood Zone 1 and therefore the land is assessed as having a less than 1 in 1,000 annual probabilities of river or sea flooding (<0.1%). See Appendix E.

4.2.2 The site is not considered at risk of fluvial flooding.

4.2.3 The site is not shown to be in an area which benefits from flood defences.

4.2.4 There is currently no flood risk identified on the EA flood maps for the site and it is therefore not considered at risk from tidal flooding (Coastal or Estuarine).

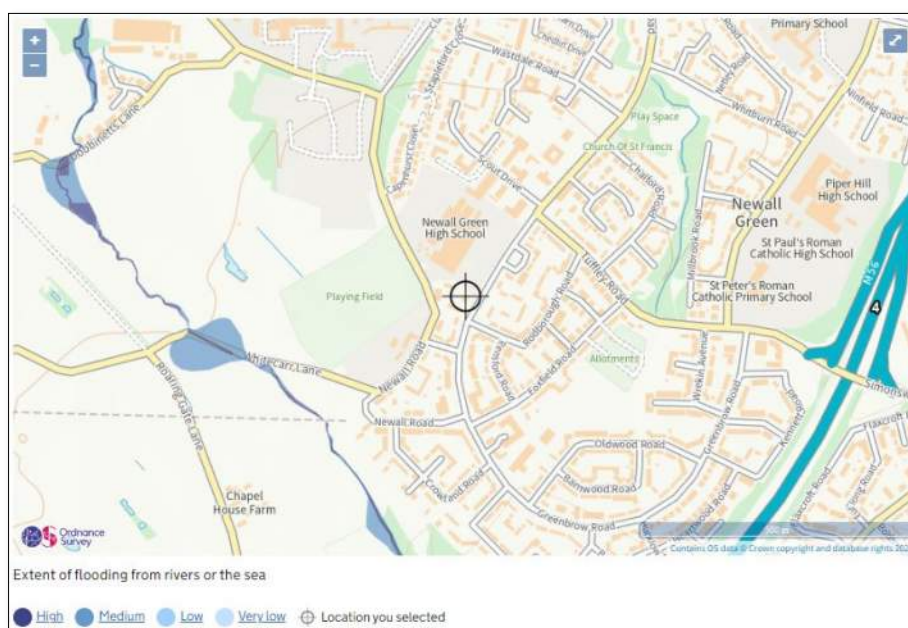


Figure 5 – Environment Agency (EA) Flood Zone Map – Flooding from rivers and sea.

4.3 Reservoirs Flooding

- 4.3.1 The Long-Term Flood Risk Assessment (from Reservoirs) map shows the site not to be flooded if a reservoir were to fail and release the water it holds. See figure 6 below.
- 4.3.2 The site is located outside of the extent of a reservoir flood risk according to Flood Maps.
- 4.3.3 The government state that if a reservoir flood event were to occur, even in the worst-case scenario many areas shown as possibly being at risk of flooding would be expected to receive no more than a few centimetres of flood water.
- 4.3.4 Reservoir flooding is extremely unlikely to happen and there has been no loss of life in the UK from reservoir flooding since 1925. The Environment Agency is the enforcement authority and ensures that reservoirs are inspected regularly, and essential safety work is carried out.

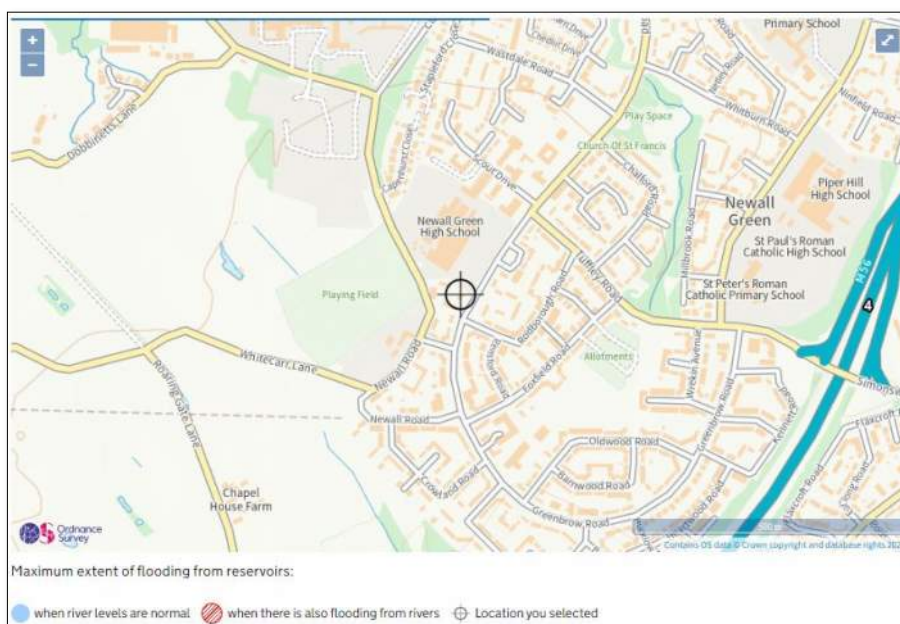


Figure 6 – Reservoir flood map.

4.4 Flooding from Groundwater

- 4.4.1 According to the Groundwater flood map shown on the Strategic Flood Risk Assessment (SFRA) maps for Manchester, Salford and Trafford, there are no known reports of groundwater flooding in area of the site.
- 4.4.2 Site Investigation have recorded ground water monitoring results. See figure 7 below.

6.1 Encountered Ground Conditions				
The ground conditions encountered are summarised in Table 6.1 and discussed below.				
Table 6.1 Summary of Encountered Ground Conditions				
Stratum	Location	Surface Depth (mbgl)	Base Depth (mbgl)	Thickness (m)
Made Ground	All locations	0.00	0.20 to 0.80	0.20 to 0.80
Bollin Mudstone Member	All locations except TP01	0.20 to 0.80	>1.05 to >3.70	0.65 - >3.50
Groundwater	Groundwater was not encountered during fieldwork. During subsequent monitoring the groundwater levels were as summarised below.			
	Location	Minimum groundwater depth (mbgl)	Maximum groundwater depth (mbgl)	
	CP01	1.70	1.80	
	CP02	2.30	2.50	
	CP03	2.20	2.25	
	CP04	2.20	2.20	

Figure 7 – Extract from the Phase 2 Geo Environmental report.

4.4.3 During monitoring, groundwater levels were encountered between 1.7m and 2.5m below ground level.

4.4.4 Refer to Appendix F for Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA Ground Water flooding map confirming the site to be in area of no risk to flooding from groundwater.

4.5 Public Sewers or Highway Drainage Flooding

4.5.1 There are public sewers located in close proximity and within the site as detailed in Section 2.3.

4.5.2 A predevelopment enquiry has been submitted to United Utilities to which we have not made us aware of any existing flooding issues or been advised of any sewer surcharge records to the combined water sewers.

4.5.3 Providing United Utilities and Manchester City Council maintain their drainage assets within the vicinity of the site, the risk of flooding to the proposed development site is considered as low.

4.6 Canal Flooding

4.6.1 There are no canals within the vicinity of the site. The closest canal is the Bridgewater Canal located circa 4km to the northwest of the site.

4.6.2 The canals identified in the SFRA are not generally posing a direct flood risk as they are a controlled water body. Therefore, the residual risk of canal flooding is usual associated with lower probability event such as overtopping and/or the breaching or embankments.

4.6.3 Given the above information, canals are not considered as a risk canal flooding to the site.

4.7 Surface Water Flooding to the site

4.7.1 Surface water flooding to the site can be caused when rainwater during extreme rainfall events does not drain away through the normal drainage system or soakaway into the ground. Surcharging or blocked sewers can result in overland flows which can potentially pose a risk of flooding should the source of this flooding be at a higher elevation than the development.

4.7.2 From the UK Governments Flood Risk from surface water map.

- Where a site is located in a clear unshaded area, this indicates that the site is at **very low risk** of flooding, where flooding occurs as a result of rainfall with less than a 1 in 1000 (0.1%) chance in any one year.
- Where the site is located in a light blue shaded area, this indicates that the site is at **low risk** of flooding, where flooding occurs as a result of rainfall between 1 in 1000 (0.1%) and 1 in 100 (1%) chance in any one year.
- Where the site is located in a blue shaded area, this indicates that the site is at **medium risk** of flooding, where flooding occurs as a result of rainfall between 1 in 100 (1%) and 1 in 30 (3.3%) chance in any one year.
- Where the site is located in a dark blue shaded area, this indicates that the site is at **high risk** of flooding, where flooding occurs as a result of rainfall with a greater than 1 in 30 (3.3%) chance in any one year.

4.7.3 The extent of flooding to the site from surface water is indicated in figure 8 below. This indicates that the site is identified as being 'very low' risk of flooding from surface water.

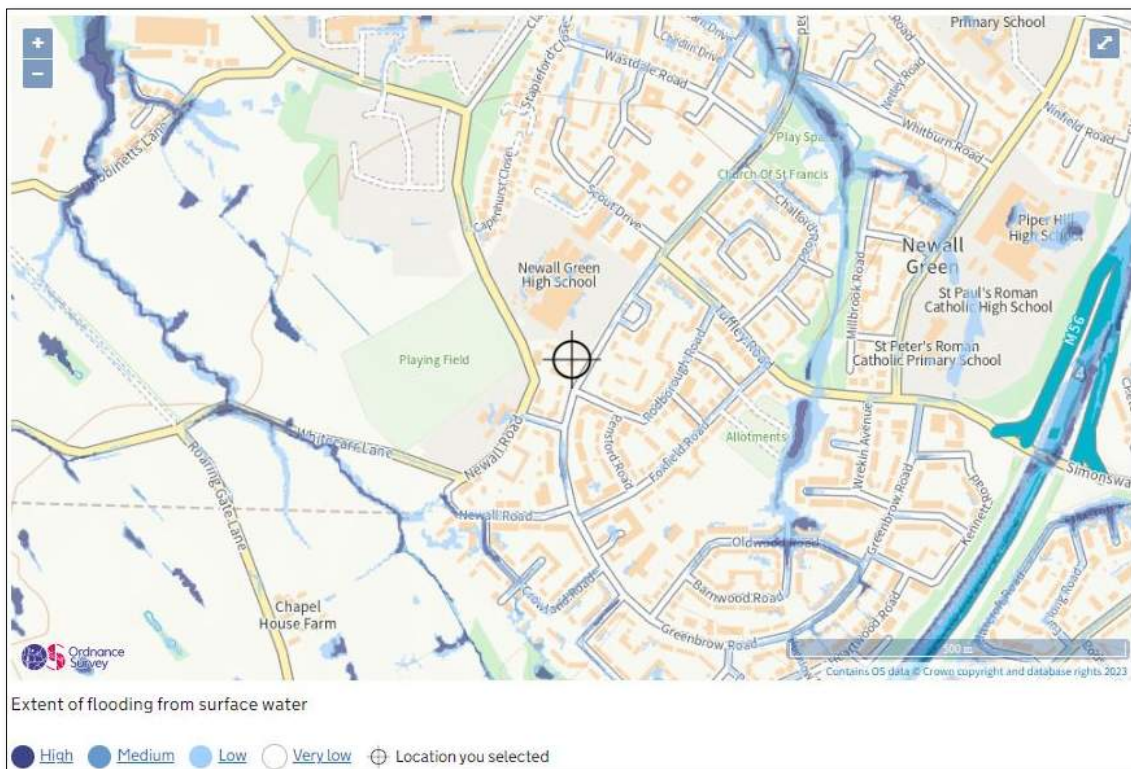


Figure 8 – Surface Water flood map.

4.8 Surface Water Flooding from the site

- 4.8.1 Developers are responsible for ensuring that new developments do not increase the flood risk elsewhere. Where new developments are proposed, the proposed surface water drainage network shall be designed to not flood in a 30 year storm event and flood water generated up to the critical 1 in 100 year plus climate change storm event shall be controlled and constrained within areas on site so as not to cause damage to buildings, essential services or adjoining developments and services.
- 4.8.2 The development has the potential to increase flood risk where additional run-off from proposed hardstanding areas is discharged freely into the downstream drainage network.
- 4.8.3 It is encouraged to propose sustainable drainage methods where possible.
- 4.8.4 Section 6 of this report describes in detail the proposed Drainage Strategy for the site and how surface water run-off/flows will be managed.

4.9 Historical Flooding

- 4.9.1 At the time of writing this report, no information has been obtained or provided, showing records of flooding to the site or in the vicinity of the site.
- 4.9.2 It is recommended that United Utilities and Manchester City Council are contacted to request any records of historical flooding to the site.

5 FLOOD RISK MITIGATION

5.1 Sources of Flood Risk

- 5.1.1 This section advises on flood risk mitigation measures from the different types of flooding that could potentially increase risk of flooding to the site, albeit considers as low-very low risk of flooding as described in Section 4.

- Flooding from Rivers and Seas (Fluvial, Coastal or Estuarine).
- Flooding from Groundwater.
- Surface Water flooding to the site.
- Surface Water flooding from the site.

- 5.1.2 This section will not consider mitigation measures for the following types of flooding due to the improbable risk of flooding to the site.

- Reservoir Flooding – not consider due to very low risk.
- Flooding from Public Sewers or Highway Drains.
- Canal Flooding.

5.2 Flooding from Rivers and Seas (Fluvial, Coastal or Estuarine) Mitigation

- 5.2.1 The site is shown to be located within the Flood Zone 1 extent. This means the site is considered to be at less than 0.1% risk of flooding from rivers and seas.

- 5.2.2 It is recommended that the proposed finished floor levels are designed to match existing to remain classified as Flood Zone 1.
- 5.2.3 As a precaution, external ground levels across the site should fall away from the proposed buildings and ensure that the creation of low points is avoided (other than those used intentionally for drainage features) in order to direct water safely away from the buildings on site.
- 5.2.4 Providing the above mitigation measures were imposed, the risk from flooding would be considered to be low, post development.

5.3 Flooding from Groundwater Mitigation

- 5.3.1 Groundwater flooding tends to be more persistent than other sources of flooding, typically lasting for weeks or months rather than hours or days. Groundwater flooding does not generally pose a significant risk to life, due to the slow rate at which the water level rises, however it can cause significant risk to property.
- 5.3.2 Generally, floor levels will be at or above ground levels and there are no basements proposed. Therefore, the risk of ground water flooding to the area is considered low.
- 5.3.3 During intrusive site Investigation works ground water levels were monitored and recorded at 1.7m and 2.5m below ground level.
- 5.3.4 External ground levels across the site should fall away from proposed buildings and ensure that the creation of low points is avoided (other than those used intentionally for drainage features) in order that in the unlikely event of groundwater flooding, the flood water is safely routed away from the buildings on site.
- 5.3.5 Providing the above mitigation measures were imposed, the risk from groundwater flooding would be considered to be low, post development.

5.4 Surface Water Flooding to the site Mitigation

- 5.4.1 The UK Government Long Term Flood Risk Assessment surface water flood maps indicate that the site is at very low to low risk of surface water flooding. However, the proposed building is assumed to be constructed at the same or above existing levels, which is above the current extent of flooding.
- 5.4.2 Measures outlined in this section are recommended therefore the risk of surface water flooding post-development shall not be increased and shall be reduced where possible.
- 5.4.3 It is assumed that the surface water drainage outside of the site boundary will be subject to the relevant landowner's regular drainage maintenance schedule.
- 5.4.4 United Utilities have not advised of any sewer flooding or surcharged sewers to those in the vicinity of the site.
- 5.4.5 Should sewer surcharging be advised in the local infrastructure; non-return valves can be included within the design to prevent sewer surcharging into the private drainage network.

5.4.6 Should a connection to public sewer be proposed, United Utilities are to confirm if a surcharged outfall (depth to be confirmed) is required as a precautionary measure in the 1 in 30 and 1 in 100 year plus climate change storm event.

5.4.7 Providing the above measures were imposed, the risk to the development from surface water flooding would be considered to be low, post development.

5.5 Surface Water Flooding from the site Mitigation

5.5.1 Any new development site drainage should be designed in accordance with current best practice to provide adequate capacity not to flood in a 30 year storm event and flood water generated up to the critical 1 in 100 year plus climate change storm event shall be controlled and constrained within areas on site so as not to cause damage to buildings, essential services or adjoining developments and services.

5.5.2 Climate change allowances for peak rainfall intensities which should be applied to new developments.

5.5.3 Table 4a & 4b below (Extract of the Environment Agency Guidance) demonstrates the climate change allowance with central and upper end allowances being considered.

5.5.4 Based on the nature of the development, a lifespan in excess of 60 years is anticipated. Therefore, the potential climate change allowance for 2061-2115 ranges between 30% for the central allowance and 45% for the upper end allowance. As such, an allowance of 45% for climate change on peak rainfall intensity will be included in the calculations.

Upper Mersey Management Catchment peak rainfall allowances		
3.3% annual exceedance rainfall event		
Epoch	Central allowance	Upper end allowance
2050s	20%	35%
2070s	30%	40%
1% annual exceedance rainfall event		
Epoch	Central allowance	Upper end allowance
2050s	25%	40%
2070s	30%	45%
*Use '2050s' for development with a lifetime up to 2060 and use the 2070s epoch for development with a lifetime between 2061 and 2125.		
This map contains information generated by Met Office Hadley Centre (2019): UKCP Local Projections on a 5km grid over the UK for 1980-2080. Centre for Environmental Data Analysis, 2022		

Figure 9 – EA Climate change allowance.

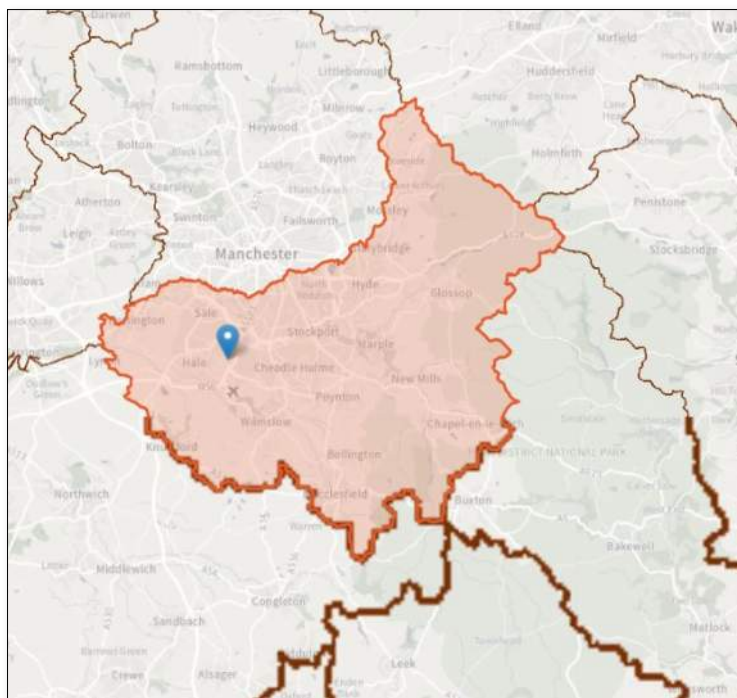


Figure 10 – EA Climate change allowance Map.

- 5.5.5 A 10% allowance for Urban Creep is also to be included in the calculation.
- 5.5.6 Section 6 reviews the surface water discharge options and it is proposed that the surface water will outfall into the combined public sewer to the east of the site, subject to agreement with United Utilities and Manchester Lead Local Flood Authority (LLFA).
- 5.5.6 To minimise localised flooding within the site, the drainage design should ensure that any drainage features are suitably sized to accommodate peak storm flows.
- 5.5.7 Flood water exceedance routes should be identified, both on and off site. Refer to Appendix I for flood exceedance plan.
- 5.5.8 For any sustainable drainage systems (SuDS) employed in the development, an appropriate management and maintenance plan for the SuDS lifetime should be submitted and include.
- Any arrangements for adoption by an appropriate public body or statutory undertaker, management and maintenance by Residents Management Company.
 - Arrangements concerning appropriate funding mechanisms for its on-going maintenance of all elements of the SuDS system (i.e., regular inspection and maintenance).
 - Means of access for maintenance and easements where applicable.
- 5.5.9 Assuming the proposed drainage system is designed to provide adequate capacity, and that the private and adopted sewers are maintained, it can be assumed risk of flooding from blocked or overloading is minimal.

- 5.5.10 The final design of the drainage network shall be in accordance with the legislation set by the Environment Agency, Manchester City Council and United Utilities.

6 DRAINAGE STRATEGY

6.1 Existing Drainage

- 6.1.1 Refer to Section 2.3 for existing drainage.
- 6.1.2 Existing drainage records can be found in Appendix C of this report.
- 6.1.3 The records confirm that the site is positively draining via separate foul and surface water drainage systems, which convey flow from the site to the public combined sewer to the east of the site.
- 6.1.4 The site area is 3.0ha made up of 30% soft scape and 70% hardstanding, therefore, we have classed this as a brownfield site.
- 6.4.5 The existing hard standing area associated with the scheme proposals and to form part of the drainage strategy is 0.59ha of which is 100% hardstanding. The remaining area of the site is unaffected by site proposals and therefore to drain as existing.
- 6.1.6 The existing hard standing area (0.59ha) would generate the following, calculated using the Wallingford Modified Ration Method. See below extract from the hydraulic calculations including in Appendix J.

Pre-development Discharge Rate

Site Makeup	Brownfield	Time of Concentration (mins)	5.00
Brownfield Method	MRM	Betterment (%)	0
Contributing Area (ha)	0.590	Q 1 year (l/s)	99.5
PIMP (%)	100	Q 30 year (l/s)	232.2
CV	1.000	Q 100 year (l/s)	292.6

6.1.7 Refer to Appendix G for Catchments Plan.

6.2 Proposed Foul Water Drainage

6.2.1 It is proposed to separate foul and surface water networks within the development.

6.2.2 The foul water from the development is proposed to discharge via existing foul network to the combined public sewer located to the east of the site.

6.2.3 United Utilities will accept foul flows from the development into the 525mm diameter public sewer at an unrestricted rate. Refer to Appendix H for correspondence.

6.2.4 Site levels when compared to that of the existing combined public sewer, verify that a foul gravity connection can be achieved with no requirement for pumping. This is how the existing foul system operates.

6.2.5 It is anticipated that the network will connect to the public combined sewer network via the existing private drainage system therefore approval will be required from United Utilities confirming foul flows.

6.2.6 The foul discharge rate for the development is currently unknown however to be confirmed at detailed design stage of the scheme.

6.2.7 There are no proposals for foul water drainage to be adopted at this stage however should this change as the scheme develops, proposals will be subject to a Section 104 Agreement with United Utilities. Easements will be required for adopted sewers within private land. Where drainage is to remain private, connection to the public sewer will be subject to a Section 106 Agreement with United Utilities.

6.2.8 The proposed Drainage Strategy layout is enclosed in Appendix G.

6.3 Proposed Surface Water Drainage

6.3.1 Any new development site drainage should be designed in accordance with current best practice to provide adequate capacity not to flood in a 30 year storm event and flood water generated up to the critical 1 in 100 year plus climate change storm event shall be controlled and constrained within areas on site so as not to cause damage to buildings, essential services or adjoining developments and services.

- 6.3.2 Based on the nature of the development, a lifespan in excess of 60 years is anticipated. Therefore, the potential climate change allowance for 2061-2125 ranges between 30% for the central allowance and 45% for the upper end allowance. As such, an allowance of 45% for climate change on peak rainfall intensity will be included in the calculations.
- 6.3.3 In following the standard hierarchy of drainage solutions, consideration should firstly be given to the discharge of surface water run-off by sustainable methods such as infiltration.

Infiltration

- 6.3.4 The first consideration for discharging surface water should be via infiltration.
- 6.3.5 Infiltration testing in accordance with BRE Digest 365 has been undertaken and the test results confirm that disposal of surface water into the ground is not viable due to the permeability of the underlying ground. Refer to Appendix D for infiltration results.
- 6.3.6 The next consideration for surface water discharge should be watercourse.

Watercourse

- 6.3.7 The closest watercourse to the site is Mill Brook located circa 300m to the east of the site and Fairywell Brook is located circa 600m to the west of the site. Both are classified as main river at this location.
- 6.3.8 Given the distance of the closest watercourse from the site, discharging flows to either of the above locations would be unsuitable for the scheme.
- 6.3.9 The next consideration for surface water discharge should be surface water sewer.

Surface Water Sewers

- 6.3.10 There are no surface water sewers within close proximity of vicinity of the site. The nearest surface water sewer is circa 200m north in Capenhurst Close, therefore considered unfeasible to discharge to this location.
- 6.3.11 The next consideration for surface water discharge should be combined water sewer.

Combined Sewers

- 6.3.12 There is an existing 525mm diameter public sewer within the site boundary therefore this is the selected discharge location for surface water. United Utilities have confirmed this is acceptable to discharge to the public sewer, following receipt of infiltration testing.
- 6.3.13 Surface water will be discharged to the public sewer via the site's existing surface water drainage system.
- 6.3.14 The above is to be agreed with both United Utilities and Manchester LLFA.
- 6.3.15 Manchester LLFA have been contacted however at the time of writing this report, a response has not been received. It is assumed that greenfield rates will be imposed for the new development proposals.

6.3.16 Although Manchester, Salford and Trafford SFRA states that 50% reduction in flows for brownfield site may be acceptable, where possible greenfield rates should apply.

6.3.17 See figure 11 below showing extent of works included as part of this drainage strategy and that to remain as existing. The blue area denotes the area included within all calculations (0.59ha). The orange area denotes the extent of existing area to drain as existing utilising existing drainage infrastructure.



Figure 11 – Drainage Extents.

6.3.18 Greenfield rates have been calculated for the blue area (0.59ha). See below.

Qbar	-	1.3 l/s
1 in 1 year	-	1.13 l/s
1 in 30 year	-	2.21 l/s

1 in 100 year - 2.7 l/s

6.3.19 Refer to Appendix J for Greenfield runoff rate calculations.

6.3.20 Where flow rates are less than 5 l/s consent for discharge is usually set at 5 l/s if blockage from vegetation and other materials is possible. Given the above and due to the small orifice size required to restrict flows to the above rates, it is proposed to restrict the flows to 5 l/s.

6.3.21 The proposed discharge rate proposed of 5 l/s will comply for all storms up to and including 1 in 100 year plus 45% for climate change and 10% for urban creep allowance.

6.3.22 It is noted that the proposed discharge rate of 5 l/s (for all storms) provides a significant betterment on the existing 1, 30 and 100 year storm events.

6.3.23 The remaining part of the site, unaffected by site proposals (denoted orange in Figure 11), are to drain as existing unrestricted, utilising the existing drainage infrastructure in place.

6.3.24 The proposed site impermeable area is 0.38ha. A quick storage estimate has been calculated using hydraulic modelling software. Based on 5 l/s and 1 in 100 year plus 45% climate change a maximum storage estimated volume of circa 200m³ will be required.

6.3.25 Existing discharge volume from the blue area shown in figure 11, for the 100 year 6 hour event is 321m³. The proposed discharge volume for the 100 year 6 hour event including climate change and urban creep is 280m³.

6.3.26 The above volumes have been confirmed within the Hydraulic Calculations. See Appendix J. The proposed surface water catchments should be restricted to the above-mentioned flows using flow control devices i.e., Hydro-brake or similar approved.

6.3.27 Attenuation for the required storage volumes is to be housed in below ground storage i.e., Cellular Storage.

6.3.28 Surface water run-off from any impermeable areas at risk of contamination should receive water quality treatment. Roof drainage is considered very low hazard and external areas with the site boundary i.e., play areas are considered to be very low risk, in terms of contamination.

6.3.29 Figure 8 illustrates the pollution hazard indices for the different land use classifications from the CIRIA SuDS Manual C753 (2015).

6.3.30 Figure 9 illustrates the SuDS Component mitigation indices from the CIRIA SuDS Manual C753 (2015).

6.3.31 The selection of treatment should ensure that the SuDS Mitigation component index exceeds the pollution hazard index. Where two stages of treatment are required, the second stage of treatment should account for reduced performance due to lower inflows; therefore 0.5 (mitigation index) should be used.

6.3.32 The existing development has a car parking area. This area is currently shown at <800m². This area is not changing as part of the proposed works therefore existing drainage

infrastructure is to be utilised. It is currently unknown if the existing car park has pollution control.

6.3.33 It is recommended that spillages within the car park areas are treated locally and disposed of correctly in accordance with the proposals set out in the maintenance strategy section, to further prevent risk of contamination to the public sewers.

6.3.34 The proposals for pollution protected should be agreed with United Utilities and the LLFA.

6.3.35 There are no proposals for surface water drainage to be adopted at this stage however should this change as the scheme develops, proposals will be subject to a Section 104 Agreement with United Utilities. Easements will be required for adopted sewers within private land. Where drainage is to remain private, connection to the public sewer will be subject to a Section 106 Agreement with United Utilities.

6.3.36 The final design of the drainage network shall be in accordance with the legislation set by the Environment Agency, Manchester City Council and United Utilities.

TABLE 26.2 Pollution hazard indices for different land use classifications				
Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydro-carbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/ industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways ¹	Medium	0.7	0.6	0.7
Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways ¹	High	0.8 ²	0.8 ²	0.9 ²

Figure 12 – CIRIA Pollution Hazard Indices.

TABLE 26.3 Indicative SuDS mitigation indices for discharges to surface waters			
Type of SuDS component	Mitigation indices ¹		
	TSS	Metals	Hydrocarbons
Filter strip	0.4	0.4	0.5
Filter drain	0.4 ²	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Detention basin	0.5	0.5	0.6
Pond ⁴	0.7 ³	0.7	0.5
Wetland	0.8 ³	0.8	0.8
Proprietary treatment systems ^{5,6}	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area.		

Notes

- 1 SuDS components only deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters.
- 2 Filter drains can remove coarse sediments, but their use for this purpose will have significant implications with respect to maintenance requirements, and this should be taken into account in the design and Maintenance Plan.
- 3 Ponds and wetlands can remove coarse sediments, but their use for this purpose will have significant implications with respect to the maintenance requirements and amenity value of the system. Sediment should normally be removed upstream, unless they are specifically designed to retain sediment in a separate part of the component, where it cannot easily migrate to the main body of water.
- 4 Where a wetland is not specifically designed to provide significantly enhanced treatment, it should be considered as having the same mitigation indices as a pond.
- 5 See **Chapter 14** for approaches to demonstrate product performance. A British Water/Environment Agency assessment code of practice is currently under development that will allow manufacturers to complete an agreed test protocol for systems intended to treat contaminated surface water runoff. Full details can be found at: <http://tinyurl.com/qf7yuj7>
- 6 SEPA only considers proprietary treatment systems as appropriate in exceptional circumstances where other types of SuDS component are not practicable. Proprietary treatment systems may also be considered appropriate for existing sites that are causing pollution where there is a requirement to retrofit treatment. SEPA (2014) also provides a flowchart with a summary of checks on suitability of a proprietary system.

Figure 13 – CIRIA SuDS Mitigation Indices.

6.4 Sustainable Drainage System (SuDS)

- 6.4.1 Green infrastructure should always be considered at early stages of design. The benefit green infrastructure has on the environment are considered extremely positive. Green infrastructure such as Ponds, Swales and SuDS roofs (Green/blue/brown roofs) have been considered for this scheme.
- 6.4.2 Given the nature of the development (School), green infrastructure i.e., ponds and swales have been considered however discounted with the safety of its users (children attending the school) using the space.
- 6.4.3 Consideration and likelihood of vulnerable people falling into open ponds/swales is high (especially if unattended) and the outcome could be fatal, therefore by adding open water features such as ponds etc would only increase the risk of potentially fatal accidents.
- 6.4.4 Above ground SuDS i.e., green/blue/brown roofs etc have also been considered and included as part of the SuDS proposals.
- 6.4.5 As part of the drainage strategy, we will be proposing green roofs, green landscaped areas, attenuation in the form of below ground cellular storage and flow restrictions, to maximise sustainable drainage where possible.

- 6.4.6 Refer to Appendix G for the Drainage Strategy Layout.
- 6.4.7 Hydraulic calculation have been included in Appendix J.
- 6.4.8 Refer to Appendix K for SuDS Proforma as required by the LLFA.

7 MAINTENANCE

7.1 Strategy

- 7.1.1 All onsite drainage systems will be privately maintained, and a specialist management company will be appointed to oversee the maintenance of these. A long-term maintenance regime should be implemented for the lifetime of the development. In addition to a long-term maintenance regime, it is recommended that all drainage elements implemented on site should be inspected following the first rainfall event post-construction and monthly for the first quarter following construction.
- 7.1.2 It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm events. Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of little vegetation, sewerage debris and larger objects.
- 7.1.3 Proposals to deal with spillages within car parking areas from vehicles should be confirmed and agreed by the management company.
- 7.1.4 The Maintenance Strategy document should be developed as the scheme progresses following confirmation of all SuDS features and proprietary products being selected.
- 7.1.5 The Maintenance Strategy should form part of the building O&M manual and all the measures and designs will need to be adhered to in order to maintain the design life and design capacity of the surface and foul water drainage systems.
- 7.1.6 Refer to Appendix L for Outline Drainage Maintenance Strategy.

7.2 SuDS and Drainage Features

- 7.2.1 Photographic evidence should be provided of all installed drainage features by the selected contractor. This evidence is to be included in the O&M manual along with the Drainage Maintenance Strategy.

Appendix A – Proposed Development Plans.



Site Boundary

Existing Building

Proposed Building Extensions

Existing Building to be demolished

EPT

Existing pedestrian grade tarmacadam,

EVT

Existing vehicular grade tarmacadam,

V1

Existing asphalt wearing course to be planed off and re-laid

V3

Pedestrian grade tarmac,
to engineers specification.

Existing Block Paving

SOFT LANDSCAPE

Existing tree/vegetation to be removed
Subject to Tree Survey to confirm

Existing Trees retained

Existing Formal Hedge retained

Existing Informal Hedge / dense vegetation retained

Existing Grass retained

Proposed Grass

Proposed tree planting in soft landscape.
Exact positions to be confirmed.

Proposed shrub planting

Proposed allotment planting

Proposed Hedge Planting

Biodiversity Nature Area

MUGA - carpet to be replaced on existing sub-base

BOUNDARIES

Existing Palisade Fence, 2.5m high retained

Existing Chain Link Fence, 4.5m high retained

Existing Mesh Security Fence, 2.4m / 2.5m high retained

Existing Mesh Security Fence, 2.2m high retained

Existing Chain Link Fence, 1.8m high retained

Existing Close Boarded Fence, 2.2m high

Proposed Perimeter Fence, 2.4m high

NOTE: All single leaf / double leaf gates to match adjacent fencing
Example of gate reference provided G=Gate / 4MO = 4 metre opening

STREET FURNITURE

Cycle Stands

OTHER

Electric vehicle charging point

Accessible parking bays

Building Entrance

Student Entrance

Vehicular Access

Public Access

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- All discrepancies on this drawing are to be reported to the architect.
- Do not modify any element of this drawing.
- Use drawing only for purpose(s) issued.

North Sign / Key Plan

The following external model files are included within this drawing:

P04	15/03/23	Drawing number updated. Issued for Information. Proposed hedge shown to front boundary as part of reinstatement work.	DW	DW
P03	07/03/23	GA updated to suit comments received on mark-up from MS dated 06/03/23	DW	DW
P02	21/02/23	General updates and amendments to GA Plan. Specific amends include: changes to car park layout to reduce tree and shrub planting, maximise parking numbers, introduce drop off bays. Amendments to hard and soft to rear of building. Latest building layout shown.	DW	DW
P01	14/02/23	Trees omitted, entrance access points included, note to existing decking added, existing boundary to north west of school added	DW	DW
Rev	Date	Revision Notes	Dn	Rv
Client / Contractor				

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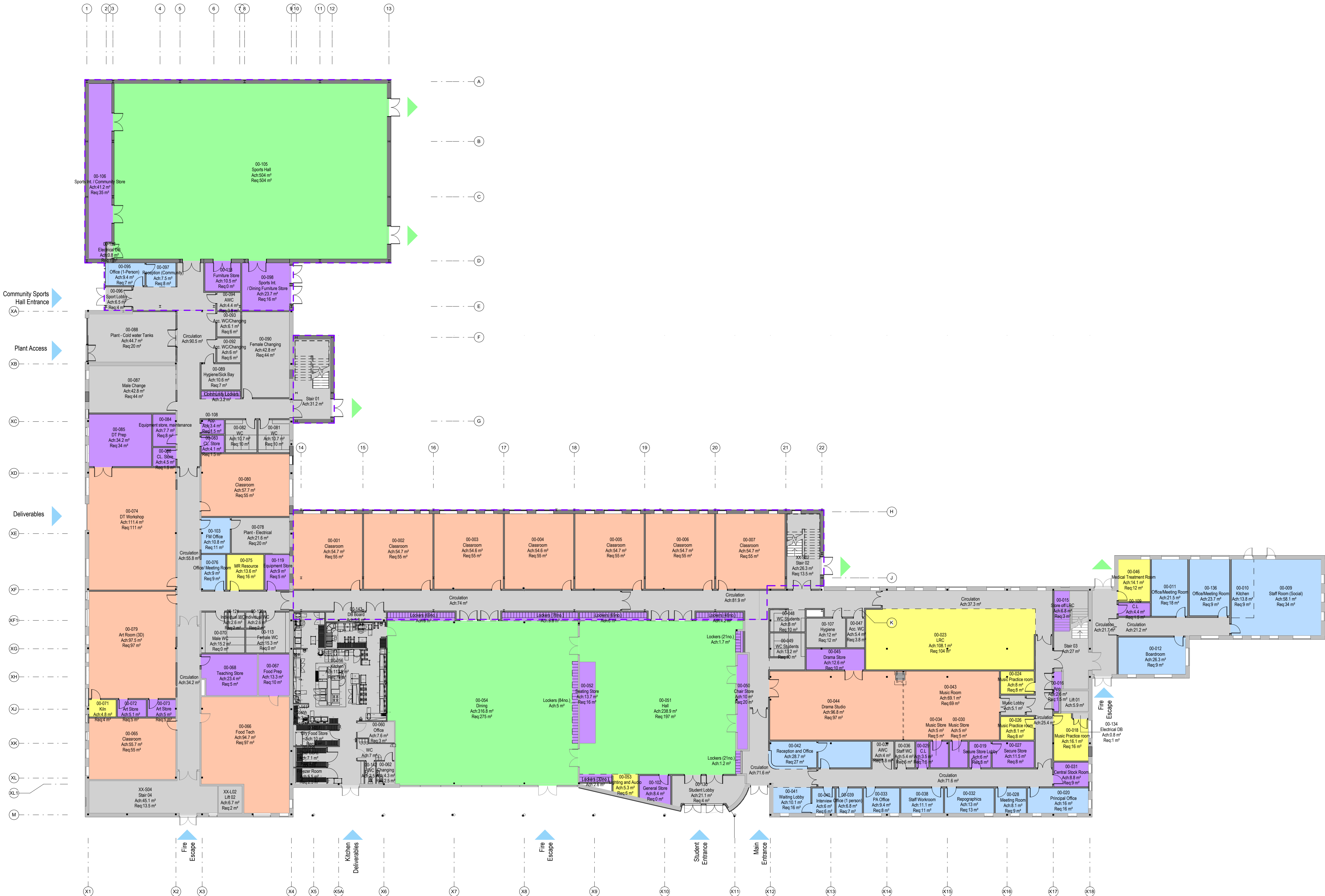
DIXON ACADEMY

Drawing Title

EXTERNAL WORKS
GENERAL ARRANGEMENT PLAN

Job Number	Drawing Originated Date	PAS 1192 Status Code
142037	08/02/2023	
Scale@A1	Purpose	
1:500	INFORMATION	

Drawing Number	Revision
FS0998-IBI-A-14-XX-D-L-700-0001	P04



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Scale Bar

0 2m 6m 10m

Scale: 1:200

North Point

Key Plan

Hazard

1

HAZ-xx

To warn of significant hazards or information that is unusual

To be read in conjunction with all other consultant's information

Refer to CDM Schedule XXXX-IBI-WB-XX-SH-A-200-XXXX

The following external model files are included within this drawing:

DEPARTMENT:

Large spaces

LRC

Non net

Staff

Storage

Teaching

New Build Boundary

Exit to Outdoor Facilities

Entrance/Other

P07	20/03/23	RIBA Stage 3 Issue	EA	CP
P06	02/03/23	CEM3 Comments	EA	CP
P04	17/02/23	CEM4 Issue	EA	CP
P03	14/02/23	CEM4 Issue	EA	CP
P02	07/02/23	CEM3 Comments	EA	CP
P01	03/02/23	First Issue	EA	CP
Rev	Date	Revision Notes	Drawn	Review

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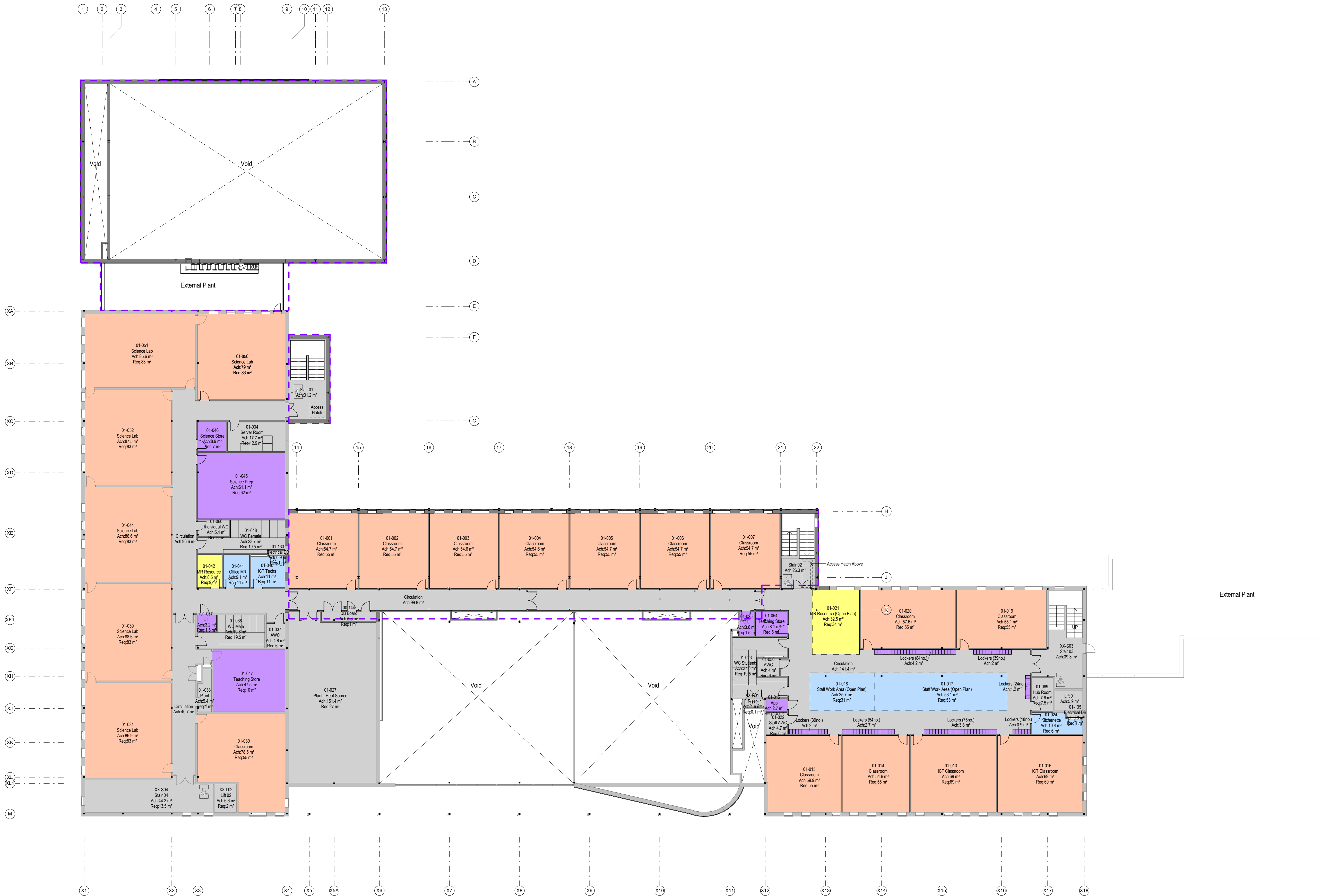
Project

Dixons Academy

Drawing Title

Ground Floor GA Plan

Job Number	Date	Security Classification	Drawn By
142037	31/01/2023		EA
Scale@A1	Purpose	Reviewed By	
1 : 200	Suitable for Stage Approval	CP	
Drawing Number	Revision	Suitability	
FS0998-IBI-A-2-00-D-A-0001	P07	S4	



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- Use drawing only for purpose(s) issued.
- This drawing may contain colour.

Scale Bar
0 2m 6m 10m
Scale: 1:200

North Point

Key Plan

Hazard

HAZ-xx
To warn of significant hazards or information that is unusual
To be read in conjunction with all other consultant's information
Refer to CDM Schedule XXXX-IBI-WB-XX-SH-A-200-XXXX

The following external model files are included within this drawing:

DEPARTMENT:

- LRC
- Non net
- Staff
- Storage
- Teaching

- New Build Boundary
- Exit to Outdoor Facilities
- Entrance/Other

Rev	Date	Revision Notes	Drawn	Review
P07	20/03/23	RIBA Stage 3 Issue	EA	CP
P06	02/03/23	CEM5 Comments	EA	CP
P05	17/02/23	CEM5 Issue	EA	CP
P04	14/02/23	CEM4 Issue	EA	CP
P03	10/02/23	CEM3 Comments	EA	CP
P02	07/02/23	CEM3 Issue	EA	CP
P01	03/02/23	First Issue	EA	CP

Logos

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MORGAN SINDALL CONSTRUCTION

IBI Intelligence Buildings Infrastructure

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Project
Dixons Academy

Drawing Title
First Floor GA Plan

Job Number 142037	Date 01/02/2023	Security Classification	Drawn By EA
Scale@A1 1 : 200	Purpose Suitable for Stage Approval	Reviewed By CP	
Drawing Number FS0998-IBI-A-2-01-D-A-0002	Revision P07	Suitability S4	

Appendix B – Topographical and Utility Survey.



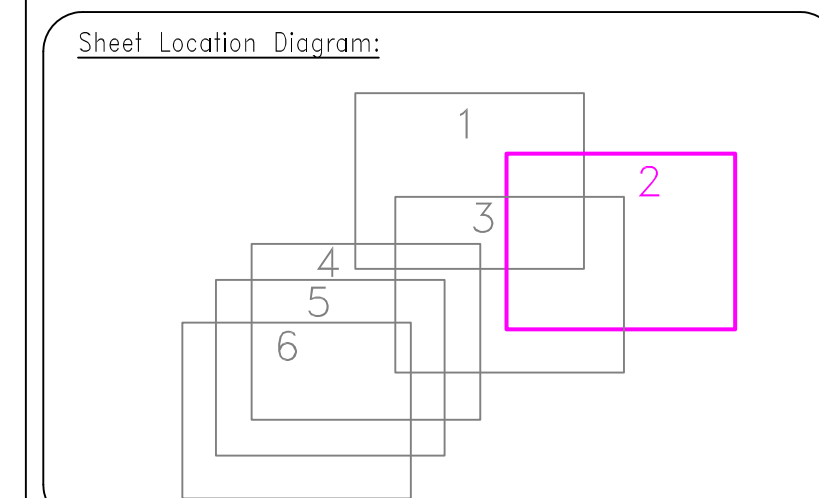
SURVEY STATIONS				
Point	Easting	Northing	Height	Remarks
1	50290.240	58702.551	54.079	PC 148
2	50291.241	58702.551	54.081	PC 148
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4	50293.243	58702.551	54.085	PC 148
5	50294.244	58702.551	54.087	PC 148
6	50295.245	58702.551	54.089	PC 148
7	50296.246	58702.551	54.091	PC 148
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10	50299.249	58702.551	54.097	PC 148
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13	50302.252	58702.551	54.103	PC 148
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15	50304.254	58702.551	54.107	PC 148
16	50305.255	58702.551	54.109	PC 148
17	50306.256	58702.551	54.111	PC 148
18	50307.257	58702.551	54.113	PC 148
19	50308.258	58702.551	54.115	PC 148
20	50309.259	58702.551	54.117	PC 148
21	50310.260	58702.551	54.119	PC 148
22	50311.261	58702.551	54.121	PC 148
23	50312.262	58702.551	54.123	PC 148
24	50313.263	58702.551	54.125	PC 148
25	50314.264	58702.551	54.127	PC 148
26	50315.265	58702.551	54.129	PC 148
27	50316.266	58702.551	54.131	PC 148
28	50317.267	58702.551	54.133	PC 148
29	50318.268	58702.551	54.135	PC 148
30	50319.269	58702.551	54.137	PC 148
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51	50340.290	58702.551	54.179	PC 148
52	50341.291	58702.551	54.181	PC 148
53	50342.292	58702.551	54.183	PC 148
54	50343.293	58702.551	54.185	PC 148
55	50344.294	58702.551	54.187	PC 148
56	50345.295	58702.551	54.189	PC 148
57	50346.296	58702.551	54.191	PC 148
58	50347.297	58702.551	54.193	PC 148
59	50348.298	58702.551	54.195	PC 148
60	50349.299	58702.551	54.197	PC 148
61	50350.300	58702.551	54.199	PC 148
62	50351.301	58702.551	54.201	PC 148
63	50352.302	58702.551	54.203	PC 148
64	50353.303	58702.551	54.205	PC 148
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197	50486.436	58702.551	54.471	PC 148
198	50487.437	58702.551	54.473	PC 148
199	50488.438	58702.551	54.475	PC 148
200	50489.439	58702.551	54.477	PC 148
201	50490.440	58702.551	54.479	PC 148

[illegible]

General Notes:

1. Main entry to sewers has not been undertaken. Depths, pipe sizes and quantity of pipes are measured from the surface. We therefore cannot guarantee the completeness or accuracy of the sewer data which should be checked with the local authority and/or on site.
2. All true heights and spreads are approximate. The plan position of trunk are taken at ground level. Girth measurements are taken at a 1.5m height.
3. We have attempted to identify tree species, however if tree species are critically scarce advice should be sought.
4. Survey information is as a result of measurement to existing features and does not imply legal ownership of boundaries or land divisions. Where boundary alignment lines are added to the survey drawing and are taken from legal documents or other information supplied they are done so within the constraints of drawing quality and scale. They are provided on the basis of opinion and do not imply legal control.

Plan Coordinate Control:- Plan Coordinates relate to OS National Grid OSGB36 using GPS. LSF 1,000 at Stn 2
Level Datum:- All Levels relate to OSGB36 using GPS



Notes:

REV NO	REV NOTE	DATE	SIGN
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AMETHYST

SURVEYS LIMITED

UTILITY (GPS / CCTV DRAINAGE) / PAS-128
TOPOGRAPHICAL / RECORD READING / 3D
COMBINED SPACE ENTRY / CLEARANCE



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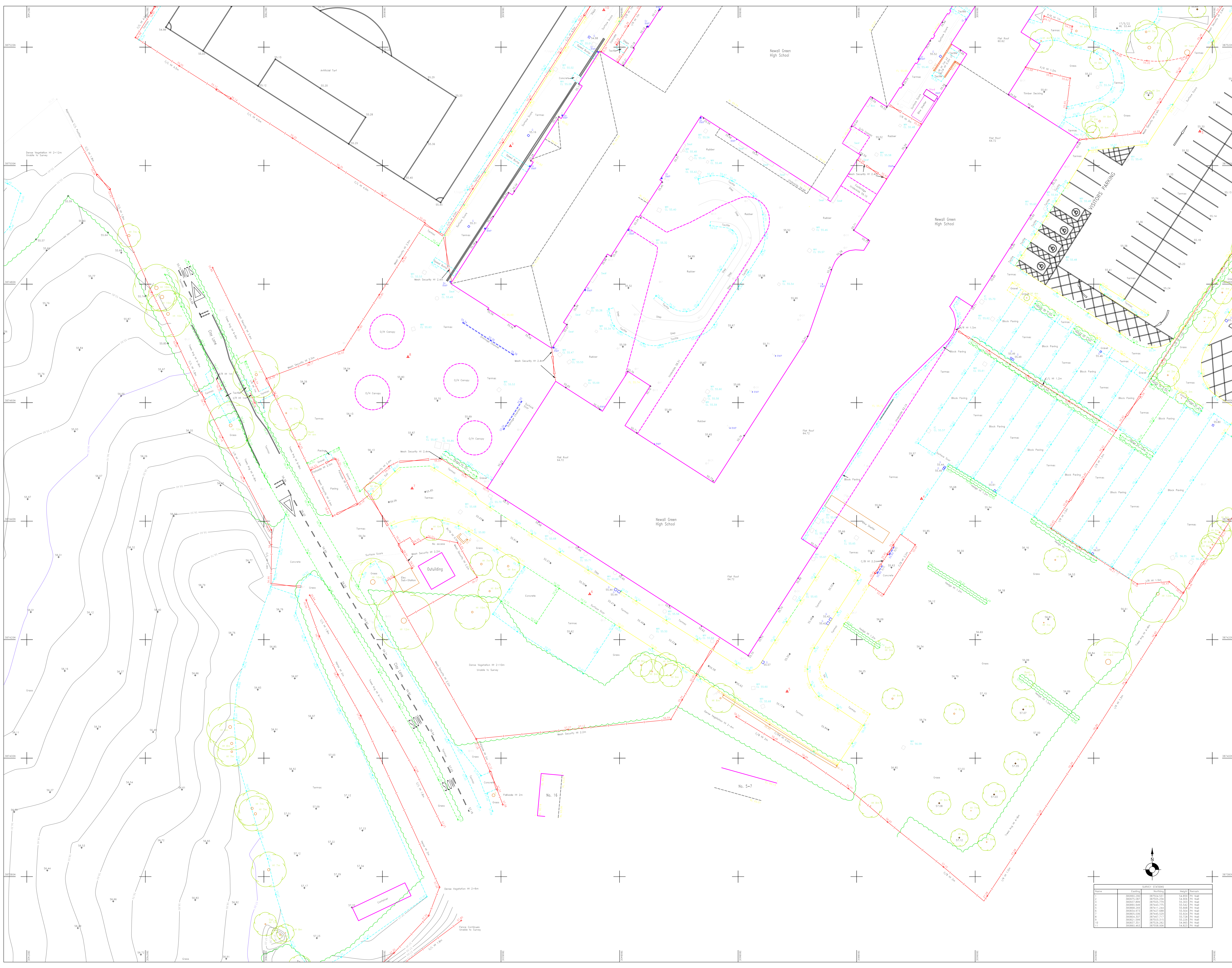



Site: Newall School High School

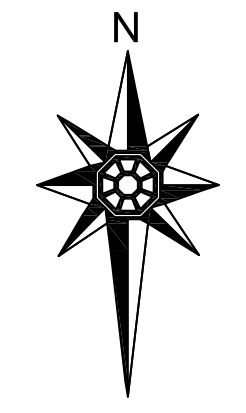
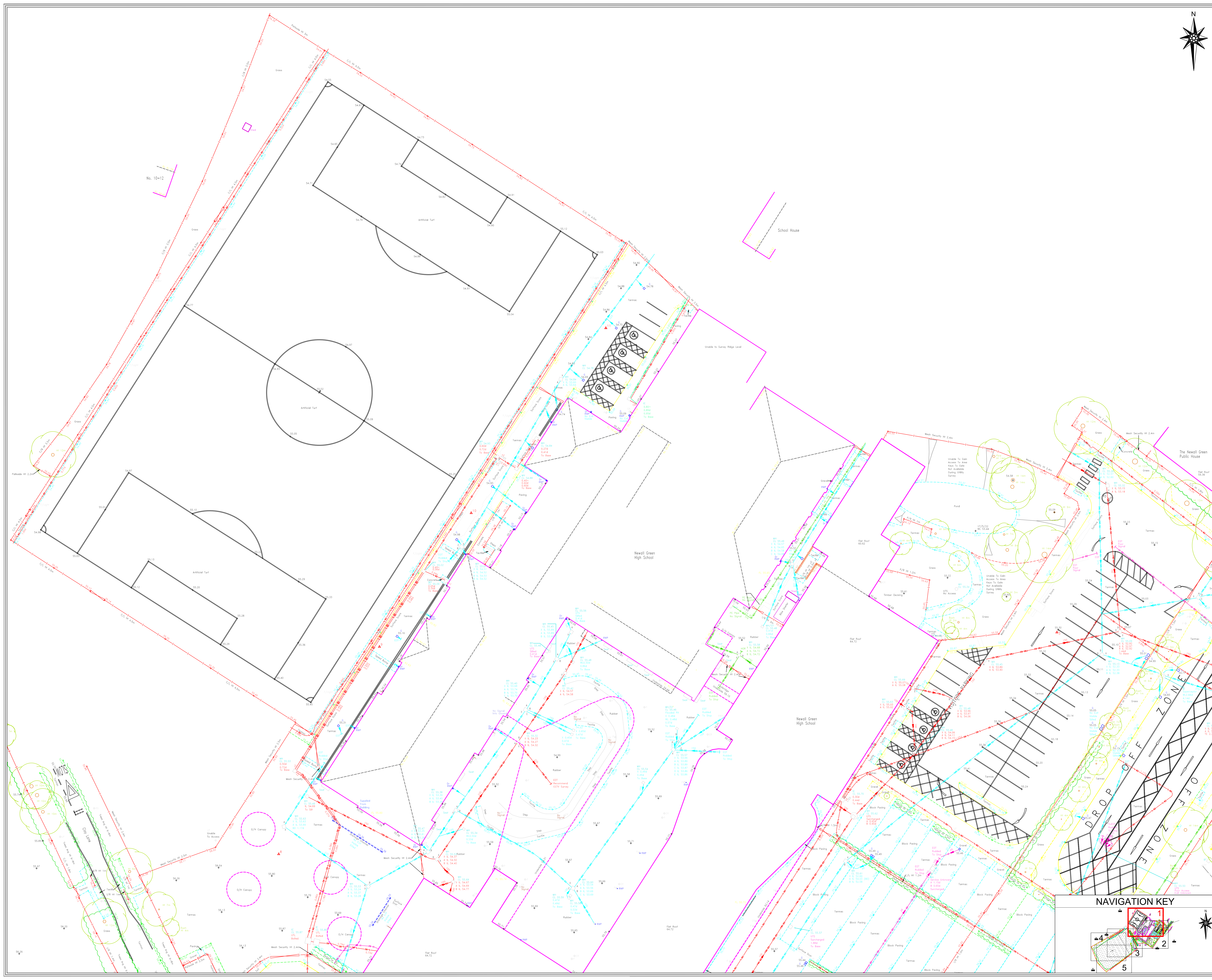
Client: Marschboro

Survey Description: Topographical Survey

Date	May 2022	Scale	1/2500 @ A0
Dwg. No.	202209-TOPO	Created	swi
Sheet	2 of 6	Checked	swi

[illegible]

[illegible]



NOTES;

UTILITY KEY

	HV ELECTRIC CABLE
	ELECTRIC & COMMS CABLE
	ER IN SAME DUCT
	ER
	TS IN SAME DUCT
	TS
	TSC IN SAME DUCT
	TSC
	TV IN SAME DUCT
	TV
	COM IN SAME DUCT
	COM
	WATER PIPE
	GAS PIPE
	FOUL DRAINAGE
	CONTAMINATED SURFACE
	SURFACE DRAINAGE
	COMBINED DRAINAGE
	PUMPING MAIN
	FUEL PIPE
	VENT PIPE
	HEATING PIPES
	UNIDENTIFIED
	EMPTY DUCTS
	SERVICE DUCTS
	TRENCH SCAR
	GROUND DEPRESSION
	SURVEY BOUNDARY

— QL—A — HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY VISUALLY DETECTED ABOVE GROUND OR LOCATED WITHIN TIAL PITS, E. MFS ETC

— B1 — HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY DETECTED BY MULTIPLE GEOPHYSICAL TECHNIQUES USED

— B2 — HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY DETECTED BY ONE GEOPHYSICAL TECHNIQUES USED

— B3 — HORIZONTAL LOCATION ONLY OF THE UTILITY DETECTED BY ONE GEOPHYSICAL TECHNIQUES USED (PASSIVE)

— B4 — A UTILITY SEGMENT WHICH IS SUSPECTED TO EXIST BUT HAS NOT BEEN DETECTED AND IS THEREFORE SHOWN AS AN ASSUMED ROUTE.

— QL—C — A SEGMENT OF UTILITY WHOSE LOCATION IS DEMONSTRATED BY VISUAL REFERENCE TO STREET FURNITURE OR TOPOGRAPHICAL FEATURES OR EVIDENCE OF PREVIOUS STREET WORKS.

— QL—D — A SEGMENT OF UTILITY WHOSE LOCATION CANNOT BE DEMONSTRATED BY VISUAL REFERENCE TO STREET FURNITURE OR TOPOGRAPHICAL FEATURES AND HAS BEEN DERIVED SOLELY FROM RECORD PLANS

○ CABLE / PIPE RISER — END OF TRACE

● BACKDROP / TRAPPED EXIT — HEAD OF RUN / CAPPED

⊕ DRAINAGE VALVE — PIPE INLET / OUTFALL

ABBREVIATIONS

AC	ASBESTOS CEMENT	LP	LAMP POST
AR	ASSUMED ROUTE	MH	MANHOLE
BB	BASE BEND	MW	MONITORING WELL
BD	BACKDROP	OH	OVERHEAD
BH	BOREHOLE	OSA	OFF SURVEY AREA
BR	BRICK	PE	POLYETHYLENE
BTIC	BT INSPECTION CHAMBER	PL	PLASTIC
CBX	CONTROL BOX	PR	PIPE RISER
CI	CAST IRON	PVC	POLYVINYL CHLORIDE
CL	COVER LEVEL	RE	RODDING EYE
CR	CABLE RISER	RWP	RAIN WATER PIPE
CP	CATCHPIT	S/A	SOAKAWAY
DI	DUCTILE IRON	SI	SPUN IRON
DP	DOWN PIPE	ST	STOP TAP
ED	EMPTY DUCT	SV	STOP VALVE
EGSC	END OF TRENCH SCAR	SVV	SLUICE VALVE
EOT	END OF TRACE	SVP	SOIL VENT PIPE
ER	EARTHING ROD	TE	TRAPPED EXIT
EP	ELECTRICITY POLE	TFR	TAKEN FROM RECORD
FH	FIRE HYDRANT	TL	TRAFFIC LIGHT
FL	FLOOD LIGHT	TP	TELEGRAPH POLE
G	GULLY	UTCCTV	UNABLE TO CCTV
GPR	GROUND PENETRATING RADAR	UTL	UNABLE TO FIND
GRP	GLASS REINFORCED PLASTIC	UTL	UNABLE TO LIFT
GV	GAS VALVE	UTS	UNABLE TO SURVEY
HL	HIGH LEVEL	VC	VITRIFIED CLAY
HOR	HEAD OF RUN	VP	VENT PIPE
IC	INSPECTION CHAMBER	VR	VAPOUR RECOVERY
IL	INVERT LEVEL	WL	WATER LEVEL
SW	SURFACE WATER SEWER	WM	WATER METER
CSWS	CONTAMINATED SURFACE WATER SEWER	WO	WASH OUT VALVE
FW	FOUL WATER SEWER		
CWS	COMBINED WATER SEWER		

DISCLAIMER

THE UTILITY SURVEY HAS BEEN CARRIED OUT IN ACCORDANCE WITH A PAS 128:2014 TYPE B SPECIFICATION. CARING POST PROCESSING OF GROUND PENETRATING RADAR AND A MANHOLE DETAIL SURVEY. ELECTROMAGNETIC TECHNIQUES AND/OR GROUND PENETRATING RADAR HAVE BEEN USED IN THE LOCATION OF UNDERGROUND SERVICES. THE RESULTS ARE NOT INFALLIBLE AND TRAIL EXCAVATIONS SHOULD BE CARRIED OUT TO CONFIRM SERVICE IDENTIFICATION POSITIONS AND PARTICULARLY DEPTHS, WHERE THESE ARE CRITICAL. ALTHOUGH ALL REASONABLE EFFORT HAS BEEN MADE IN SEARCHING AVAILABLE RECORD DRAWINGS, THE COMPLETENESS OF THE UNDERGROUND SERVICES INFORMATION CANNOT BE GUARANTEED. THE METHOD OF SURVEY DOES NOT DIFFERENTIATE BETWEEN LIVE AND DEAD SERVICES AND AS SUCH ALL SERVICES SHOULD BE TREATED AS LIVE, UNLESS OTHERWISE STATED.

WHERE SERVICES ARE NON-METALLIC POSITIONS MAY BE TAKEN FROM RECORD DRAWINGS OR MARKER PLATES WHERE AVAILABLE.

WHERE GROUND PENETRATING RADAR HAS BEEN USED IT WILL PRIMARILY HAVE BEEN TO IDENTIFY UNDERGROUND UTILITIES IF POSSIBLE WE WILL ALSO IDENTIFY UNDERGROUND STRUCTURES (TANKS ETC) BUT CANNOT GUARANTEE TO HAVE LOCATED ALL SUCH ITEMS THE USE OF RADAR CAN BE LIMITED BOTH BY SURFACE CONDITIONS AND ALSO BY SOIL TYPE. DEPTH ESTIMATES WOULD NOT NORMALLY BE PROVIDED FOR SERVICES LOCATED WITH GPR.

REV	DATE	COMMENT	CAD

CLIENT: **Arcadis**

PROJECT: **Dixons Manchester Academy
Newall Green High School
Greenbrow Road
Manchester M23 2SX**

TITLE: **Underground
Utility Survey (PAS128_14)**

AMETHYST SURVEYS LIMITED
UTILITY | GPR | CCTV DRAINAGE | PAS128
TOPOGRAPHICAL | RECORD SEARCHES
CONFINED SPACE ENTRY | CLEARANCE

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enquiries@amethystsurveys.com
amethystsurveys.com

DATE: 25-27/05/2022 JOB No: 14692

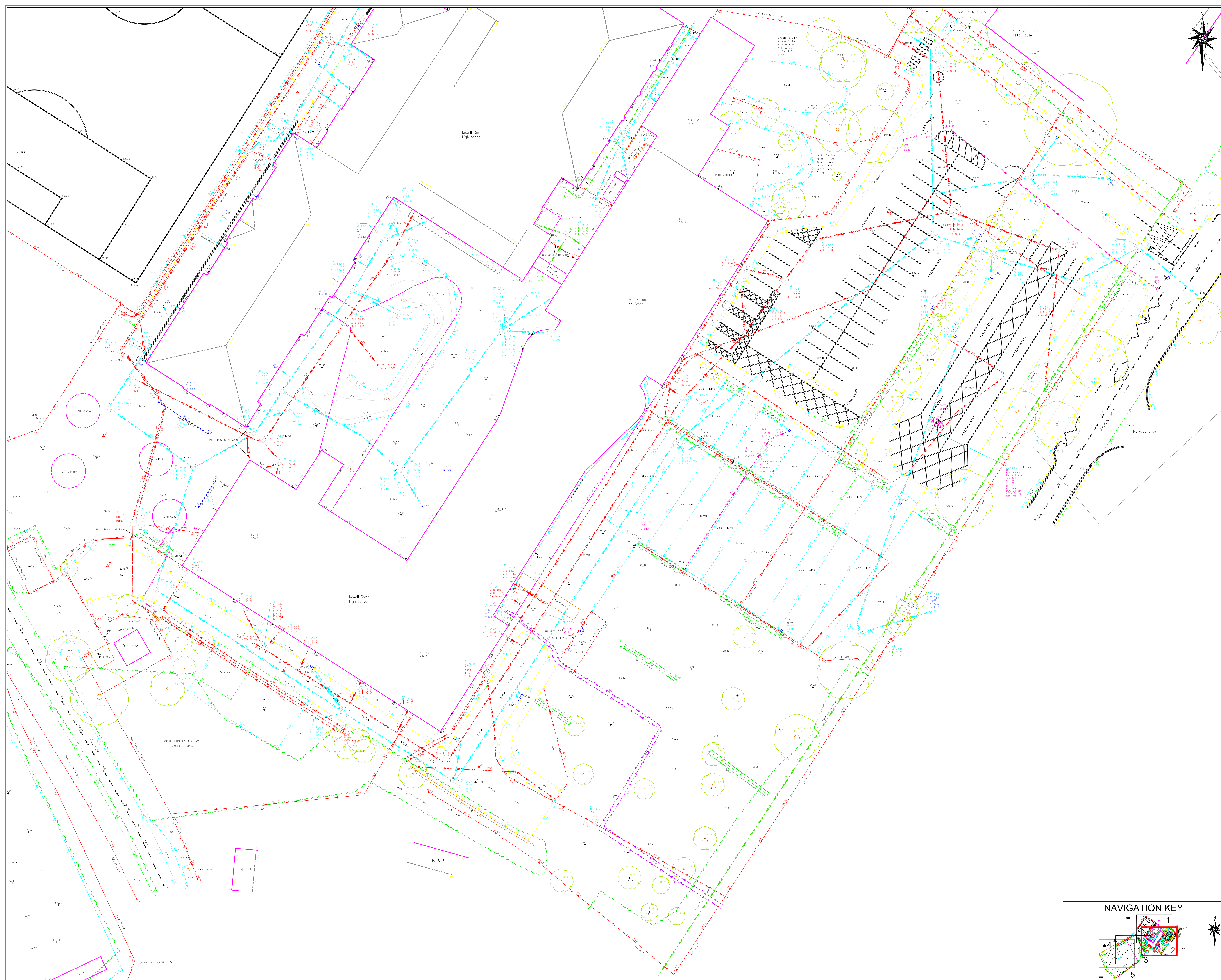
DRAWING No: 14692_UG1 REV: 0

DRAWN: DOT SURVEYED: DP

APPROVED: CJW SCALE: 1:200 @ A0

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NAVIGATION KEY



NOTES;

UTILITY KEY

	ELECTRIC CABLE
	HV ELECTRIC CABLE
	ELECTRIC & COMMS CABLE IN SAME DUCT
	EARTHING ROD / CABLE
	TRAFFIC SIGNAL CABLE
	TELECOM CABLE
	TELECOM & COMMS CABLE IN SAME DUCT
	CABLE TELEVISION
	COMMUNICATION CABLE
	WATER PIPE
	GAS PIPE
	FOUL DRAINAGE
	CONTAMINATED SURFACE
	SURFACE DRAINAGE
	COMBINED DRAINAGE
	PUMPING MAIN
	FUEL PIPE
	VENT PIPE
	HEATING PIPES
	UNIDENTIFIED
	EMPTY DUCTS
	SERVICE DUCTS
	TRENCH SCAR
	GROUND DEPRESSION
	SURVEY BOUNDARY

HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY DETECTED BY ONE GEOPHYSICAL TECHNIQUE USED

HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY DETECTED BY MULTIPLE GEOPHYSICAL TECHNIQUES USED

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CABLE / PIPE RISER

BACKDROP / TRAPPED EXIT

DRAINAGE VALVE

END OF TRACE

HEAD OF RUN / CAPPED

PIPE INLET / OUTFALL

ABBREVIATIONS

AC	ASBESTOS CEMENT	LP	LAMP POST
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CBX	CONTROL BOX	PVC	POLYVINYL CHLORIDE
CI	CAST IRON	RE	RODDING EYE
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CP	CATCHPIT	SI	SPUN IRON
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DI	DUCTILE IRON	ST	STEEL
DP	DOWN PIPE	SV	STOP VALVE
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WHERE SERVICES ARE NON-METALLIC POSITIONS MAY BE TAKEN FROM RECORDS, TRENCH SCARS & SURFACE DETAILS. WHERE QUOTED DEPTHS ESTIMATIONS ARE GENERALLY TO THE CENTRE OF THE SERVICE, DEPTHS TO GRAVITY SEWERS AND DRAINS ARE GENERALLY TO INVERT LEVELS UNLESS OTHERWISE STATED.

PIPE SIZES WHICH CANNOT BE OBTAINED BY VISUAL SURVEY ARE TAKEN FROM RECORD DRAWINGS OR MARKER PLATES WHERE AVAILABLE.

WHERE GROUND PENETRATING RADAR HAS BEEN USED IT WILL PRIMARILY HAVE BEEN TO IDENTIFY UNDERGROUND UTILITIES IF POSSIBLE WE WILL ALSO IDENTIFY UNDERGROUND STRUCTURES (TANKS ETC.) BUT CANNOT GUARANTEE TO HAVE USED ALL SUCH ITEMS. THE USE OF RADAR CAN BE LIMITED BOTH BY SURFACE CONDITIONS AND ALSO BY SOIL TYPE. DEPTH ESTIMATES WOULD NOT NORMALLY BE PROVIDED FOR SERVICES LOCATED WITH GPR.

REV	DATE	COMMENT	CAD

CLIENT: Arcadis

PROJECT: Dixons Manchester Academy
Newall Green High School
Greenbrow Road
Manchester M23 2SX

TITLE: Underground
Utility Survey (PAS128_14)

AMETHYST SURVEYS LIMITED

UTILITY | GPR | CCTV DRAINAGE | PAS128
TOPOGRAPHICAL | RECORD SEARCHES
CONFINED SPACE ENTRY | CLEARANCE

Unit 2, Davy Court, Central Park
Rugby, Warwickshire
CV23 0UZ

+44 (0)1788 566740
enquiries@amethystsurveys.com
amethystsurveys.com

DATE: 25-27/05/2022 JOB No: 14692

DRAWING No: 14692_UG2 REV: 0

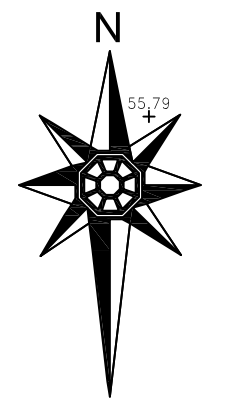
DRAWN: DOT SURVEYED: DP

APPROVED: CJW SCALE: 1:200 @ A0

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NAVIGATION KEY





UTILITY KEY	
	ELECTRIC CABLE
	HV ELECTRIC CABLE
	ELECTRIC & COMMS CABLE IN SAME DUCT
	ER - ER
	ER - ER
	TS - TS
	TS - TS
	TELECOM & COMMS CABLE IN SAME DUCT
	TELECOM & COMMS CABLE IN SAME DUCT
	TV - TV
	TV - TV
	COM - COM
	COM - COM
	WATER PIPE
	FOUL DRAINAGE
	FOUL DRAINAGE
	CONTAMINATED SURFACE DRAINAGE
	CONTAMINATED SURFACE DRAINAGE
	COMBINED DRAINAGE
	COMBINED DRAINAGE
	PUMPING MAIN
	PUMPING MAIN
	FUEL PIPE
	FUEL PIPE
	HEATING PIPES
	HEATING PIPES
	UNIDENTIFIED
	UNIDENTIFIED
	EMPTY DUCTS
	EMPTY DUCTS
	TRENCH SCAR
	TRENCH SCAR
	GROUND DEPRESSION
	GROUND DEPRESSION
	SURVEY BOUNDARY
	SURVEY BOUNDARY

	HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY VISUALLY DETECTED ABOVE GROUND OR LOCATED WITHIN TIAL PTS. E. MFS ETC
	HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY DETECTED BY ONE GEOPHYSICAL TECHNIQUES USED
	HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY DETECTED BY ONE GEOPHYSICAL TECHNIQUES USED
	HORIZONTAL LOCATION ONLY OF THE UTILITY DETECTED BY ONE GEOPHYSICAL TECHNIQUES USED (PASSIVE)
	A UTILITY SEGMENT WHICH IS SUSPECTED TO EXIST BUT HAS NOT BEEN DETECTED AND IS THEREFORE SHOWN AS AN ASSUMED ROUTE.
	A SEGMENT OF UTILITY WHOSE LOCATION IS DEMONSTRATED BY VISUAL REFERENCE TO STREET FURNITURE OR TOPOGRAPHICAL FEATURES OR EVIDENCE OF PREVIOUS STREET WORKS.
	A SEGMENT OF UTILITY WHOSE LOCATION CANNOT BE DEMONSTRATED BY VISUAL REFERENCE TO STREET FURNITURE OR TOPOGRAPHICAL FEATURES AND HAS BEEN DERIVED SOLELY FROM RECORD PLANS
	CABLE / PIPE RISER
	BACKDROP / TRAPPED EXIT
	DRAINAGE VALVE
	END OF TRACE
	HEAD OF RUN / CAPPED
	PIPE INLET / OUTFALL

ABBREVIATIONS	
AC	ASBESTOS CEMENT
AR	ASSUMED ROUTE
BB	BASE BEND
BD	BACKDROP
BH	BOREHOLE
BR	BRICK
BTIC	BT INSPECTION CHAMBER
CATV	CATV INSPECTION CHAMBER
CBX	CONTROL BOX
CI	CAST IRON
CL	COVER LEVEL
CR	CABLE RISER
CP	CATCHPIT
d	DEPTH
DI	DUCTILE IRON
DP	DOWN PIPE
ED	EMPTY DUCT
EQSC	END OF TRENCH SCAR
EOT	END OF TRACE
ER	EARTHING ROD
EP	ELECTRICITY POLE
FL	FIRE HYDRANT
FL	FLOOD LIGHT
G	GULLY
GPR	GROUND PENETRATING RADAR
GRP	GLASS REINFORCED PLASTIC
GV	GAS VALVE
HL	HIGH LEVEL
HOR	HEAD OF RUN
IC	INSPECTION CHAMBER
IL	INVERT LEVEL
SWS	SURFACE WATER SEWER
CSWS	CONTAMINATED SURFACE WATER SEWER
FWS	FOUL WATER SEWER
CWS	COMBINED WATER SEWER
LP	LAMP POST
MH	MANHOLE
MW	MONITORING WELL
OH	OVERHEAD
OSA	OFF SURVEY AREA
PE	POLYETHYLENE
PL	PLASTIC
PR	PIPE RISER
PVC	POLYVINYL CHLORIDE
RE	RODDING EYE
RWP	RAIN WATER PIPE
S/A	SOAKAWAY
SI	SPUN IRON
ST	STOP TAP
ST	STEEL
SV	STOP VALVE
SWV	SLUICE VALVE
SVP	SOIL VENT PIPE
TE	TRAPPED EXIT
TFR	TAKEN FROM RECORD
TL	TRAFFIC LIGHT
TP	TELEGRAPH POLE
UTTCCTV	UNABLE TO FIND
UTL	UNABLE TO LIFT
UTS	UNABLE TO SURVEY
VC	VITRIFIED CLAY
VP	VENT PIPE
VR	VAPOUR RECOVERY
WL	WATER LEVEL
WM	WATER METER
WO	WASH OUT VALVE

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REV	DATE	COMMENT	CAD

CLIENT
Arcadis

PROJECT
**Dixons Manchester Academy
Newall Green High School
Greenbrow Road
Manchester M23 2SX**

TITLE
**Underground
Utility Survey (PAS128_14)**

AMETHYST
SURVEYS LIMITED
UTILITY | GPR | CCTV DRAINAGE | PAS:128
TOPOGRAPHICAL | RECORD SEARCHES
CONFINED SPACE ENTRY | CLEARANCE

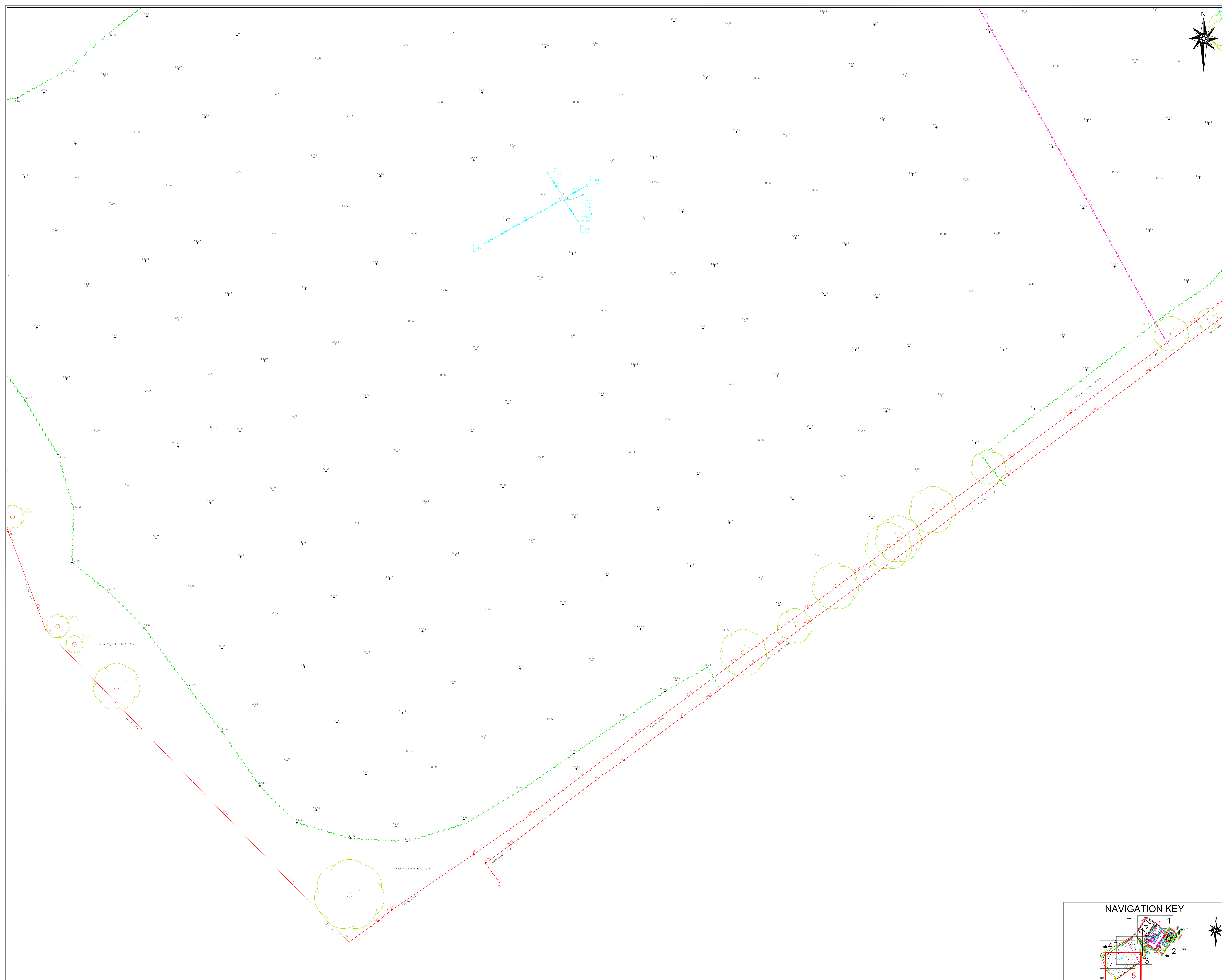
Unit 2, Davy Court, Central Park
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DATE: 25-27/05/2022	JOB No: 14692
DRAWING No: 14692_UG4	REV: 0
DRAWN: DOT	SURVEYED: DP
APPROVED: CJW	SCALE: 1:200 @ A0

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NAVIGATION KEY

[illegible]

Appendix C – Drainage Records.

Clancy Consulting Ltd

2
Dunham Road, Clancy Consulting
Altrincham, Manchester, Greater Manchester
WA14 4NX

FAO:

How to contact us:

**United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP**

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: 10956120
Our Ref: UUPS-ORD-478168
Date: 11/04/2023**

Dear Sirs

Location: Dixon Academy

I acknowledge with thanks your request dated 06/04/2023 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

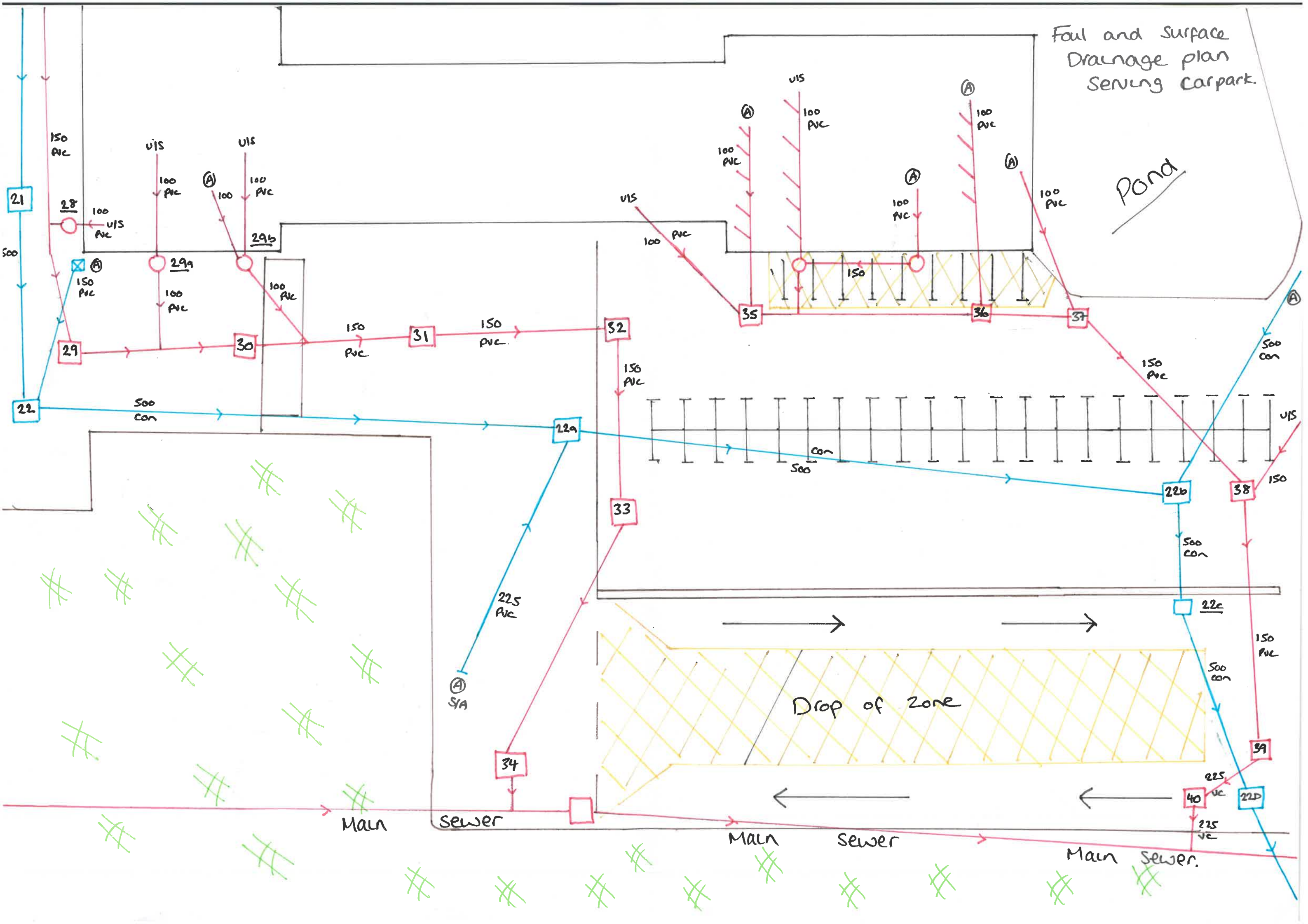
- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.



Refo	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
7702	57.29	CO	52.41	525			VC	3.415627	1 in 1979
5301	57.29	CO	52.41	525			VC	59.36329	1 in 1979
8707	51.72	FO	49.57	150			VC	18.27352	1 in 63
8701	50.87	SW	48.59	300			VC	32.23232	1 in 44
9503		CO	49.56	300			VC	40.22437	1 in 1006
1414		CO		150			VC	6.381307	
7610		FO		100			VC	6.961777	1 in 45
9702	50.87	FO	48.39	150			VC	92.0658	1 in 143
1506	51.72	FO	48.61	150			VC	30.11493	1 in 49
8711	50.87	FO	48.88	150			VC	30.70359	1 in 13
1503	52.63	SW	50.75	225			VC	17.50342	1 in 38
1604		CO	0	1200			VC	22.80351	
7601	52.43	SW	50.53	300			VC	13.31875	
9304		CO		150			VC	27.9417	
0901	53.9	CO	48.74	1200			VC	69.24717	
9401	55.52	CO	52.22	625			VC	53.25411	
0504	52.14	FO	48.07	150			VC	1.151987	
9504	53.62	CO	49.85	225			VC	23.43075	
0306	55.9	SW		0			UN	0.2383497	
8214		CO		150			VC	8.873443	1 in 21
8714	49.45	SW	48.03	225			VC	48.34048	1 in 21
1506	51.66	SW	49.49	300			VC	11.16075	1 in 51
1428	54.85	CO	52.82	300			VC	7.633457	
9202	56.1	CO	55.98	225			VC	42.34505	
1413	54.66	CO	0	225			VC	31.82766	
8715	49.49	FO	47.71	150			VC	48.15001	1 in 21
9405		CO		150			VC	3.859366	
0305	55.84	CO	53.28	300			VC	34.82127	1 in 151
8601	52.33	CO	50.43	225			VC	62.21922	1 in 161
9211		CO		150			VC	10.58402	
1418		CO		150			VC	19.11771	
9403		CO		150			VC	6.238464	
1304	56.52	SW	53.96	900			VC	44.39205	1 in 404
8203	57.62	CO	53.47	300			VC	50.44799	1 in 123
7503		FO		100			VC	8.106093	
1507	51.72	FO	49.27	100			VC	27.15165	1 in 80
8713	50.15	SW	48.66	225			VC	28.59993	1 in 45
0602	51.71	CO	43.31	375			VC	8.606938	
1511		FO		100			VC	12.2732	
7608		FO		150			VC	15.30779	
0505	52.09	CO	47.77	375			VC	3.87822	1 in 10
0203	58.09	CO	56.08	225			VC	10.42084	1 in 19
9201		CO	0	225			VC	7.846914	
7701		FO		100			VC	14.54978	
1402		CO		225			VC	17.37591	
1505	52.12	SW	48.93	300			VC	38.46046	1 in 228
8712	50.15	FO	48.28	150			VC	26.98151	1 in 50
7201	57.21	CO	53.85	300			VC	70.17834	1 in 195
7609		FO		100			VC	1.591524	
7606		FO		150			VC	18.786568	
9706		CO	0	225			VC	40	
0302	57.24	SW		0			UN	0.3085151	
7602	53.88	SW	52.17	225			VC	80.28075	1 in 51
8213		CO		150			VC	7.703173	
8206		CO		100			VC	11.71217	
8607		FO		150			VC	15.17942	
8723		FO		150			VC	14.75334	
1408		CO		150			VC	3.404488	1 in 48
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7612		FO		100			VC	8.824648	
1605		CO		1200			VC	36.06038	
8716		FO		100			VC	7.36653	
9501	51.97	FO	46.11	1200			VC	84.85291	1 in 87
8302	58.13	CO	56.04	225			VC	86.53901	1 in 107
0201	57.62	CO	54.92	300			VC	56.46204	1 in 47
7604	53.94	FO	52.08	150			VC	78.339	
8201	57.94	CO	52.94	525			VC	63.56099	
8203		CO		150			VC	6.307935	
9409		CO		150			VC	6.632864	
0409	225	CO		225			VC	52.41857	
8207		CO	0	100			VC	5.85384	
9407		FO		150			VC	25.27765	
8704		FO		150			VC	10.17588	
8212		CO		150			VC	5.722789	
8605		FO		150			VC	51.38214	
8709	51.23	SW	49.57	225			VC	15.10844	1 in 39
1504	52.12	FO	48.4	150			VC	40.08025	1 in 129
8207	58.6	CO	56.7	225			VC	73.92564	1 in 97
8611	51.9	FO	50.36	150			VC	18.84315	1 in 36
7202	56.51	CO	54.08	300			VC	38.71512	1 in 183
8708	51.28	FO	49.28	150			VC	16.27269	1 in 41
1423		CO		150			VC	6.628433	
0403	54.5	CO	52.87	300			VC	8.351165	1 in 139
8722		FO		150			VC	11.6744	
1407		FO		150			VC	16.5834	
8724		FO		150			VC	2.945631	
0202	58.13	CO	55.87	225			VC	47.42382	1 in 65
8610	52	SW	50.45	225			VC	22.02133	1 in 61
8206		CO		100			VC	16.52986	
8301		CO	0	525			VC	59.5399	
9204	57.67	CO	55.53	225			VC	60.76357	1 in 65
7705		FO		150			VC	10.92829	
7613		FO		150			VC	9.270375	
8705	50.7	CO	48.98	225			VC	43.69046	1 in 68
0406		FO		150			VC	7.672096	
9701	48.11	CO	45.89	225			VC	18.02776	1 in 120
0503	52.24	FO	48.09	150			VC	11.33484	1 in 567
9402	56.33	CO	52.38	525			VC	57.68882	1 in 444
0301	57.54	SW	54.78	900			VC	20.2718	1 in 338
8602		FO		100			VC	29.54504	
7611		FO		100			VC	7.354022	
0205	57.6	SW	54.86	900			VC	32.31194	1 in 404
8219		CO		100			VC	10.77328	
8710	50.86	SW	49.18	225			VC	29.20329	1 in 56
7603	52.49	FO	50.37	150			VC	76.84399	1 in 39
0506	52.09	CO	47.39	375			VC	22.90132	1 in 6
8216		FO		150			VC	23.4434	
1501	52.38	FO	48.61	150			VC	16.00198	1 in 76
9702	48.61	CO	46.1	225			VC	12.85025	1 in 67
8606		FO		150			VC	14.49504	
0404	55.03	CO	53.03	300			VC	27.23461	1 in 170
8706	51.72	SW	50.08	225			VC	22.17765	1 in 42
1401	54.86	CO	49.02	1200			VC	129.8345	1 in 519
1302	57.09	CO	54.32	300			VC	48.51767	1 in 113
8202	57.67	CO	53.41	375			VC	62.00805	1 in 148
0502	52.21	SW	48.77	375			VC	15.35727	1 in 15
1502	52.35	SW	49.39	225			VC	19.27257	1 in 42
0704	47.4	CO	42.11	1350			VC	118.8664	1 in 513
8608	52.1	SW	50.76	150			VC	15.06891	1 in 49
9703	50.07	CO	47.33	225			VC	36.05551	1 in 150
9404		CO		150			VC	10.0969	
1417		CO		100			VC	11.47192	
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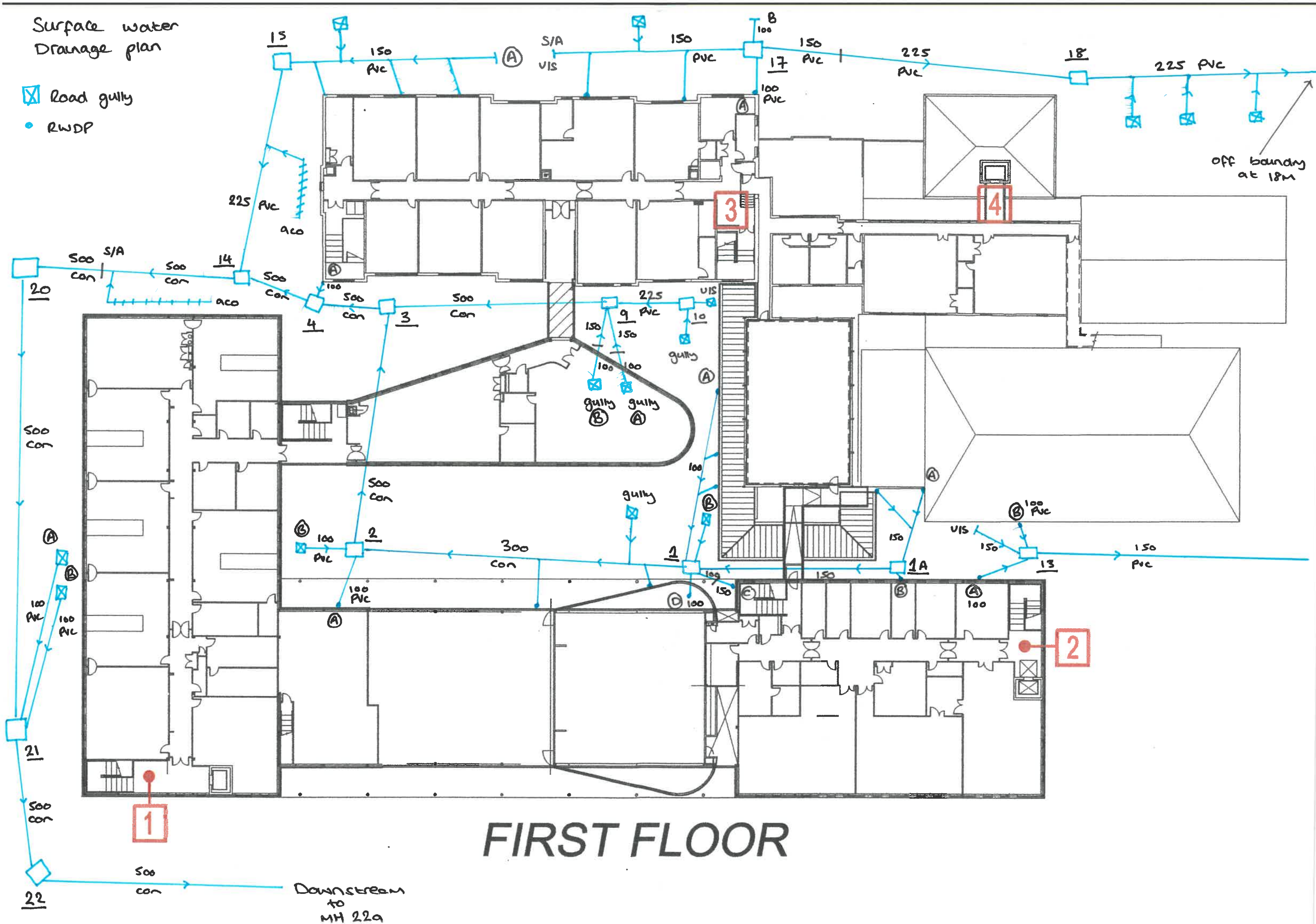
Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
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9304		CO		150			VC	27.9417	
0901	53.9	CO	48.74	1200			VC	69.24717	
9401	55.52	CO	52.22	625			VC	53.25411	
0504	52.14	FO	48.07	150			VC	1.151987	
9504	53.62	CO	49.85	225			VC	23.43075	
0306	55.9	SW		0			UN	0.2383497	
8214		CO		150			VC	8.873443	1 in 21
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9202	56.1	CO	55.98	225			VC	42.34505	
1413	54.66	CO	0	225			VC	31.82766	
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9405		CO		150			VC	3.859366	
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9211		CO		150			VC	10.58402	
1418		CO		150			VC	19.11771	
9403		CO		150			VC	6.238464	
1304	56.52	SW	53.96	900			VC	44.39205	1 in 404
8203	57.62	CO	53.47	300			VC	1.000000	

Foul and Surface
Drainage plan
Serving Carpark.

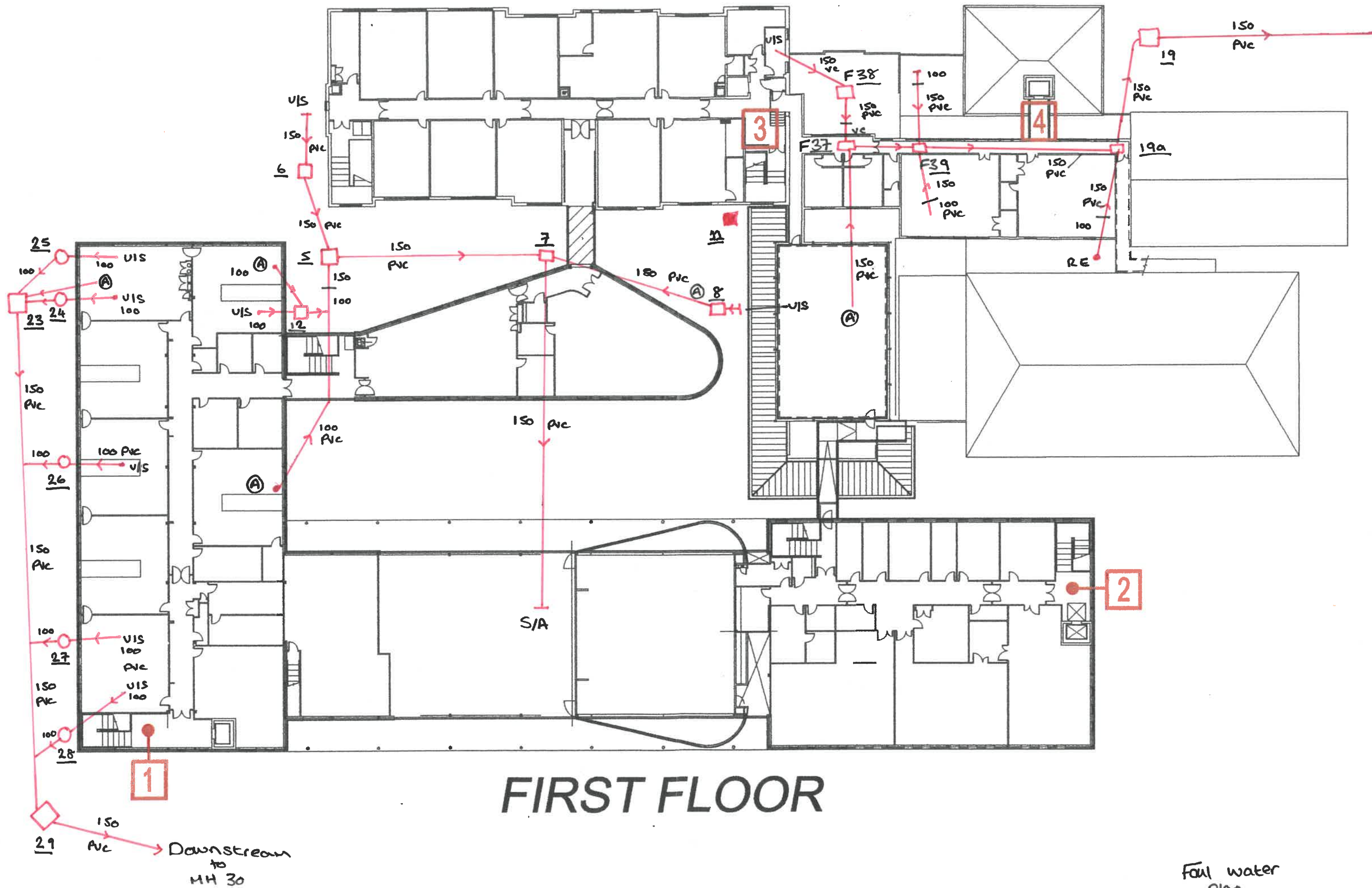


Surface water
Drainage plan

- ☒ Road gully
- RWDP

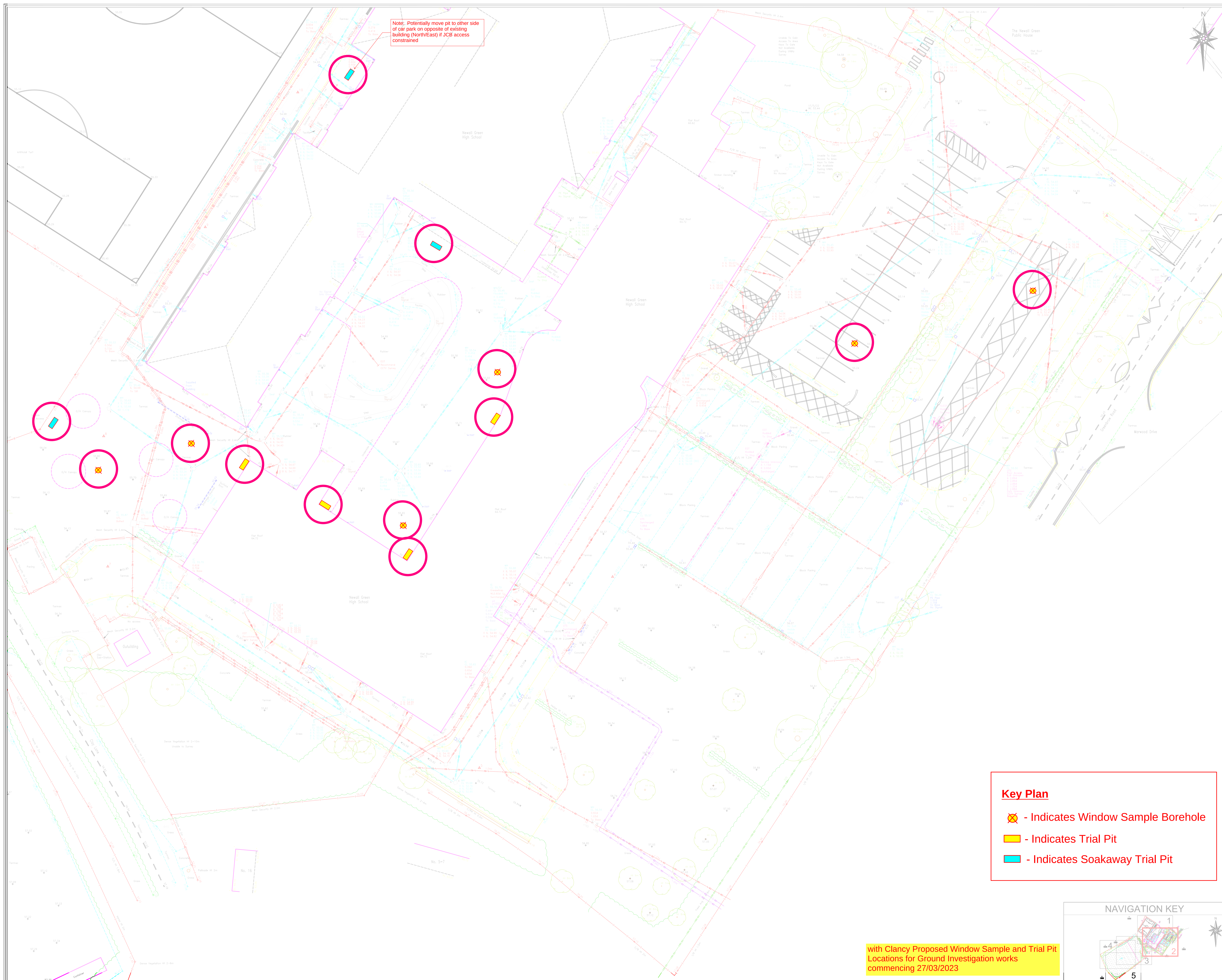


Foul Water Drainage Plan.



Foul water
Plan.

Appendix D – Infiltration Testing.



NOTES:

UTILITY KEY

	HV	ELECTRIC CABLE
	CR	HYDRO-ELECTRIC CABLE
	TS	ELECTRIC & COMMS CABLE IN SAME DUCT
	COM	COMMUNICATION CABLE IN SAME DUCT
	TV	TELECOM CABLE IN SAME DUCT
	COM	CABLE TELEVISION
	COM	COMMUNICATION CABLE
	COM	WATER PIPE
	COM	GAS PIPE
	COM	FOUL DRAINAGE
	COM	CONTAMINATED SURFACE
	COM	SURFACE DRAINAGE
	COM	COMBINED DRAINAGE
	COM	PUMPING MAIN
	COM	FUEL PIPE
	COM	VENT PIPE
	COM	HEATING PIPES
	COM	UNIDENTIFIED
	COM	EMPTY DUCTS
	COM	SERVICE DUCTS
	COM	TRENCH SCAR
	COM	GROUND DEPRESSION
	COM	SURVEY BOUNDARY

QL-A	HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY VISUALLY DETECTED ABOVE GROUND OR LOCATED WITHIN TRIAL PITS, I.C. M&S ETC
B1	HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY DETECTED BY MULTIPROBE PHYSICAL TECHNIQUES USED
B2	HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY DETECTED BY ONE GEOPHYSICAL TECHNIQUES USED
B3	HORIZONTAL LOCATION ONLY OF THE UTILITY DETECTED BY ONE GEOPHYSICAL TECHNIQUES USED
B4	A UTILITY SEGMENT WHICH IS SUSPECTED TO EXIST BUT HAS NOT BEEN DETECTED AND IS THEREFORE SHOWN AS AN ASSUMED ROUTE
QL-C	A SEGMENT OF UTILITY WHOSE LOCATION IS DEMONSTRATED BY VISUAL REFERENCE TO STREET FURNITURE, TOPOGRAPHICAL FEATURES OR EVIDENCE OF PREVIOUS STREET WORK
QL-D	A SEGMENT OF UTILITY WHOSE LOCATION CANNOT BE DEMONSTRATED BY VISUAL REFERENCE TO STREET FURNITURE OR TOPOGRAPHICAL FEATURES AND HAS BEEN DERIVED SOLELY FROM RECORD PLANS

o	CABLE / PIPE RISER	END OF TRACE
o	BACKDROP / TRAPPED EXIT	HEAD OF RUN / CAPPED
o	DRAINAGE VALVE	PIPE INLET / OUTFALL

ABBREVIATIONS

AC	ASBESTOS CEMENT	LP	LAMP POST
AR	ASSUMED ROUTE	MW	MANHOLE
BB	BASE BEND	MM	MONITORING WELL
BD	BACKDROP	OV	OVERHEAD
BH	BOREHOLE	OSA	OFF SURVEY AREA
BR	BRICK	PE	POLYETHYLENE
BTIC	BT INSPECTION CHAMBER	PL	PLASTIC
CATV	CATV INSPECTION CHAMBER	PR	PIPE RISER
CBX	CONTROL BOX	PVC	POLYVINYL CHLORIDE
CD	CAST IRON	R	RANGE
CL	COVER LEVEL	RWP	RAIN WATER PIPE
CR	CABLE RISER	S	SOAKAWAY
CP	CATCHPIT	SPUN	SPUN IRON
D	DEPTH	ST	STOP TAP
DI	DUCTILE IRON	ST	STEEL
DN	DOWN PIPE	SV	STOP VALVE
ED	EMPTY DUCT	SLV	SUICIDE VALVE
EOSC	END OF TRENCH SCAR	SWP	SOIL VENT PIPE
EOT	END OF TRACE	TE	TRAPPED EXIT
ER	EARTHING ROD	TFR	TAKEN FROM RECORD
EP	ELECTRICITY POLE	TL	TRAFFIC LIGHT
FL	FIRE HYDRANT	TP	TELEGRAPH POLE
FL	FLOOD LIGHT	UTCTV	UNABLE TO CCTV
G	GULLY	UTF	UNABLE TO FIND
GRPR	GROUND PENETRATING RADAR	UTS	UNABLE TO LIFT
GRP	GLASS REINFORCED PLASTIC	UV	UNABLE TO SURVEY
GV	GAS VALVE	VC	VITRIFIED CLAY
H	HIGH LEVEL	VD	VED PIPE
HOR	HEAD OF RUN	VR	VAPOUR RECOVERY
IL	INSPECTION CHAMBER	WL	WATER LEVEL
IL	INVERT LEVEL	WM	WATER METER
SWS	SURFACE WATER SEWER	WO	WASH OUT VALVE
CSWS	COMBINED SURFACE WATER SEWER		
FWS	FOUL WATER SEWER		
CWS	COMBINED WATER SEWER		

DISCUSSION

THE UTILITY SURVEY HAS BEEN CARRIED OUT IN ACCORDANCE WITH A PAS 128, 204 TYPE 1 SPECIFICATION INCLUDING POST PROCESSING OF GROUND PENETRATING RADAR (GPR) & MANHOLE DETAIL SURVEY DATA.

LOCATIONS OF MANHOLE TECHNOLOGIES AND/OR GROUND PENETRATING RADAR WERE USED IN THE LOCATION OF UNDERGROUND SERVICES. THE RESULTS ARE NOT AVAILABLE AND TRIAL EXCAVATIONS WERE USED TO CONFIRM SERVICE IDENTIFICATION, POSITIONS AND PARTICULARLY DEPTHS. THESE WERE VERY CRITICAL. ALTHOUGH ALL REASONABLE EFFORT HAS BEEN MADE IN SEARCHING AVAILABLE RECORD DRAWINGS, THE COMPLETENESS OF THE UNDERGROUND SERVICES INFORMATION CANNOT BE GUARANTEED. THE METHOD OF UTILITY DEPTH ESTIMATION WOULD NOT NORMALLY BE PROVIDED FOR SERVICES LOCATED WITH GPR.

OTHERWISE STATED.

WHERE SERVICES ARE NOMINATED POSITIONS MAY BE TAKEN FROM RECORDS, TRENCH SCARES & SURFACE DETAIL. WHERE DEPTHS, DEPTH ESTIMATIONS ARE GENERALLY TO THE CENTRE OF THE SERVICE. DEPTHS TO GRAVITY SEWERS AND DRAINS ARE GENERALLY TO STREET LEVELS UNLESS OTHERWISE STATED.

WHERE DEPTHS CANNOT BE OBTAINED BY VISUAL SURVEY, ARE TAKEN FROM RECORD DRAWINGS OR MARKER PLATES WHERE AVAILABLE.

WHERE GROUND PENETRATING RADAR HAS BEEN USED IT WILL PROVIDE INFORMATION ON STRUCTURES DETECTED BUT CANNOT GUARANTEE TO HAVE LOCATED ALL SUCH ITEMS. THE USE OF RADAR CAN BE LIMITED BOTH BY SURFACE CONDITIONS AND ALSO BY THE TYPE OF DEPTH ESTIMATION WOULD NOT NORMALLY BE PROVIDED FOR SERVICES LOCATED WITH GPR.

REV	DATE	COMMENT	CAD
CLIENT			

Arcadis

PROJECT	Dixons Manchester Academy Newall Green High School Greenbrow Road Manchester M20 2SX
TITLE	Underground Utility Survey (PAS128_14)

Unit 2, Davy Court, Central Park
Rugby, Warwickshire
CV23 0UZ

enquiries@amethystsurveys.com
amethystsurveys.com

DATE: 25-27/05/2022	JOB No: 14692
DRAWING No: 14692_UG2	REV: 0
DRAWN: DOT	SURVEYED: DP
APPROVED: CJW	SCALE: 1:200 @ A0



STRUCTURAL SOILS LTD
INSITU TESTING REPORT



1774

Report No. 785391R.01(00)

Date 29-March-2023 Contract Dixons Academy, Wythenshaw

Client Clancy Consulting Ltd

Address Dunham Court
2 Dunham Road
Altrincham
Cheshire
WA14 4NX

For the Attention of Phil Hill

Order received 23-February-2023

Testing Started 27-March-2023

Testing Completed 28-March-2023

Client Reference CCL: 10-2250

Client Order No. 32109

Instruction Type Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests

Not - UKAS Tests:

* 3 no. Soakaway Testing to BRE Digest 365

Please note that 3 fills in each pit was not achievable due to time constraints/ground conditions

The results represent the ground conditions at the specified locations and depths at the time of testing.

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of.

Test were undertaken on samples 'as received' unless otherwise stated.

Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

Structural Soils Ltd, The Potteries, Pottery Street, Castleford, WF10 1NJ Tel.01977552255. e-mail matthew.doran@soils.co.uk

TESTING VERIFICATION CERTIFICATE

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **29/03/2023 12:03:04**.

Testing reported after this date is not covered by this Verification Certificate.



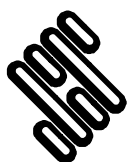
Approved Signatory
Matthew Doran (Site Testing Manager (North))

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU



**STRUCTURAL
SOILS LTD**

Contract:

Dixon Academy, Wythenshawe

Job No:

785391

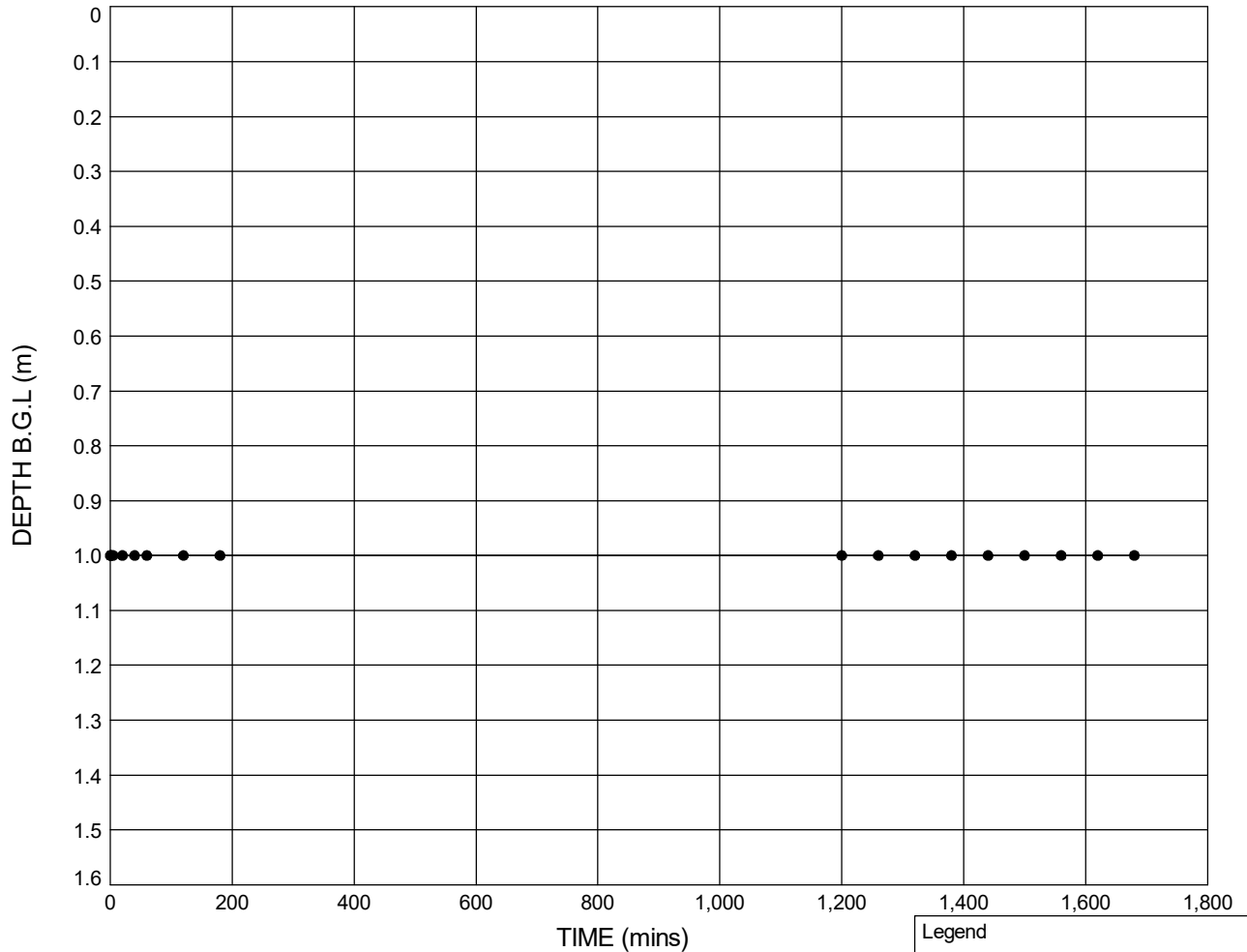


FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : **SA01**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



Test 1

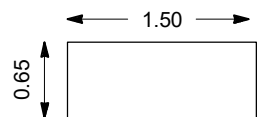
Pit start depth: = **1.65** m
 Pit final depth: = **1.65** m
 Effective depth, D_e = **0.65** m
 Effective storage volume, V_{p75-25} = **0.3169** m³
 Surface area, a_{s50} = **2.3725** m²
 Time, t_{p75-25} = **N/A** secs
 Infiltration rate, f = **N/A** m/s

Notes: Test 1 - Unable to calculate infiltration rate due to insufficient drop in water level.

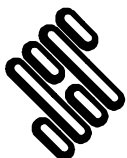
Legend

● Test 1 (27.03.23)

Plan (Not to scale)



No Bearing Taken



STRUCTURAL SOILS
 The Potteries
 Pottery Street
 Castleford
 W. Yorkshire WF10 1NJ

Compiled By

K. Flincher

Date

29/03/23

Checked By

M. Daw

Date

29/03/23

Contract

Dixon Academy, Wythenshawe

Contract Ref:

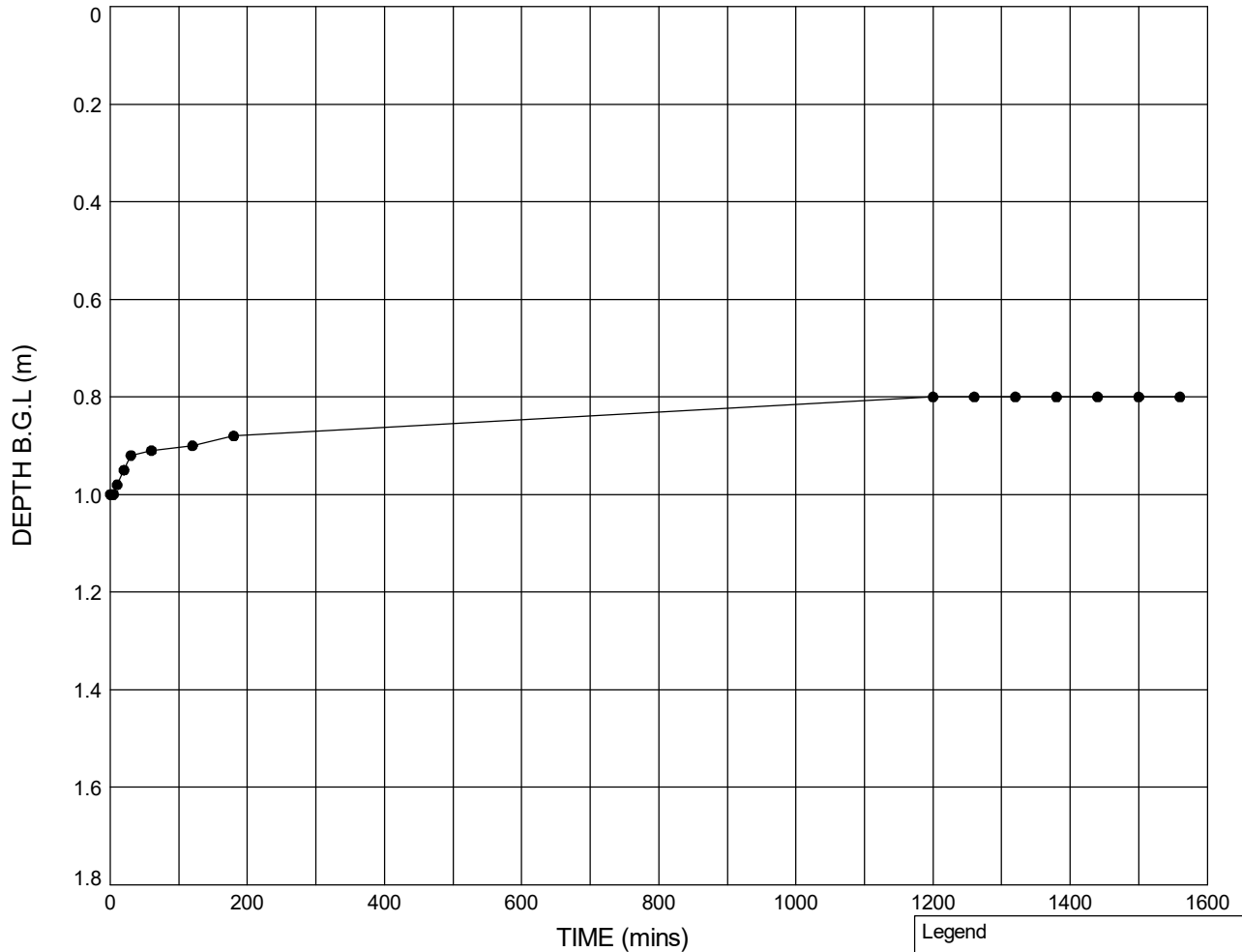
785391

FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : **SA02**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



Test 1

Pit start depth: = **1.70** m

Pit final depth: = **1.70** m

Effective depth, D_e = **0.70** m

Effective storage volume, V_{p75-25} = **0.4410** m³

Surface area, a_{s50} = **3.0100** m²

Time, t_{p75-25} = **N/A** secs

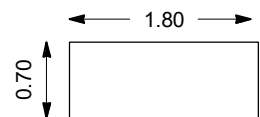
Infiltration rate, f = **N/A** m/s

Notes: Test 1 - Unable to calculate infiltration rate due to insufficient drop in water level.

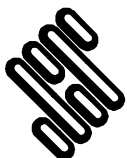
Legend

● Test 1 (27.03.23)

Plan (Not to scale)



No Bearing Taken



STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By

K. Flincher

Date

29/03/23

Checked By

M. Durr

Date

29/03/23

Contract

Dixon Academy, Wythenshawe

Contract Ref:

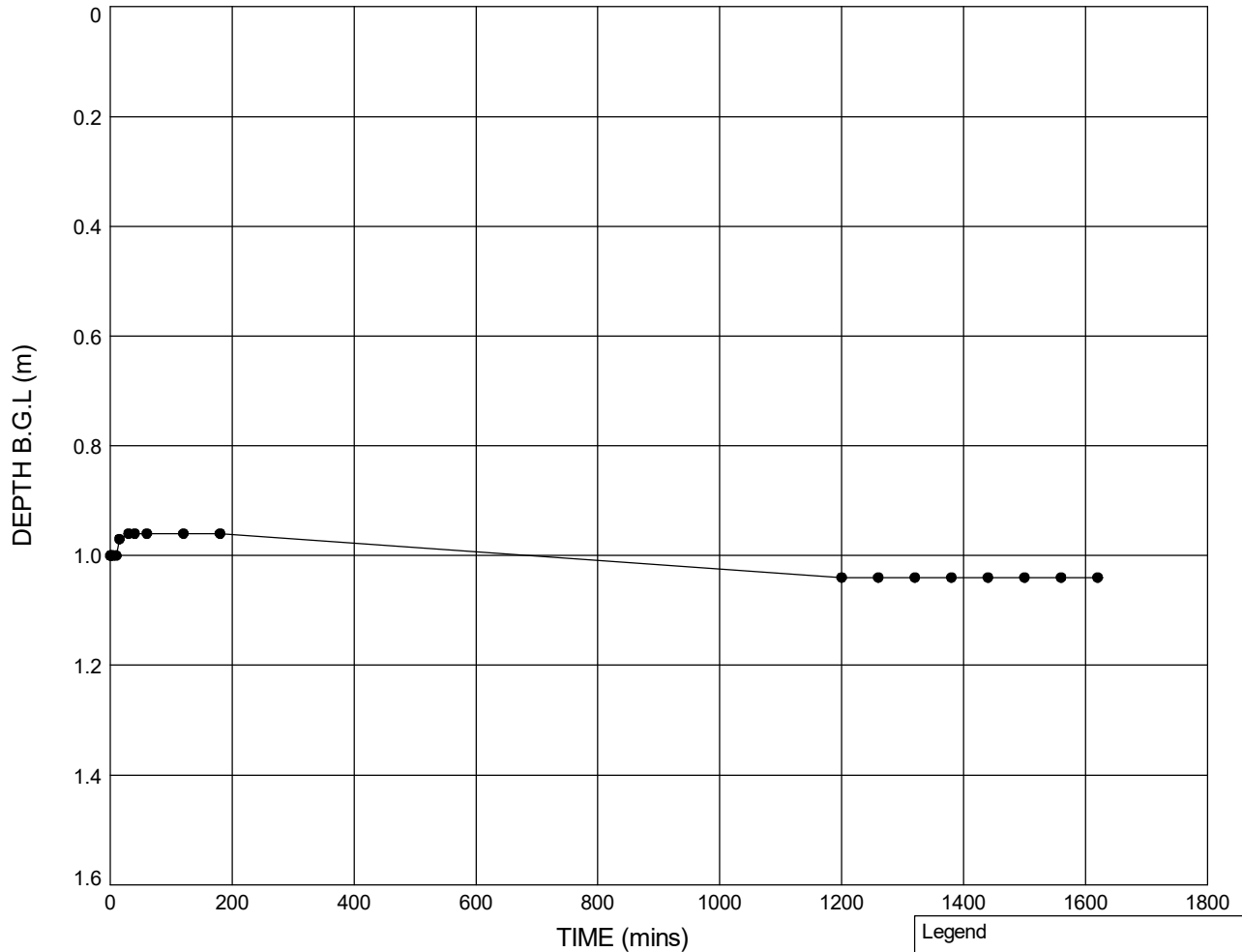
785391

FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : **SA03**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



Test 1

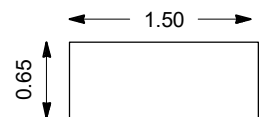
Pit start depth: = **1.65** m
 Pit final depth: = **1.65** m
 Effective depth, D_e = **0.65** m
 Effective storage volume, V_{p75-25} = **0.3169** m³
 Surface area, a_{s50} = **2.3725** m²
 Time, t_{p75-25} = **N/A** secs
 Infiltration rate, f = **N/A** m/s

Notes: Test 1 - Unable to calculate infiltration rate due to insufficient drop in water level.

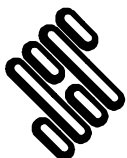
Legend

● Test 1 (27.03.23)

Plan (Not to scale)



No Bearing Taken



STRUCTURAL SOILS
 The Potteries
 Pottery Street
 Castleford
 W. Yorkshire WF10 1NJ

Compiled By

K. Flincher

Date

29/03/23

Checked By

M. Daw

Date

29/03/23

Contract

Dixon Academy, Wythenshawe

Contract Ref:

785391

Appendix E – Flood Maps for Planning

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
380870/387490

Created
4 Apr 2023 11:58

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following:**

- bigger than 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

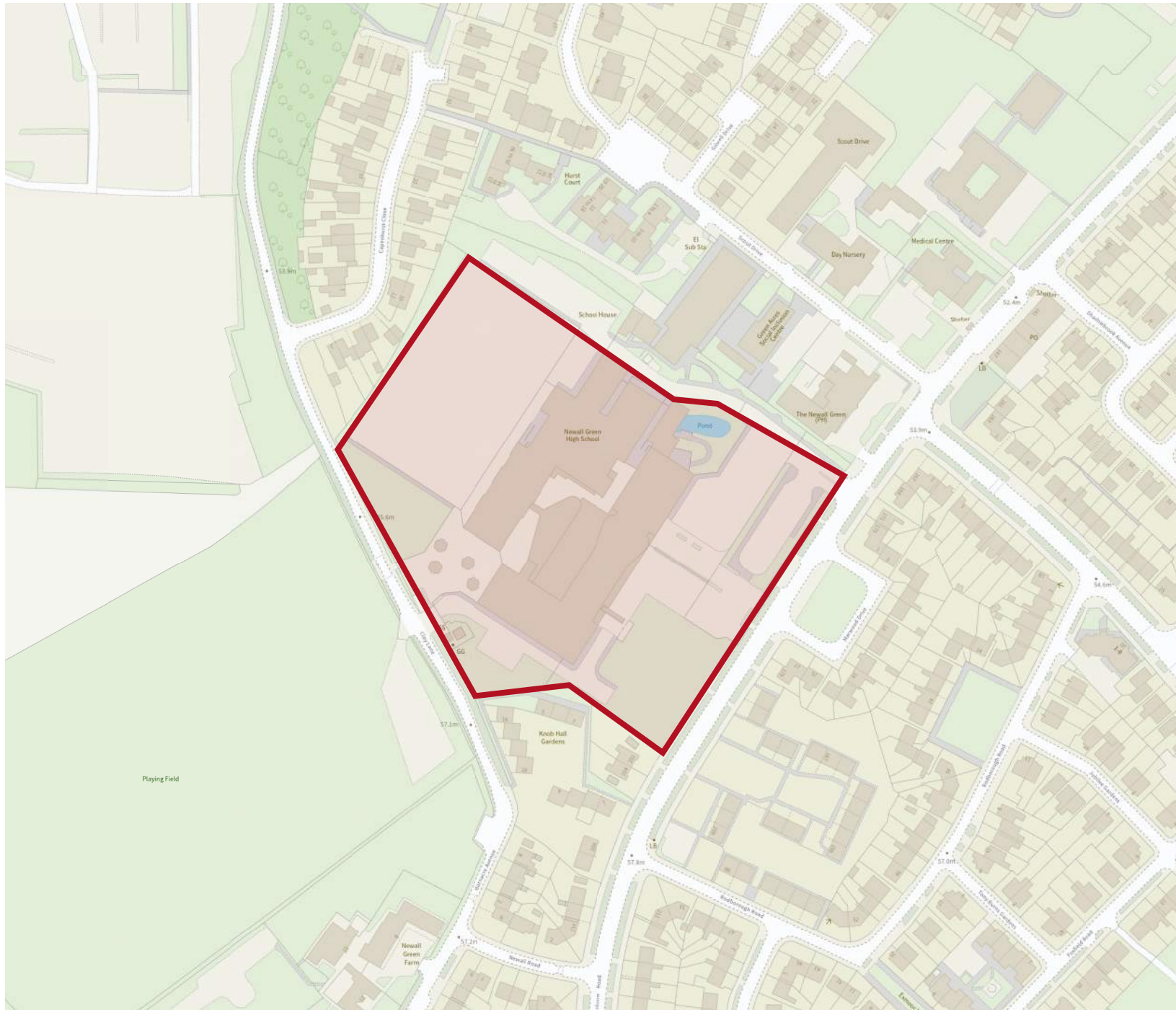
Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence **which** sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2022 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>



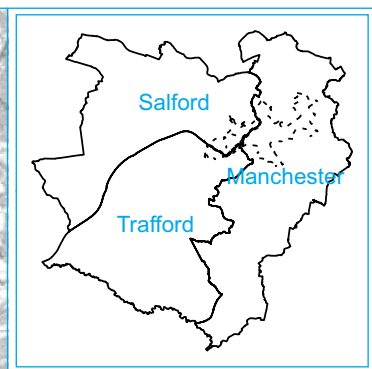
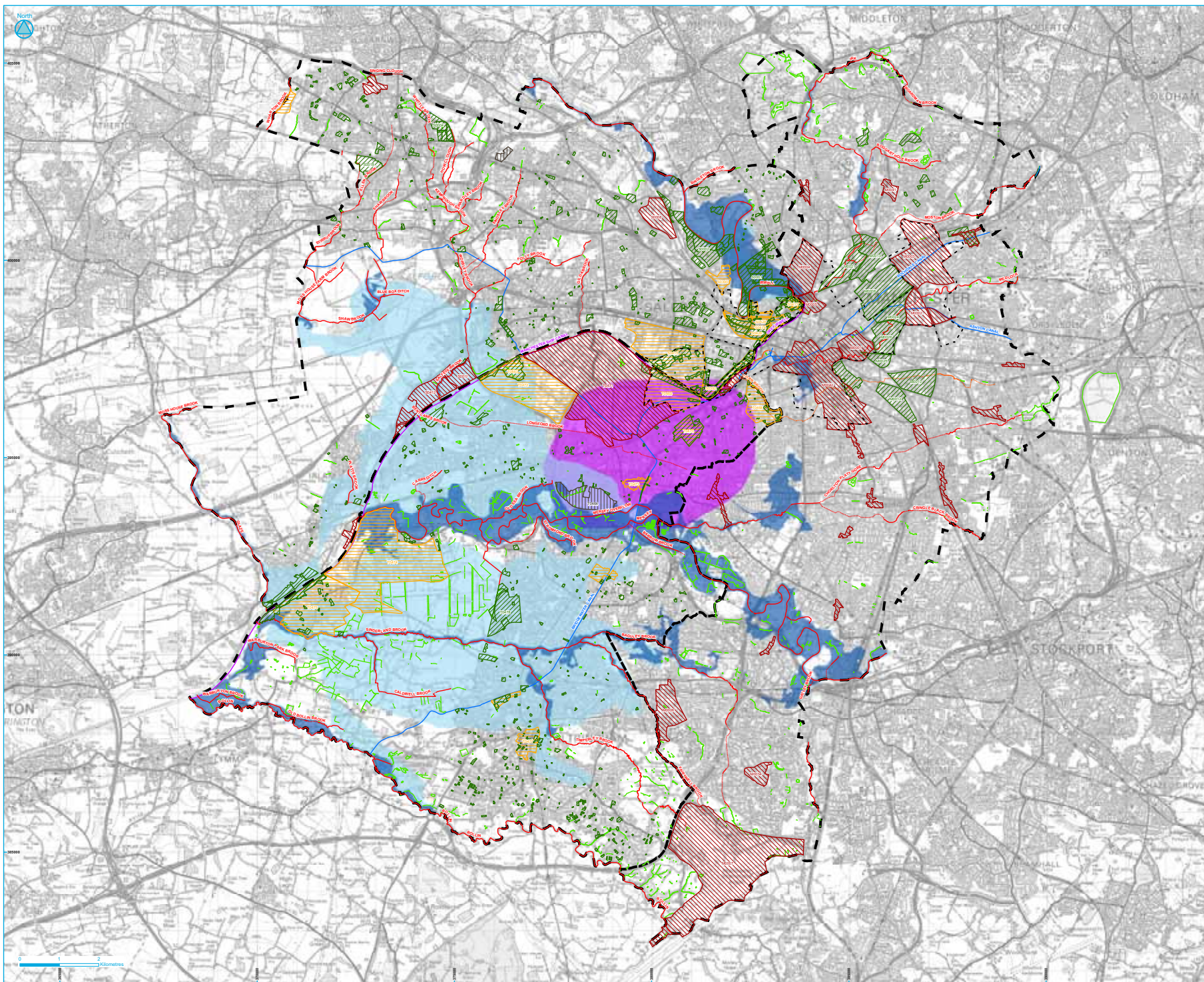
<Unspecified>

380870/387490

1:2500

4 Apr 2023 11:58

Appendix F – MCC Groundwater Flood Map.



- Council Boundary**
- Groundwater Issue**
 - Areas at risk of GW Flooding
 - Areas of shallow GW
 - Areas at risk of GW rebound
- Potential Development Sites / Locations**
 - Employment
 - Housing
 - Mixed Use
 - Other
- Regional Centre Boundary**
- Main Rivers (V8.0)**
 - Culverted
 - Open
- Ashton, Bridgewater and Rochdale Canals**
- Manchester Ship Canal / Grey Inwell**
- Other Waterbodies**
- Digitised River Lines**
 - Culverted
 - Open

The map has been produced in accordance with PPS25: Development and Flood Risk and its Practice Guide. This map shows areas that are potentially at risk from groundwater flooding and should be used to scope suitable mitigation measures in a site specific Flood Risk Assessment.

The Main River information shown in the SFRA is provided by the Environment Agency; the centreline data may deviate from that shown on basemapping due to inherent differences in data resolution. Further information on Main Rivers is provided on the Environment Agency's website. The mapping of culverted sections of watercourse is a strategic screening only based upon Ordnance Survey 1:10,000 mapping and should be confirmed for more detailed studies such as site specific Flood Risk Assessment. The canals layer does not necessarily cover all the canal arms, but the modelled overlapping/breaching and hydraulic interactions with rivers and other waterbodies is complete and accurate as appropriate for a Strategic Flood Risk Assessment.

The information on the map is based on Environment Agency potential groundwater rebound areas, data from the Coal Authority, BGS drift geology mapping and Defra Groundwater Emergence Maps.

The River Inwell between Victoria Station and Pomona Island is not shown as a Main River on the Environment Agency's Flood Map although Flood Zones related to the river are. The same approach has been taken in this SFRA.



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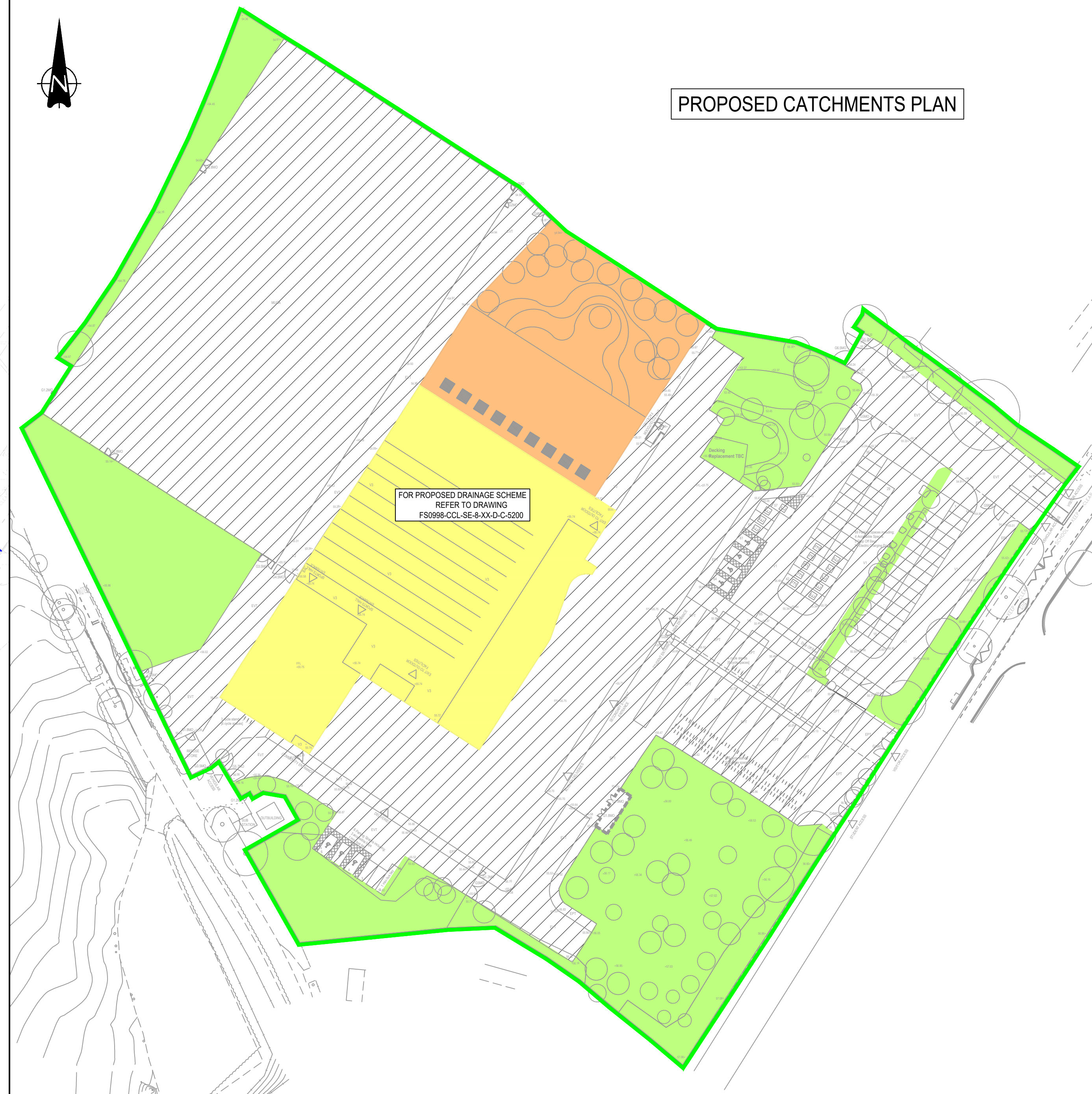
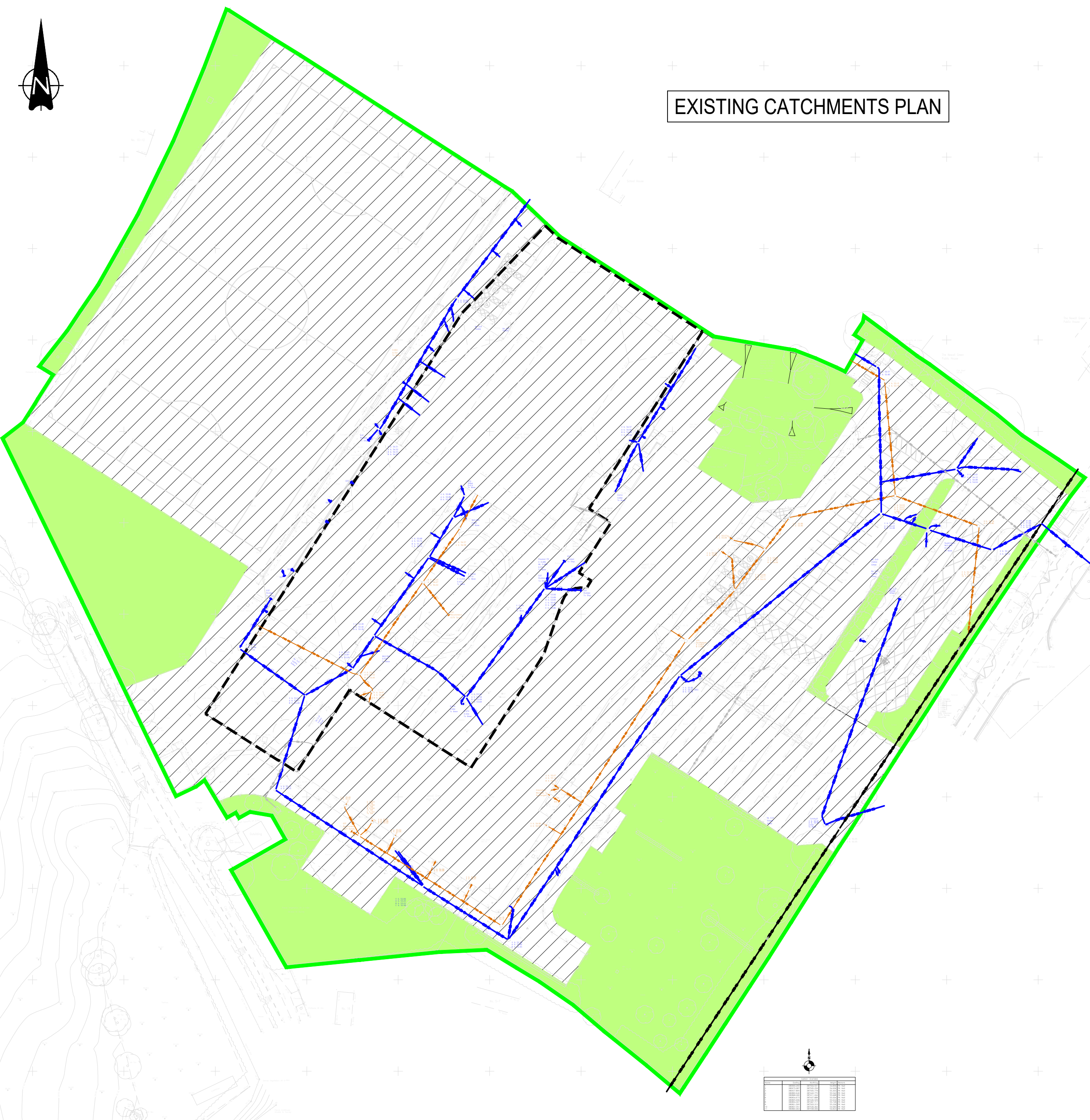
for

Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA

Groundwater Flooding

Drawn by: J. Cheatham	Date: 08/03/2011	This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of the Map's Stationery Office. Crown Copyright. See Ordnance Survey's website for details of its copyright. Licence number: 100010088-2011
Checked by: J. Dimelow	Date: 01/02/2011	
Approved by: J. Cooper	Date: 01/02/2011	
File Name: \\ArcView\Mapping\Level1\MS1_Groundwater\Flooding_v1.3.mxd		
Drawing Number: GW_2.1	Status: FINAL	Scale: 1:45,000

Appendix G – Drainage Drawings.



KEY:

SITE BOUNDARY = 0.3ha

EXISTING HARD STANDING AREA POSITIVELY DRAINING TO PRIVATE SW SYSTEM = 2.23ha

EXISTING SOFT LANDSCAPING AREA TO REMAIN = 0.67ha

EXISTING HARD STANDING EXTENT TO BE REMOVED AND/OR RESTRICTED TO NEW FLOWS AS PART OF DEVELOPMENT PROPOSALS = 0.59ha

EXISTING SW PRIVATE DRAINAGE

EXISTING FW PRIVATE DRAINAGE

EXISTING PUBLIC COMBINED SEWER

Pre-development Discharge Rate				
Site Makeup	Brownfield	Time of Concentration (mins)	5.00	
Brownfield Method	MRM	Betterment (%)	0	
Contributing Area (ha)	0.590	Q 1 year (l/s)	99.5	
PIMP (%)	100	Q 30 year (l/s)	232.2	
CV	1.000	Q 100 year (l/s)	292.6	

KEY:

SITE BOUNDARY = 0.3ha

EXISTING HARD STANDING AREA POSITIVELY DRAINING TO PRIVATE SW SYSTEM TO REMAIN = 2.23ha

EXISTING SOFT LANDSCAPING AREA TO REMAIN = 0.67ha

PROPOSED HARD STANDING AREA TO BE RESTRICTED TO 5 l/s = 0.38ha

PROPOSED LANDSCAPED AREA = 0.21ha

P01	06.04.23	PRELIMINARY	CD	DS	DS
Rev	Date	Description	By	Check	App.

COPYRIGHT: THE COPYRIGHT OF THIS DRAWING IS VESTED IN CLANCY CONSULTING. IT SHALL NOT BE USED WITHOUT PERMISSION BY ANYONE FOR ANY PURPOSE. DO NOT SCALE THIS DRAWING ELECTRONICALLY OR MANUALLY. WORK TO FIGURED DIMENSIONS ONLY. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE. DO NOT TURN ON LAYERS THAT HAVE BEEN TURNED OFF. DO NOT THAW LAYERS THAT HAVE BEEN FROZEN. DRAWING MUST BE PRINTED IN BLACK AND WHITE ONLY.

Client	MORGAN SINDALL CONSTRUCTION
Project	DIXON NEWALL GREEN ACADEMY
Office	ALTRINCHAM
Discipline	CIVIL
Title	CATCHMENTS PLAN

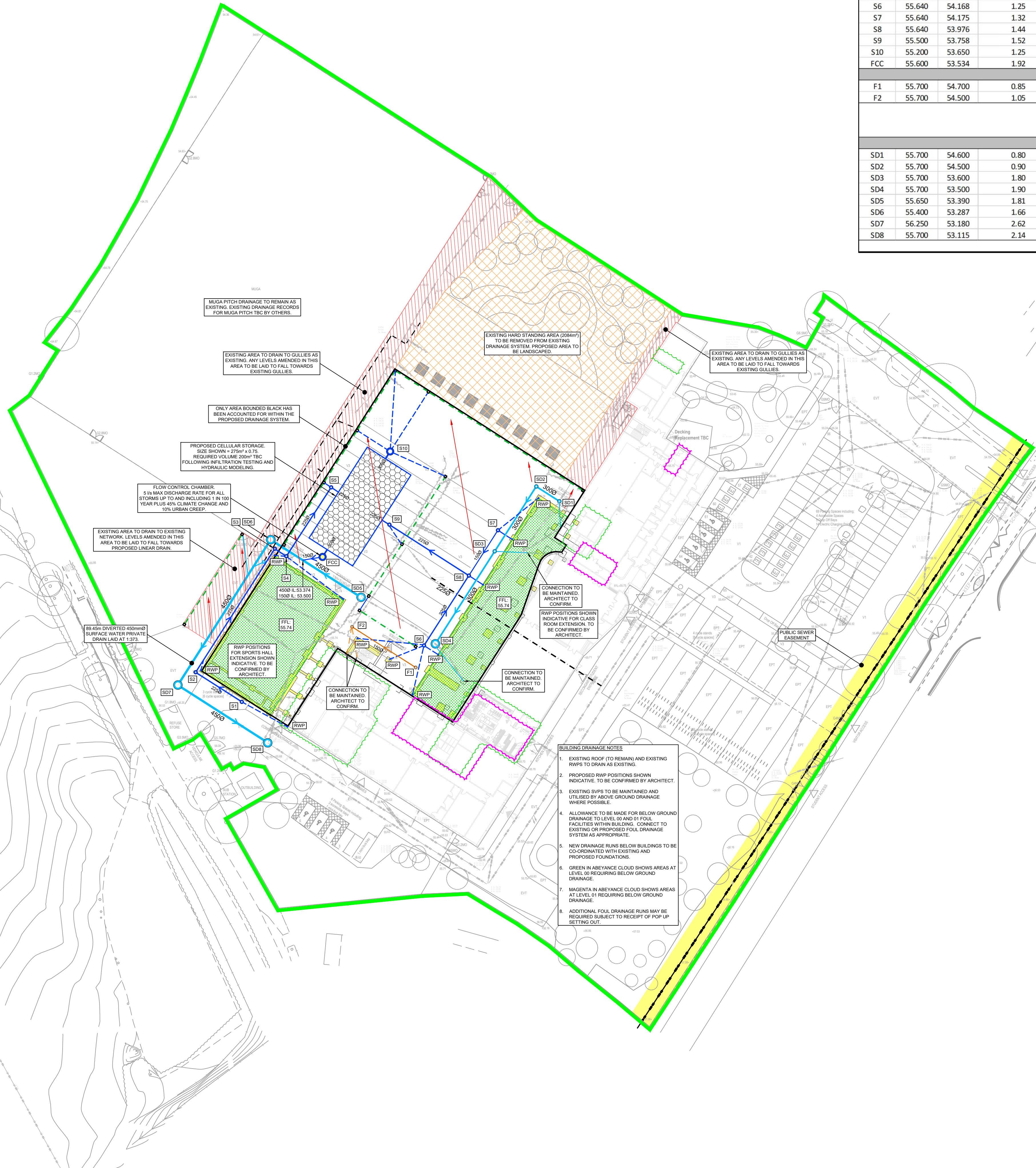
Scale @ A1	1:750	Status	PRELIMINARY
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Job Number	Originator	Building/Zone	Level
FS0998	CCL	SE-8	XX
Type	Discipline	Drawing No.	Revision
D	C	5202	P01

- DRAWINGS BASED ON THE FOLLOWING INFORMATION
- TOPOGRAPHICAL SURVEY - 14692-TOPO-2D
 - FS0998-AME-XX-XX-D-Y-003-UND-UTILITIES-503
 - SITE LAYOUT - FS0998-IBA-A-14-XX-D-L-7010 & 7011



MANHOLE SCHEDULE															
MH REF	CL (mAOD)	IL (mAOD)	DEPTH TO SOFFIT (m)	DS PIPE DIA (m)	MH DIA (mm)	MH TYPE	COVER SIZE (mm)	COVER CLASS	RECESSED	RESTRICTED ACCESS	BACK DROP		COMMENTS	EASTING	NORTHING
SURFACE WATER															
S1	55.910	54.877	0.81	0.225	600	PPIC	600X600	D400	N	N	N			TBC AT ST5	TBC AT ST5
S2	56.030	54.740	1.07	0.225	600	PPIC	600X600	D400	N	Y	N			TBC AT ST5	TBC AT ST5
S3	55.480	54.410	0.85	0.225	600	PPIC	600X600	D400	N	N	N			TBC AT ST5	TBC AT ST5
S4	55.740	54.378	1.14	0.225	600	PPIC	600X600	D400	N	Y	N			TBC AT ST5	TBC AT ST5
S5	55.300	54.188	0.89	0.225	600	PPIC	600X600	D400	N	N	N		CATCHPIT TYPE	TBC AT ST5	TBC AT ST5
S6	55.640	54.168	1.25	0.225	600	PPIC	600X600	D400	N	Y	N			TBC AT ST5	TBC AT ST5
S7	55.640	54.175	1.32	0.150	600	PPIC	600X600	D400	N	Y	N			TBC AT ST5	TBC AT ST5
S8	55.640	53.976	1.44	0.225	600	PPIC	600X600	D400	N	Y	N			TBC AT ST5	TBC AT ST5
S9	55.500	53.758	1.52	0.225	600	PPIC	600X600	D400	N	Y	N		CATCHPIT TYPE	TBC AT ST5	TBC AT ST5
S10	55.200	53.650	1.25	0.300	1500	PCC	1200X600	D400	N	N	N		CATCHPIT TYPE	TBC AT ST5	TBC AT ST5
FCC	55.600	53.534	1.92	0.150	1200	PCC	600X600	D400	N	N	N		FLOW CONTROL CHAMBER	TBC AT ST5	TBC AT ST5
FOUL WATER															
F1	55.700	54.700	0.85	0.15	450	PPIC	450X450	D400	N	Y	N		NON ENTRY	TBC AT ST5	TBC AT ST5
F2	55.700	54.500	1.05	0.15	450	PPIC	450X450	D400	N	Y	N		NON ENTRY	TBC AT ST5	TBC AT ST5
POTENTIALLY MORE FOUL WATER CHAMBERS REQUIRED SUBJECT TO RECEIPT OF CO-ORDINATED MEP AND ARCHITECT POP UP POSITIONS.															
DIVERTED SURFACE WATER															
SD1	55.700	54.600	0.80	0.300	600	PPIC	600X600	D400	N	Y	N			TBC AT ST5	TBC AT ST5
SD2	55.700	54.500	0.90	0.300	600	PPIC	600X600	D400	N	Y	N			TBC AT ST5	TBC AT ST5
SD3	55.700	53.600	1.80	0.300	600	PPIC	600X600	D400	N	N	N			TBC AT ST5	TBC AT ST5
SD4	55.700	53.500	1.90	0.300	1500	PCC	600X600	D400	N	N	N			TBC AT ST5	TBC AT ST5
SD5	55.650	53.390	1.81	0.450	1500	PCC	600X600	D400	N	N	N			TBC AT ST5	TBC AT ST5
SD6	55.400	53.287	1.66	0.450	1500	PCC	600X600	D400	N	N	N			TBC AT ST5	TBC AT ST5
SD7	56.250	53.180	2.62	0.450	1500	PCC	600X600	D400	N	N	N			TBC AT ST5	TBC AT ST5
SD8	55.700	53.115	2.14	0.450	1500	PCC	600X600	D400	N	N	N			TBC AT ST5	TBC AT ST5
NON ENTRY - REDUCER CAP REQUIRED AND FITTED TO SHAFT, PPIC - POLYPROPYLENE INSPECTION CHAMBER, CP - CATCH PIT TYPE, PCC - PRECAST CONCRETE.															

GENERAL NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
- ALL ADAPTABLE DRAINAGE WORKS INCLUDING WORKS TO EXISTING PUBLIC SEWERS TO BE UNDERTAKEN IN ACCORDANCE WITH 'SEWERS FOR ADOPTION 7th EDITION' AND 'CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7th EDITION' AND CONSTRUCTED TO THE RELEVANT STATUTORY UNDERTAKERS DETAILS.
- ALL PRIVATE DRAINAGE WORKS TO BE IN ACCORDANCE WITH 'CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7th EDITION', BS EN 752 2017 'DRAIN AND SEWER SYSTEMS OUTSIDE BUILDINGS' AND THE BUILDING REGULATIONS APPROVED DOCUMENT 'H'.
- DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
- DESIGN BASED ON TOPOGRAPHICAL SURVEY AND INFORMATION AVAILABLE AT THE TIME OF THE DESIGN.
- OUTFALL CONNECTION(S) SUBJECT TO AGREEMENT WITH THE APPROVING AUTHORITY.
- ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
- COVER LEVELS, GULLY POSITIONS, AND BUILDINGS LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT / LANDSCAPE ARCHITECT. CONTRACTOR TO ALLOW FOR ADJUSTMENT TO SUIT AGREED POSITIONS AND FINISHED LEVELS, AND CONFIRM ALL COVER LEVELS ON SITE.
- ALL BELOW SLAB DRAINAGE CONNECTIONS SHOWN TO THE PENETRATION POSITIONS ARE INDICATIVE ONLY. REFER TO DIMENSIONED LOCATIONS AND DIAMETERS ON ARCHITECT'S GROUND FLOOR SETTING-OUT PLANS.
- ALL UNDERGROUND FOUL DRAINAGE SHOULD BE SUITABLY VENTED AT OR NEAR TO THE HEAD OF RUNS.
- ALL ACCESS FITTINGS, STACKS, RWPS AND GULLIES TO BE RODDABLE. ALL TO HAVE LOW LEVEL RODDING ACCESS PLATES UNLESS AN ALTERNATIVE MEANS OF ACCESS IS AGREED. ACCESS POINT TO BE ABOVE ANY GROUND FLOOR CONNECTED APPLIANCE SPILL LEVEL.
- LARGE ACCESS FITTING REQUIRED ABOVE GROUND WHERE GREATER THAN 12M UP TO 22M TO A JUNCTION. SMALL ACCESS FITTING REQUIRED UP TO 12M TO A JUNCTION.
- ALL GULLY AND CHANNEL DRAIN OUTLETS AND TERMINATION POINTS TO BE TRAPPED AND RODDABLE. INTERNAL GULLIES AND CHANNEL DRAINS TO BE SPECIFIED BY OTHERS.
- WHERE NO WC'S ARE CONNECTED UPSTREAM, UNDERSLAB FW DRAINAGE TO BE LAID AT 1:40 MIN. AFTER THE CONNECTION AT LEAST 150 WC, A MIN. FALL OF 1:80 APPLIES.
- ALL CONNECTIONS FROM POP-UPS TO BE LAID AT A CONSTANT GRADIENT TO JUNCTION/ INSPECTION CHAMBER/ MANHOLE UNLESS NOTED OTHERWISE. ANY ISSUES RELATING TO CLASHES WITH FOUNDATIONS ARE TO BE FORWARDED TO THE ENGINEER, ALLOWING SUFFICIENT TIME FOR AN ALTERNATIVE SOLUTION TO BE PROPOSED.
- INVERT LEVELS AT MANHOLES/ INSPECTION CHAMBERS TO BE USED TO SET OUT PIPEWORK. PIPE GRADIENTS ARE SHOWN INDICATIVELY ONLY.
- ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS.
- ALL SEWERS, UNLESS AGREED OTHERWISE STATED, SHALL BE:
 - 100mm to 300mm DIA TO BE VITRIFIED CLAY.
 - 375mm DIA AND GREATER TO BE CLASS 120 CONCRETE PIPES.
- AS AN ALTERNATIVE THE CONTRACTOR MAY USE AN APPROVED UNPLASTICISED POLYVINYL CHLORIDE (PVCU) WITH APPROVAL FROM THE ENGINEER.
- SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS.
- THE FIRST PIPE OUT OF MANHOLES TO BE AS SHORT AS PRACTICABLE SO AS TO PROVIDE A FLEXIBLE JOINT AS CLOSE AS POSSIBLE TO THE OUTSIDE FACE OF THE CONCRETE SURROUND AND CONNECTED TO A LENGTH OF ROCKER PIPE.
- ALL NEW CONNECTIONS INTO EXISTING MANHOLES (OR INTO EXISTING SEWERS) TO BE SOFFITS LEVEL UNLESS OTHERWISE NOTED.
- ALL ADAPTABLE DRAINAGE PIPES WILL REQUIRE A MINIMUM OF 1200mm COVER, IN ACCORDANCE WITH SEWERAGE UNDERTAKERS REQUIREMENTS, WHERE THIS IS NOT ACHIEVED, IT WILL BE NECESSARY TO AGREE THE BED AND SURROUND DETAIL.
- ALL PRIVATE DRAINAGE PIPES WITH A COVER OF LESS THAN 600mm IN NON-TRAFFICKED AREAS AND LESS THAN 1200mm IN TRAFFICKED AREAS TO BE BEDDED AND SURROUNDED IN CONCRETE (CLASS Z), COMPRESSIBLE MATERIAL SHALL BE PROVIDED AT EVERY PIPE JOINT. WHERE COVER EXCEEDS THIS DEPTH, PIPES ARE TYPICALLY BEDDED AND SURROUNDED IN CLASS S. REFER TO PIPE EMBEDMENT DETAILS DRAWING FOR SPECIFIC TYPES.
- WHERE DRAINAGE PIPES ARE LESS THAN 300mm BELOW THE UNDERSIDE OF THE GROUND FLOOR SLAB, CONCRETE ENCASEMENT IS REQUIRED (CLASS Z), COMPRESSIBLE JOINTS ARE TO BE PROVIDED AT EVERY PIPE JOINT WITHIN THE CONCRETE.
- WHERE PIPES ARE MORE THAN 300mm BELOW THE UNDERSIDE OF THE SLAB, CLASS S BEDDING IS ACCEPTABLE.
- SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED TO PROVE THAT SUCH PRECAUTIONS ARE NOT REQUIRED.
- WHERE FOUL SEWERS RUN ABOVE SURFACE SEWERS, CONCRETE PROTECTION MAY BE REQUIRED AT CROSSOVERS TO PREVENT ANY POTENTIAL CONTAMINATION.
- ALL CONNECTIONS PASSING THROUGH BASES OR EDGE BEAMS TO BE IN SEALED SLEEVES. ALTERNATIVELY CONNECTIONS MAY BE CAST-IN WITH FLEXIBLE JOINTS NOT GREATER THAN 150MM FROM FACE OF CONCRETE.
- THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION MAY NEED TO BE INCREASED TO ACCOMMODATE THE CONNECTIONS AND BENDS.

- ALL MANHOLE COVERS IN BLOCKS/SLAB AND EXTERNAL PAVING AREAS TO HAVE RECESSED COVERS OF THE APPROPRIATE GRADE TO ACCEPT ARCHITECT'S PAVING PROPOSAL.
- UNLESS NOTED OTHERWISE IN THE MANHOLE SCHEDULE, ALL MANHOLE, GULLY AND CHANNEL COVERS (IRONWORK) SHOULD BE THE FOLLOWING SPECIFICATION:
 - B125 LOAD CLASS IN PEDESTRIAN AREAS
 - D400 LOAD CLASS IN VEHICULAR AREAS.
- ALL PROPRIETARY PRODUCTS TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS, INSTRUCTIONS AND RECOMMENDATIONS.
- GREASE TRAPS SHOULD BE PROVIDED ABOVE GROUND WITHIN AN ENZYME TREATMENT SYSTEM, BY APPROPRIATE SPECIALIST DESIGNER, WHERE A BELOW GROUND GREASE TREATMENT SYSTEM IS REQUIRED - ADDITIONAL NOTES REQUIRED AND DESIGN ADJUSTED TO SUIT.
- DILUTION TRAPS TO BE PROVIDED WITHIN ABOVE GROUND DESIGNS TBC BY MEP.
- CONNECTIONS OUT OF LINEAR DRAINS TO MATCH SIZE OF CHANNEL UNO. LINEAR CHANNEL SIZES TBC.
- PIPE NUMBERS REFERENCE ON SURFACE WATER PIPE RUNS TO BE READ IN CONJUNCTION WITH THE SURFACE WATER HYDRAULIC CALCULATIONS.

DESIGN PHILOSOPHY

SURFACE WATER DESIGN
THE DESIGN PROVIDES CAPACITY UP TO THE 100 YEAR 45% CLIMATE CHANGE EVENT AND 10% FOR URBAN CREEP.
SW FLOW RATE: 5 l/s APPROXIMATE STORAGE REQUIREMENT: 200m³
OUTFALL: PUBLIC SEWER (TO BE AGREED WITH UU AND LLFA)
LEVELS INDICATE THAT PUMPING MAY NOT BE REQUIRED.
POLLUTION TREATMENT: NOT REQUIRED
SUSTAINABLE DRAINAGE: GREEN ROOF, BELOW GROUND STORAGE, FLOW CONTROLS, LANDSCAPING, PERMEABLE MUGA PITCH.
INFILTRATION TESTING TO BRE DIGEST 365 TO CONFIRM INFILTRATION FEASIBILITY. DESIGN BASED ON CONNECTING TO PUBLIC SEWER (TO BE AGREED WITH LLFA AND UU).

FOUL WATER DESIGN
FW PEAK FLOW RATE: TBC 1/s
OUTFALL: PUBLIC SEWER (TO BE AGREED WITH UU)
LEVELS INDICATE THAT PUMPING IS NOT BE REQUIRED.

KEY:

SITE BOUNDARY	
EXISTING PUBLIC COMBINED SEWER	
EXISTING PRIVATE FOUL	
EXISTING PRIVATE SURFACE	
EXISTING PRIVATE COMBINED	
EXISTING PRIVATE SURFACE (ASSUMED)	
EXISTING PRIVATE FOUL (ASSUMED)	
EXISTING BGD TO BE ABANDONED	
PROPOSED DIVERTED SURFACE BGD	
PROPOSED DIVERTED FOUL BGD	
PROPOSED SURFACE WATER BGD	
PROPOSED FOUL WATER BGD	
PROPOSED RAIN WATER PIPE AND CONNECTION. 150mm TBC.	
PROPOSED LINEAR CHANNEL AND CONNECTION. 225mm TBC.	
PROPOSED GROUND FALL ARROWS	
PROPOSED FLOW CONTROL	
PROPOSED CELLULAR STORAGE	
PROPOSED GREEN ROOF	
PROPOSED LANDSCAPED AREA	
AREA ADJACENT TO WORKS, TO DRAIN AS EXISTING	

DISCHARGE OF SURFACE WATER VIA INFILTRATION TBC. GROUND WATER LEVELS TBC.

DRAINAGE DESIGN SUBJECT TO APPROVAL FROM THE LEAD LOCAL FLOOD AUTHORITY AND UNITED UTILITIES.

P01	24.03.23	PRELIMINARY	CD	DS
Rev	Date	Description	By	Check App.

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Client	MORGAN SINDALL CONSTRUCTION
Project	DIXON NEWALL GREEN ACADEMY
Office	ALTRINCHAM
Discipline	CIVIL
Title	DRAINAGE LAYOUT

Scale @ A1	1:500	Status	PRELIMINARY
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Job Number	Originator	Building/Zone	Level
FS0998	CCL	SE-8	XX
Type	Discipline	Drawing No.	Revision
D	C	5200	P01

DRAWINGS BASED ON THE FOLLOWING INFORMATION

- TOPOGRAPHICAL SURVEY - 14692-TOPO-2D
- GPR SURVEY - 14692-TUG
- UNITED UTILITIES SEWER RECORDS
- SITE LAYOUT - FS0998-IB-A-14-XX-D-L-7010 & 7011
- BUILDING LAYOUT 00 - FS0998-IB-A-2-00-D-A-0001
- BUILDING LAYOUT 01 - FS0998-IB-A-2-01-D-A-0001
- FOUNDATIONS - FS0998-CCL-SS-XX-D-S-3001 & 3002
- MEP INFO - AWAITING

Appendix H – Correspondence.

Carl Dawson

From: Carl Dawson
Sent: 04 April 2023 14:14
To: Flood Risk Management
Subject: [CCL: 1-21554] Dixon (New Green) Academy, Newall.

Importance: High

Categories: Scanned by Gekko

Hi,

Please find attached Pre-development enquiry and see link to supporting documents below, for the above scheme. Please download within 7 days.

<https://we.tl/t-uCMO5UiDJm>

Scheme summary

Dixon (New Green) Academy is proposing extensions and external works to an existing school site that is currently unoccupied. The site currently discharges both foul and surface water flows into the public combined sewer in Greenbrow Road.

The scheme proposals include demolition of existing school buildings, 2 x new extensions to the rear of the school to remain, external play areas and soft landscape areas.

The existing discharge rate from the proposed development area is 68 l/s in the 1-year peak flow event (0.5ha).

Discharge SW flows to ground using infiltration techniques has been considered however following receipt of infiltration testing this has been proved not a viable option.

We are proposing a discharge rate of 34 l/s, 50% reduction on the 1-year peak flow rate, for all storms up to and including 1 in 100 year plus climate change. This would connect to existing public combined sewer in Greenbrow Road, via the existing SW drainage system to match the existing scenario.

It is worth noting that there are no watercourses or surface water sewers in the vicinity of the site.

Please can you review the attached and provide approval in principle of the above discharge rate?

I've also included United Utilities PDE (for information only) and their response accepting the proposed **34 l/s** discharge rate.

Look forward to our response.

Kind regards
Carl Dawson

Carl Dawson

From: wastewaterdeveloperservices@uuplc.co.uk
Sent: 01 March 2023 08:22
To: Carl Dawson
Subject: RE: Our reference - 03629709 Dixon (New Green) Academy

Good morning Carl,

Pre Development Enquiry for: Dixon Academy School Greenbrow Rd, Manchester M23 2SX UU **Reference Number : 03629709**

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 6723 723 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 525mm diameter public combined sewer located to the east of your proposed development at an unrestricted rate. It is understood the existing connection is to be utilised which is acceptable in principle, please ensure the private sewers are in good condition. Please ensure the proposed building levels are higher than the receiving sewer cover levels.

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.

In accordance with our infrastructure plans we may ask you to change your point of connection. Therefore please contact us when you are ready to formalise your drainage proposals, we would suggest before you submit for Full Planning.

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.

Waterbody

It is understood that there are no chartered watercourse within the vicinity of the site.

Highway Drainage

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you investigate the possibility of draining surface water to the highway drain where this ultimately discharges to a watercourse, by contacting the relevant Highway Authority.

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 525mm diameter public combined sewer 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 34l/s. Please could you provide evidence for

the existing surface water connection to the sewer and ensure the existing connection you intend to reuse is in good condition. Is there a new proposed sport pitch please could you confirm?

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 Wastewater Assets Crossing the Site

According to our public sewer records there are public sewers located within your site boundary. We will require unrestricted access to the sewer for maintenance purposes, we would ask that you maintain a minimum clearance of 6m which is measured 3m from the centre line of the pipe unless there happens to be a formal easement agreement in place, in which case the specified easement width would apply. If you cannot achieve this then you may wish to consider diverting and or abandoning the public sewer.

Please be aware that any proposed diversion may require modelling. This process may take up to 6 months in order to reach an acceptable design.

Please refer to the link below to obtain full details of the processes involved with sewer diversions:

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

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/wastewater-services/sewer-connections/sewer-connection/>

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,

Shoaib.



Shoaib Tauqeer
Developer Engineer
Developer Services & Metering
M: 07876745601
unitedutilities.com

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----- Original Message -----

From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]

Sent: 16/02/2023 11:50

To: carl.dawson@clancy.co.uk

Subject: Our reference - 03629709 Dixon (New Green) Academy



Good Morning Carl

PRE DEVELOPMENT APPLICATION AT: Dixon (New Green) Academy
UU Ref: 03629709

Please accept this email as receipt of your application received on 15/02/2023 for the above development. This has now been logged on our system and the job reference is 03629709 we would ask that you quote this reference in all future correspondence.

I have reviewed your application (and attachments) and can confirm this is suitable to be passed to Shoaib Tauqeer for technical assessment. You will receive their response within 8 working days.

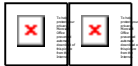
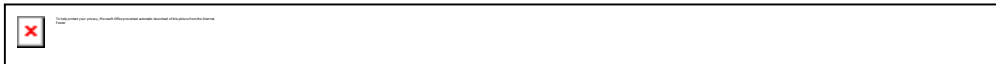
Kind regards



Amanda Harding
Customer Advisor Advanced
Developer Services & Metering
Customer Services
Direct Tel: 01925 233186
Tel: 0345 072 6067
unitedutilities.com

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Carl Dawson

From: Carl Dawson
Sent: 15 February 2023 19:35
To: Wastewater Developer Services
Cc: Daniel Singh
Subject: [CCL: 1-21554] Dixon (New Green) Academy, Newall.
Attachments: Wastewater PDE - Dixon (New Green) Academy.pdf

Categories: Scanned by Gekko

Hi,

Please find attached Predevelopment enquiry and see link to supporting documents, for the above scheme. Please download within 7 days.

<https://we.tl/t-yDu2OggMCv>

Scheme summary

Dixon (New Green) Academy is a proposed school on an existing school site that is currently unoccupied. The site currently discharges both foul and surface water flows into the public combined sewer in Greenbrow Road.

The scheme proposals include demolition of existing school buildings, 2 x new extensions to the rear of the school to remain, external play areas and soft landscape areas.

The existing discharge rate from the proposed development area is 68 l/s in the 1-year peak flow event (0.5ha).

The proposal is to discharge SW flows to ground using infiltration techniques, however this is subject to testing.

Subject to infiltration testing results, we are proposing a discharge rate of 34 l/s, 50% reduction on the 1-year peak flow rate, for all storms up to and including 1 in 100 year plus climate change. This would connect to existing public combined sewer in Greenbrow Road, via the existing SW drainage system to match the existing scenario.

It is worth noting that there are no watercourses or surface water sewers in the vicinity of the site.

Please can you review the attached and provide approval in principle of the above discharge rate, subject to infiltration testing or course?

Kind regards
Carl Dawson

Appendix I – Flood Exceedance Plan.



KEY:
OVERLAND FLOW ROUTE
SITE OWNERSHIP



P01	24.03.23	PRELIMINARY	CD	DS	DS
Rev	Date	Description	By	Check	App.

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DO NOT TWEAK LAYERS THAT HAVE BEEN FROZEN.
DRAWING MUST BE PRINTED IN BLACK AND WHITE ONLY.

Client	MORGAN SINDALL CONSTRUCTION
Project	DIXON NEWALL GREEN ACADEMY
Office	ALTRINCHAM
Discipline	CIVIL
Title	OVERLAND FLOW PLAN

Scale @ A1	NTS	Status	PRELIMINARY
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Job Number	Originator	Building/Zone	Level
FS0998	CCL	SE-8	XX
Type	Discipline	Drawing No.	Revision
D	C	5203	P01

DRAWINGS BASED ON THE FOLLOWING INFORMATION
• TOPOGRAPHICAL SURVEY - 14692-TOPO-2D
• SITE LAYOUT - FS0998-IBI-A-14-XX-D-L-7010 & 7011

Appendix J – Calculations.

Calculated by:

Site name:

Site location:

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:

Longitude:

Reference:

Date:

Runoff estimation approach

Site characteristics

Total site area (ha):

Methodology

Q_{BAR} estimation method:

SPR estimation method:

Soil characteristics

Default

Edited

SOIL type:

HOST class:

SPR/SPRHOST:

Hydrological characteristics

Default

Edited

SAAR (mm):

Hydrological region:

Growth curve factor 1 year:

Growth curve factor 30 years:

Growth curve factor 100 years:

Growth curve factor 200 years:

Notes

(1) Is $Q_{BAR} < 2.0$ l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is $SPR/SPRHOST \leq 0.3$?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates	Default	Edited
Q _{BAR} (l/s):	1.3	1.3
1 in 1 year (l/s):	1.13	1.13
1 in 30 years (l/s):	2.21	2.21
1 in 100 year (l/s):	2.7	2.7
1 in 200 years (l/s):	3.08	3.08

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	1	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.019	5.00	55.910	600	380807.153	387451.038	1.033
S2	0.019	5.00	56.030	600	380796.467	387457.888	1.280
S3	0.000		55.480	600	380814.798	387486.481	1.070
S4	0.033	5.00	55.740	600	380817.446	387484.736	1.362
S5	0.034	5.00	55.300	600	380827.824	387500.686	1.112
S6	0.037	5.00	55.640	600	380849.314	387464.080	1.472
S7	0.022	5.00	55.640	600	380866.428	387490.764	1.465
S8	0.000		55.640	600	380859.694	387480.264	1.664
S9	0.053	5.00	55.500	600	380841.312	387492.055	1.742
S10	0.168	5.00	55.200	1200	380841.487	387509.000	1.550
TANK	0.000		55.400	1200	380833.732	387496.906	1.807
FCC	0.000		55.600	1200	380825.835	387484.587	2.066
OF	0.000		55.700		380821.249	387483.851	2.200

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S1	S2	12.693	0.600	54.877	54.750	0.127	100.0	225	5.16	46.0
1.001	S2	S3	33.964	0.600	54.750	54.410	0.340	100.0	225	5.59	44.4
1.002	S3	S4	3.171	0.600	54.410	54.378	0.032	100.0	225	5.64	44.2
1.003	S4	S5	19.029	0.600	54.378	54.188	0.190	100.0	225	5.88	43.4
1.004	S5	TANK	7.014	0.600	54.188	54.118	0.070	100.0	225	5.97	43.1
2.000	S6	S8	19.227	0.600	54.168	53.976	0.192	100.0	225	5.25	45.7
3.000	S7	S8	12.474	0.600	54.175	54.050	0.125	100.0	150	5.21	45.8

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.307	52.0	2.4	0.808	1.055	0.019	0.0	33	0.672
1.001	1.307	52.0	4.6	1.055	0.845	0.038	0.0	45	0.814
1.002	1.307	52.0	4.6	0.845	1.137	0.038	0.0	44	0.805
1.003	1.307	52.0	8.4	1.137	0.887	0.071	0.0	61	0.967
1.004	1.307	52.0	12.3	0.887	1.057	0.105	0.0	74	1.074
2.000	1.307	52.0	4.6	1.247	1.439	0.037	0.0	45	0.814
3.000	1.005	17.8	2.7	1.315	1.440	0.022	0.0	40	0.727

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
2.001	S8	S9	21.839	0.600	53.976	53.758	0.218	100.0	225	5.52	44.7
2.002	S9	TANK	8.999	0.600	53.758	53.668	0.090	100.0	225	5.64	44.2
4.000	S10	TANK	14.367	0.600	53.650	53.593	0.057	250.0	300	5.24	45.7
1.005	TANK	FCC	14.633	0.600	53.593	53.534	0.059	250.0	300	6.21	42.3
1.006	FCC	OF	4.645	0.600	53.534	53.500	0.034	136.6	300	6.27	42.1

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
2.001	1.307	52.0	7.1	1.439	1.517	0.059	0.0	56	0.920
2.002	1.307	52.0	13.4	1.517	1.507	0.112	0.0	78	1.100
4.000	0.990	70.0	20.8	1.250	1.507	0.168	0.0	112	0.865
1.005	0.990	70.0	44.1	1.507	1.766	0.385	0.0	173	1.045
1.006	1.343	94.9	43.9	1.766	1.900	0.385	0.0	143	1.318

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	12.693	100.0	225	Circular	55.910	54.877	0.808	56.030	54.750	1.055
1.001	33.964	100.0	225	Circular	56.030	54.750	1.055	55.480	54.410	0.845
1.002	3.171	100.0	225	Circular	55.480	54.410	0.845	55.740	54.378	1.137
1.003	19.029	100.0	225	Circular	55.740	54.378	1.137	55.300	54.188	0.887
1.004	7.014	100.0	225	Circular	55.300	54.188	0.887	55.400	54.118	1.057
2.000	19.227	100.0	225	Circular	55.640	54.168	1.247	55.640	53.976	1.439
3.000	12.474	100.0	150	Circular	55.640	54.175	1.315	55.640	54.050	1.440
2.001	21.839	100.0	225	Circular	55.640	53.976	1.439	55.500	53.758	1.517
2.002	8.999	100.0	225	Circular	55.500	53.758	1.517	55.400	53.668	1.507
4.000	14.367	250.0	300	Circular	55.200	53.650	1.250	55.400	53.593	1.507

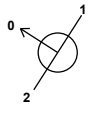
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	600	Manhole	Adoptable	S2	600	Manhole	Adoptable
1.001	S2	600	Manhole	Adoptable	S3	600	Manhole	Adoptable
1.002	S3	600	Manhole	Adoptable	S4	600	Manhole	Adoptable
1.003	S4	600	Manhole	Adoptable	S5	600	Manhole	Adoptable
1.004	S5	600	Manhole	Adoptable	TANK	1200	Manhole	Adoptable
2.000	S6	600	Manhole	Adoptable	S8	600	Manhole	Adoptable
3.000	S7	600	Manhole	Adoptable	S8	600	Manhole	Adoptable
2.001	S8	600	Manhole	Adoptable	S9	600	Manhole	Adoptable
2.002	S9	600	Manhole	Adoptable	TANK	1200	Manhole	Adoptable
4.000	S10	1200	Manhole	Adoptable	TANK	1200	Manhole	Adoptable

Pipeline Schedule

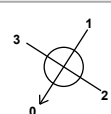
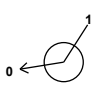
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.005	14.633	250.0	300	Circular	55.400	53.593	1.507	55.600	53.534	1.766
1.006	4.645	136.6	300	Circular	55.600	53.534	1.766	55.700	53.500	1.900

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.005	TANK	1200	Manhole	Adoptable	FCC	1200	Manhole	Adoptable
1.006	FCC	1200	Manhole	Adoptable	OF		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	380807.153	387451.038	55.910	1.033	600				
						0	1.000	54.877	225
S2	380796.467	387457.888	56.030	1.280	600		1	1.000	54.750
						0	1.001	54.750	225
S3	380814.798	387486.481	55.480	1.070	600		1	1.001	54.410
						0	1.002	54.410	225
S4	380817.446	387484.736	55.740	1.362	600		1	1.002	54.378
						0	1.003	54.378	225
S5	380827.824	387500.686	55.300	1.112	600		1	1.003	54.188
						0	1.004	54.188	225
S6	380849.314	387464.080	55.640	1.472	600		0	2.000	54.168
S7	380866.428	387490.764	55.640	1.465	600		0	3.000	54.175
S8	380859.694	387480.264	55.640	1.664	600		1	3.000	54.050
						2	2.000	53.976	225
						0	2.001	53.976	225
S9	380841.312	387492.055	55.500	1.742	600		1	2.001	53.758
						0	2.002	53.758	225
S10	380841.487	387509.000	55.200	1.550	1200		0	4.000	53.650

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
TANK	380833.732	387496.906	55.400	1.807	1200		1 2 3 0	4.000 2.002 1.004 1.005	53.593 53.668 54.118 53.593	300 225 225 300
FCC	380825.835	387484.587	55.600	2.066	1200		1 0	1.005 1.006	53.534 53.534	300 300
OF	380821.249	387483.851	55.700	2.200			1	1.006	53.500	300

Simulation Settings

Rainfall Methodology	FSR	Drain Down Time (mins)	240
FSR Region	England and Wales	Additional Storage (m³/ha)	0.0
M5-60 (mm)	17.000	Check Discharge Rate(s)	✓
Ratio-R	0.400	1 year (l/s)	99.5
Summer CV	0.750	30 year (l/s)	232.2
Winter CV	0.840	100 year (l/s)	292.6
Analysis Speed	Normal	Check Discharge Volume	✓
Skip Steady State	x	100 year 360 minute (m³)	321

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	45	10	0

Pre-development Discharge Rate

Site Makeup	Brownfield	Time of Concentration (mins)	5.00
Brownfield Method	MRM	Betterment (%)	0
Contributing Area (ha)	0.590	Q 1 year (l/s)	99.5
PIMP (%)	100	Q 30 year (l/s)	232.2
CV	1.000	Q 100 year (l/s)	292.6

Pre-development Discharge Volume

Site Makeup	Brownfield	CV	1.000	Betterment (%)	0
Brownfield Method	MRM	Return Period (years)	100	PR	1.000
Contributing Area (ha)	0.590	Climate Change (%)	0	Runoff Volume (m³)	321
PIMP (%)	100	Storm Duration (mins)	360		

Node FCC Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	53.534	Product Number	CTL-SHE-0109-5000-0780-5000
Design Depth (m)	0.780	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Node TANK Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	53.593
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	356

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	275.0	0.0	0.750	275.0	0.0	0.751	0.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.95%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	54.909	0.032	2.3	0.0090	0.0000	OK
15 minute winter	S2	10	54.794	0.044	4.6	0.0124	0.0000	OK
15 minute winter	S3	11	54.461	0.051	4.4	0.0145	0.0000	OK
15 minute winter	S4	11	54.438	0.060	8.1	0.0170	0.0000	OK
15 minute winter	S5	11	54.268	0.080	11.9	0.0227	0.0000	OK
15 minute winter	S6	10	54.212	0.044	4.4	0.0124	0.0000	OK
15 minute winter	S7	10	54.215	0.040	2.6	0.0112	0.0000	OK
15 minute winter	S8	11	54.031	0.055	6.9	0.0155	0.0000	OK
15 minute winter	S9	11	53.840	0.082	13.0	0.0232	0.0000	OK
15 minute winter	S10	6	53.820	0.170	20.0	0.1921	0.0000	OK
120 minute winter	TANK	90	53.688	0.095	14.6	24.9578	0.0000	OK
120 minute winter	FCC	90	53.687	0.153	4.9	0.1732	0.0000	OK
15 minute summer	OF	1	53.500	0.000	4.5	0.0000	0.0000	OK
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	2.3	0.513	0.043	0.0563	
15 minute winter	S2	1.001	S3	4.4	0.738	0.084	0.2072	
15 minute winter	S3	1.002	S4	4.4	0.579	0.085	0.0242	
15 minute winter	S4	1.003	S5	8.1	0.773	0.157	0.2011	
15 minute winter	S5	1.004	TANK	12.0	1.009	0.231	0.0835	
15 minute winter	S6	2.000	S8	4.3	0.680	0.083	0.1229	
15 minute winter	S7	3.000	S8	2.6	0.705	0.144	0.0453	
15 minute winter	S8	2.001	S9	6.8	0.669	0.131	0.2236	
15 minute winter	S9	2.002	TANK	12.9	1.039	0.248	0.1115	
15 minute winter	S10	4.000	TANK	20.1	1.473	0.287	0.2970	
15 minute winter	TANK	1.005	FCC	5.7	0.380	0.081	0.2990	
120 minute winter	FCC	Hydro-Brake®	OF	4.8				39.6

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.95%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	54.927	0.050	5.5	0.0141	0.0000	OK
15 minute winter	S2	10	54.819	0.069	10.9	0.0195	0.0000	OK
15 minute winter	S3	11	54.498	0.088	10.7	0.0250	0.0000	OK
15 minute winter	S4	11	54.478	0.100	19.9	0.0283	0.0000	OK
15 minute winter	S5	11	54.325	0.137	29.5	0.0388	0.0000	OK
15 minute winter	S6	10	54.238	0.070	10.8	0.0199	0.0000	OK
15 minute winter	S7	10	54.240	0.065	6.4	0.0183	0.0000	OK
15 minute winter	S8	10	54.063	0.087	17.0	0.0246	0.0000	OK
15 minute winter	S9	10	53.900	0.142	32.1	0.0401	0.0000	OK
15 minute winter	S10	5	53.876	0.226	48.9	0.2551	0.0000	OK
120 minute winter	TANK	118	53.874	0.281	35.1	73.6050	0.0000	OK
120 minute winter	FCC	118	53.873	0.339	5.3	0.3836	0.0000	SURCHARGED
15 minute summer	OF	1	53.500	0.000	5.0	0.0000	0.0000	OK
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	5.4	0.652	0.105	0.1066	
15 minute winter	S2	1.001	S3	10.7	0.881	0.207	0.4193	
15 minute winter	S3	1.002	S4	10.8	0.686	0.207	0.0500	
15 minute winter	S4	1.003	S5	19.9	0.938	0.383	0.4032	
15 minute winter	S5	1.004	TANK	29.4	1.255	0.566	0.1644	
15 minute winter	S6	2.000	S8	10.7	0.864	0.205	0.2379	
15 minute winter	S7	3.000	S8	6.3	0.895	0.354	0.0877	
15 minute winter	S8	2.001	S9	16.7	0.824	0.321	0.4420	
15 minute winter	S9	2.002	TANK	31.6	1.290	0.607	0.2204	
15 minute winter	S10	4.000	TANK	48.7	1.777	0.696	0.4945	
15 minute summer	TANK	1.005	FCC	9.9	0.453	0.141	0.6784	
15 minute winter	FCC	Hydro-Brake®	OF	5.0				47.3

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.95%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	54.952	0.075	11.4	0.0211	0.0000	OK
15 minute winter	S2	10	54.852	0.102	22.7	0.0290	0.0000	OK
15 minute winter	S3	11	54.597	0.187	22.4	0.0529	0.0000	OK
15 minute winter	S4	11	54.588	0.210	39.5	0.0593	0.0000	OK
15 minute winter	S5	10	54.464	0.276	58.2	0.0781	0.0000	SURCHARGED
240 minute winter	S6	236	54.318	0.150	4.3	0.0425	0.0000	OK
240 minute winter	S7	236	54.318	0.143	2.6	0.0405	0.0000	OK
240 minute winter	S8	236	54.318	0.342	6.9	0.0968	0.0000	SURCHARGED
240 minute winter	S9	236	54.318	0.560	13.1	0.1585	0.0000	SURCHARGED
240 minute winter	S10	236	54.318	0.668	19.5	0.7556	0.0000	SURCHARGED
240 minute winter	TANK	236	54.318	0.725	44.0	190.2343	0.0000	SURCHARGED
240 minute winter	FCC	236	54.318	0.784	5.3	0.8862	0.0000	SURCHARGED
15 minute summer	OF	1	53.500	0.000	5.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S2	11.3	0.779	0.217	0.1844	
15 minute winter	S2	1.001	S3	22.4	0.990	0.431	0.8915	
15 minute winter	S3	1.002	S4	22.6	0.814	0.435	0.1170	
15 minute winter	S4	1.003	S5	40.0	1.018	0.769	0.7453	
15 minute winter	S5	1.004	TANK	57.8	1.456	1.112	0.2691	
15 minute winter	S6	2.000	S8	22.6	1.006	0.435	0.5059	
15 minute winter	S7	3.000	S8	13.0	1.056	0.732	0.1696	
15 minute winter	S8	2.001	S9	34.0	0.901	0.654	0.8255	
15 minute winter	S9	2.002	TANK	63.5	1.598	1.222	0.3565	
15 minute winter	S10	4.000	TANK	97.7	1.973	1.397	1.0117	
15 minute winter	TANK	1.005	FCC	10.8	0.473	0.155	1.0304	
240 minute winter	FCC	Hydro-Brake®	OF	5.0				255.3

Appendix K – North West SuDS Proforma.

NORTH WEST SuDS PRO-FORMA

This pro-forma is a requirement for any planning application for major development¹.

It supports applicants in summarising and confirming how surface water from a development will be managed sustainably under current and future conditions.

Your sustainable drainage system should be designed in accordance with [CIRIA The SuDS Manual C753](#) and any necessary adoption standards.

HOW TO COMPLETE

Blue Box	Instruction/ Question
Orange Box	Evidence Required
White Box	To be completed by Developer / Consultant

1. Complete ALL white boxes
2. Submit this pro-forma to the Local Planning Authority, along with:
 - Sustainable Drainage Strategy
 - Site Specific Flood Risk Assessment (if required)
 - Minimum supporting evidence, as indicated in orange boxes of this pro-forma.

GUIDANCE TO SUPPORT YOU

The pro-forma should be completed in conjunction with 'Completing your SuDS Pro Forma Guide.'

The pro-forma can be completed using freely available tools such as [Tools for Sustainable Drainage Systems](#) or appropriate industry standard surface water management design software.

¹ as defined in Section 2 of [Statutory Instrument 2015 No. 595](#) or on sites in Critical Drainage Areas.

SECTION 1. APPLICATION & DEVELOPMENT DETAILS

Planning Application Reference <i>(if available)</i>	NOT AVAILABLE	
State type of planning application <i>i.e. Pre-application, Outline, Full, Hybrid, Reserved Matters*</i> <i>*Information only required if drainage is to be considered as part of reserved matters application</i>	FULL	
Developer(s) Name:	Dixon Academies Trust. Care of Morgan Sindall – Alan Dalton	
Consultant(s) Name:	CLANCY	
Development Address <i>(including postcode)</i>	School House, Greenbrow Rd, Wythenshawe, Manchester M23 2SX	
Development Grid Reference <i>(Eastings/Northings)</i>	E380849, N387486	
Total Development Site Area (Ha)	3.0	
Drained Area (Ha)* of Development	See catchments plan	
Please indicate the flood zone that your development is in. Tick all that apply. <i>Based on the Environment Agency Flood Map for Planning and the relevant Local Authority Strategic Flood Risk Assessment (to identify Flood Zones 3a/3b).</i>	FLOOD ZONE 1	
What is the surface water risk of the site? Tick all that apply. <i>Based on the Environment Agency Surface Water Flood Map.</i>	High Medium Low ☒	
Have you submitted a Site Specific Flood Risk Assessment (FRA)? <i>See separate guidance notes for clarification on when a FRA is required</i>	Yes ☒ No	
Have you submitted a Sustainable Drainage Strategy?	Yes ☒ No	
Does your drainage proposal provide multi-functional benefits via SuDS?	Yes ☒ No	
Expected Lifetime of Development <i>(years)</i> <i>Refer to Planning Practice Guidance "Flood Risk and Coastal Change" Paragraph 026</i>	60 YEARS	
Development Type:	State Proposed Number of Units	
Greenfield Site Site is wholly undeveloped, and a new drainage system will be installed	☐	
Previously Developed/ Brownfield Site - Site is already developed, and the <u>entirety</u> of the existing surface water drainage system will be used to serve the new development (evidence must be provided to prove existing surface water drainage system is reusable); OR - Where records of the previously developed system are not available so that the hydraulic characteristics of the system cannot be determined or where the drainage system is not in reasonable working order i.e. broken, blocked or no longer operational for other reasons.	☒ SITE IS ALREADY DEVELOPED	NUMEROUS EXISTING SCHOOL BUILDINGS

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 1.

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	Existing (E)	Proposed (P)	Change (P – E)
State Impermeable Area (Ha)	0.59	0.38	-0.21
Evidence Required: Plans showing development layout of site with existing and proposed impermeable areas.			INCLUDED

Are there existing sewers, watercourses, water bodies, highway drains, soakaways or filter drains on the site?	Yes ☒ No ☐ Don't Know ☐
Evidence Required: Plan(s) showing existing layout to include all: • Watercourses, open and culverted • Water bodies – ponds, swales etc. • Sewers, including manholes • Highway drains, include manholes, gullies etc. • Infiltration features - soakaways, filter drains etc.	INCLUDED

Drainage Design <u>Outline planning applications</u> should be able to demonstrate that a suitable drainage system is achievable. <u>All other type of planning application</u> should provide full details or reference to previous planning application where drainage details have been submitted or approved.		
Select which design approach you are taking to manage water quantity (refer to Section 3.3 SuDS Manual)		
Approach 1 – Volume control / Long Term Storage (Technical Standards S2/3, S4/5) - The attenuated runoff volume for the 1 in 100 year 6 hour event (plus climate change allowance) is limited to the greenfield runoff volume for the 1 in 100 year 6 hour event, with any additional runoff volume utilising long term storage and either infiltrated or released at 2 l/s/ha - The discharge rate for the critical duration 1 in 1 year event is restricted to the 1 in 1 year greenfield runoff rate - The discharge rate for the critical duration 1 in 100 year event (plus climate change allowance) is restricted to the 1 in 100 year greenfield runoff rate	☐	
Approach 2 – Qbar (Technical Standards S6) Justification has been provided that the provision of volume control/long term storage is not appropriate and an attenuation only approach is proposed. All events up to the critical duration 1 in 100 year event (plus climate change allowance) are limited to Qbar (1 in 2 year greenfield rate) or 2 l/s/ha, whichever is greater.	☒	
Evidence Required: Plans showing: - Existing flow routes and flood risks - Modified flow routes - Contributing and impermeable areas - Current (if any) and proposed 'source control' and 'management train' locations of sustainable drainage components (C753 Chapter 7) - Details of drainage ownership - Details of exceedance routes (Technical Standards S9) - Topographic survey - Locations and number of existing and proposed discharge points		☒

Note consideration should be given to manage surface water from both impermeable and permeable surfaces (including gardens and verges) likely to enter the drainage system.

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 2.

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SECTION 3: PEAK RUNOFF RATES – TECHNICAL STANDARDS S2, S3 AND S6 (UNLESS S1 APPLIES)

Rainfall Event	Existing Rate (l/s)	Greenfield Rate (l/s)	Proposed Rate (l/s) <i>Previously developed sites - In line with S3 should be equivalent to Greenfield runoff rates – discuss with LLFA if this is not achievable pre-application</i>
Qbar (Approach 2)	1.3	1.2	5.0
1 in 1 Year Event (Approach 1)	80 (2.78x0.75x1.3x0.59hax50mm/hr)	1.13	5.0
1 in 30 Year Event		2.21	5.0
1 in 100 Year Event* (Approach 1)		2.7	5.0
* Total discharge at the 1 in 100 year rate should be restricted to the greenfield runoff volume for the 1 in 100 Year 6 hour event with additional volumes (long-term storage volume) released at a rate no greater than 2 l/s/ha where infiltration is not possible. The climate change allowance should only be applied to the proposed rate and not the existing or greenfield rate.			
Evidence Required: Methodology used to calculate peak runoff rate clearly stated and justified. Impermeable areas plan, supported by topographical survey confirming positive drainage. Hydraulic calculations and details of software used.			☒ ☒ ☒

State the hydraulic method used in your calculations
(Refer to Table 24.1 of The SuDS Manual)

WALLINGFORD MODIFIED RATIONAL METHOD

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 3.

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SECTION 4: DISCHARGE VOLUME – TECHNICAL STANDARDS S4, S5 AND S6 (UNLESS S1 APPLIES)

Rainfall Event	Existing Volume (m ³)	Greenfield Volume (m ³)	Proposed Volume (m ³)
1 in 100 Year 6 Hour Event <i>(Approach 1)</i>	N/A	N/A	N/A
Does the below statement apply to your development proposal? Long term storage is not achievable on this site and, in accordance with S6 of the Non Statutory Technical Standards for SuDS, the surface water discharge rates for events up to and including the 1 in 100 year critical event are limited to Qbar (Approach 2)			Yes ☒ No ☐
Evidence Required: Approach to managing the quantity of surface water leaving the site clearly stated and justified Methodology used to calculate discharge volume clearly stated and justified. Hydraulic calculations and details of software used.			☒ ☒ ☒
Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 5.			FRA & DS - FS0998-CCL-SE-8-XX-D-C-5201

SECTION 5: STORAGE – TECHNICAL STANDARDS S7 AND S8

State climate change allowance used (%)	45
State housing density (houses per ha)	N/A
State urban creep allowance used (%)	10
Evidence Required: State / used in appropriate industry standard surface water management design software.	☒

State storage volume required (m³) <i>(excluding non-void spaces)</i> <i>Must include an allowance for climate change and urban creep</i>	200
Have you incorporated interception into your design? <i>(Refer to Chapter 24 of The SuDS Manual C753)</i> <i>Where possible, infiltration or other techniques are to be used to try and achieve zero discharge to receiving waters for rainfall depths up to 5mm.</i>	Yes ☒ No ☐
Evidence Required: Drainage plans showing location of attenuation and all flow control devices and supporting calculations.	☒

Summarise how storage will be provided for 1 in 30 year event on site. <i>Storage must be designed to ensure that at no flooding occurs onsite in a 1 in 30 year event except in designed areas and no flooding occurs offsite in a 1 in 100 year (plus climate change allowance) event.</i>	BELOW GROUND CELLULAR STORAGE
Summarise how storage will be provided for 1 in 100 year (plus climate change) event on site. <i>Where storage above the 1 in 30 year rainfall event is provided in designated areas designed to accommodate excess surface water volumes, plans showing storage locations and surface water depths and supported by calculations used in appropriate industry standard surface water management design software. It is important to run a range of duration events to ensure the worst case condition is found for each drainage element on the site</i>	BELOW GROUND CELLULAR STORAGE
Evidence Required: Plans showing size and location of storage and supporting calculations. Where there is controlled flooding, extents and depths must be indicated.	☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 5.	FRA & DS - FS0998-CCL-SE-8-XX-D-C-5201
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SECTION 6: WATER QUALITY PROTECTION

Contaminated surface water run-off can have negative impacts on the quality of receiving water bodies. The potential level of contamination will influence final the design of an appropriate treatment train as part of your sustainable drainage system.

Is the proposal site known to be or potentially contaminated?	Yes ☐	No ☒
If the site is contaminated, it should be demonstrated that the sustainable drainage system will not increase the risk of pollution to controlled waters through the mobilisation of contaminants and/or creation of new pollution pathways.		

Confirm the Pollution Hazard Level of the proposed development - Tick ALL that apply		
Refer to Pollution Hazard Indices for different Land Use Classifications in Table 26.2 of The SuDS Manual C753 for further guidance.		
Pollution Hazard Level Tick ALL that apply	Surface water run-off from the proposed development will drain from:	
VERY LOW	☐	Residential roofs
LOW	☒	- Other roofs (typically commercial/industrial roofs) - Individual property driveways, residential car parks, low traffic roads (e.g. cul de sacs, home-zones and general access roads) - Non-residential car parking with infrequent change (e.g. schools, offices) i.e. < 300 traffic movements/day
MEDIUM	☐	- Commercial yard and delivery areas - Non-residential car parking with frequent change (e.g. hospitals, retail) - All roads except low traffic roads and trunk roads/motorways²
HIGH	☐	- Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites) - Sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured - Industrial sites - Trunk roads and motorways¹

If the development's Pollution Hazard Level is 'Very Low' or 'Low', has the sustainable drainage design been risk assessed and appropriate mitigation measures included?	Yes ☒	No ☐
If the proposed development has a very low or low polluting potential, you should design your sustainable drainage system to include an appropriate treatment train in accordance with The SuDS Manual (C753).		

If the development's Pollution Hazard Level is 'Medium' or 'High', is the application supported by a detailed water quality risk assessment?	Yes ☐	No ☒
❓ If the proposed development has a high polluting potential, a detailed risk assessment <u>will</u> be required to identify an appropriate SuDS treatment train and ensure compliance with Paragraph 170 of the National Planning Policy Framework. ❓ If the proposed development has a medium polluting potential, a detailed risk assessment <u>may</u> be required depending on the nature, scale and location of the development.		

Has pre-application advice on water quality been obtained from the Environment Agency?	Yes ☐	No ☒
If YES, provide details:		

² Motorways and trunk roads should follow the guidance and risk assessment process set out in Highways Agency (2009).

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 5.

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SECTION 7: DETAILS OF YOUR SUSTAINABLE DRAINAGE SYSTEM

a) Function of your Sustainable Drainage System

Do your proposals store rainwater for later use (as a resource)?	Yes ☐ No ☐ TBC
Evidence Required: Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	ARCHITECT TO CONFIRM

Do your proposals promote source control to manage rainfall close to where it falls? (e.g. promoting natural losses through soakage, infiltration and evapotranspiration)	Yes ☒ No ☒
Evidence Required: Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	INFILTRATION NOT VIABLE

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7a.

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b) Hierarchy of Drainage Options – Planning Practice Guidance

The proposed method of discharge are set out within order of priority. Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 1: Into the ground (via infiltration)		Yes ☐ No ☒	
If YES - Evidence Required		If NO – Evidence Required Tick ALL that apply	
☐	A. Completed Infiltration Checklist from The SuDS Manual (C753) Appendix B <i>An editable version of this form is available on SusDrain website.</i>	☒	A. Site investigation to demonstrate that the ground is not free draining. Test results to be provided in accordance with: - The methodology within BRE 365 (2016), OR - Falling head permeability tests BS EN ISO 22282-2: 2012
☐	B. British Geological Survey (BGS) Infiltration SuDS Map	☐	B. NOTE: where an applicant is unable to access a site to undertake testing, e.g. where unable to access a site for an outline application, they can submit a SuDS GeoReport or similar.
☐	C. Infiltration testing to BRE 365 (2016) or falling head permeability tests to BS EN ISO 22282-2: 2012 (<i>optional for outline</i>)	☐	C. Evidence to confirm that infiltration to ground would result in a risk of deterioration to ground water quality.
☐	'Plan B' sustainable drainage plan and statement of approach with an alternative discharge method, in case infiltration proposals are proven not feasible upon	☐	D. Geotechnical advice from a competent person* which determines that infiltration of water to ground would pose an unacceptable risk of geohazards to the site and/or local area.

	further site specific ground investigation e.g. to consider seasonal variations to groundwater.		<i>*Note: Competent person may include a Chartered Engineer, Chartered Geologists, Registered Ground Engineering Professionals (RoGEP).</i>
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Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 2: To a surface water body <i>(select type)</i> NOTE: Consent from LLFA or Permit from Environment Agency may be required – refer to guidance		Yes ☐ No ☒ N/A ☐	
		☐ Main river ☐ Canal ☐ Ordinary watercourse ☐ Other water body	
If YES - Evidence Required		If NO – Evidence Required Tick ALL that apply	
☐	Surface water body / watercourse survey and report	☒	Plan showing nearby watercourses and waterbodies AND ☒ Statement providing justification in your Sustainable Drainage Strategy <i>Note: Where discharge of any element in the hierarchy is discounted, an applicant should provide justification. If the reasoning for discounting a discharge of surface water to watercourse relates to issues associated with third party land or the securing of any other required consent, it may be necessary for the applicant to provide evidence to the local planning authority to support their proposed approach.</i>

Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 3: To a surface water sewer or highway drain <i>(select type)</i>		Yes ☐ No ☒ N/A ☐	
		☐ Surface water sewer ☐ Highway drain	
If YES - Evidence Required		If NO – Evidence Required Tick ALL that apply	
☐	Written correspondence from Water and Sewerage Company/ Highway Authority regarding proposed connection.	☒	Plan showing nearby sewers and highway drains AND ☒ Statement providing justification in your Sustainable Drainage Strategy

Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 4: To combined sewer		Yes ☒ No ☐ N/A ☐	
If YES - Evidence Required		If NO – Evidence Required	
☒	Written correspondence from Water and Sewerage Company	N/A	

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7b.	FRA & DS - FS0998-CCL-SE-8-XX-D-C-5201
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c) Proposed SuDS Component Types

	Tick ALL that apply				
Within property boundary	☐ Rainwater harvesting	☒ Green/ blue roofs	☐ Pervious pavements [Type: A ☐ B ☐ C ☐	☐ Soakaway	☐ Bio retention systems

	Tick ALL that apply				
Within development site boundary (not property)	☐ Infiltration system [Type: ☐ Surface level ☐ Below ground]		☐ Filter strips	☐ Filter drains	☐ Swales
	☐ Bio retention system	☐ Detention basins	☐ Ponds and wetlands	☒ Attenuation tanks/ Oversized pipes	☐ Other (state below)
	If 'Other' please state:				

Off site (not within the boundary of the proposed development)	Please state:
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I confirm that the above selected components have been designed in accordance with The SuDS Manual (C753).	I confirm ☒
I confirm that the management of flows resulting from rainfall in excess of a 1 in 100 year plus climate change rainfall event, and their exceedance route(s), has been fully considered in order to minimise the risks to people, property (new and existing) and infrastructure.	I confirm ☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7c.	FRA & DS - FS0998-CCL-SE-8-XX-D-C-5201
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SECTION 8: OPERATION AND MAINTENANCE – TECHNICAL STANDARD S12 AND NATIONAL PLANNING POLICY FRAMEWORK

The applicant is responsible to ensure that ALL components selected in Section 7 can be maintained for the design life of the development. This information is required so the Local Planning Authority can ensure the maintenance and management of the sustainable drainage system. The Local Planning Authority will discuss how this will be secured (e.g. via planning condition or planning obligation).

[illegible]

		Information Provided?
Maintenance Schedule		Yes ☒ No ☐
Evidence Required: A copy of the maintenance schedule including: Proactive and preventative maintenance Detailing regular, occasional and remedial maintenance activities including recommendations for inspection and monitoring. This should include recommended frequencies, advice on plant/ machinery required and an explanation of the objectives for the maintenance proposed and potential implications of not meeting them. Reactive and corrective maintenance (e.g. product repair and replacement). Including advice on excavations, or similar works, in locations that could affect the SuDS components/ adjacent structures.		☒

Information Provided?	
Maintenance and Management Arrangements	Yes ☒ No ☐
Evidence Required: Evidence of formal agreement with the party responsible for undertaking maintenance. Please select any of the adopting bodies that you will be offering your sustainable drainage components for adoption. Tick all that apply. ☐ Water and Sewerage Company <i>Section 104 agreement (Water Industry Act 1991)</i> ☐ Highway Authority <i>Section 278/38 agreement (Highways Act 1980)</i> ☐ Local Authority Public Open Space <i>[Refer to Local Authority Policy]</i> Please select the arrangement(s) for all non-adopted sustainable drainage components. Tick all that apply. ☒ Management Company ☒ Property Owner <i>(for SuDS components within property boundary only)</i> ☐ Other (please state)	☐

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 8.

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DECLARATION AND SUBMISSION

This pro-forma has been completed using evidence from information which has been submitted with the planning application.

The information submitted in the Sustainable Drainage Strategy and site-specific Flood Risk Assessment (FRA), where submitted, is proportionate to the site conditions, flood risks and magnitude of development and I agree that this information can be used as evidence to this sustainable drainage approach.

Submitter Details			
Completed by	CARL DAWSON	Email Address	carl.dawson@clancy.co.uk
		Telephone Number(s)	0161 661 6000
Signed off by	Daniel Singh	Accreditation(s) and/or Qualification(s) of Signatory	Director
Date (dd/mm/yyyy)	04.04.23	Company	Clancy Consulting Ltd

Client Details			
Name	Care of Morgan Sindall – Alan Dalton	Company	Dixon Academies Trust

Appendix L – Outline Drainage Maintenance Operations.

Dixon Newall Green Academy – DMS 1-21554

Outline Drainage Maintenance Operations

This section is intended to give an overview of the operation and maintenance for the drainage features included with the drainage strategy and in relation to typical details. Where proprietary products are specified, the manufacturer's instructions and recommendations should be followed in priority to this document unless specifically noted otherwise due to project constraints.

The recommended operations and frequencies are typical only and should be more frequent initially to ensure that there are no unforeseen issues with the operation and then adjusted to suit the site requirements.

Drainage components are indicated on Clancy Consulting Ltd Drainage Strategy drawing.

Components

The following components have been included within the drainage design for the proposed development:

- Manhole and Inspection Chambers
- Catchpit Chambers
- Linear Drains
- Gullies
- Pipework
- Attenuation Tank – Type to be agreed.
- Flow Control Unit – Type to be agreed.
- Green Roof

A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.

It is assumed that the maintenance of the drainage network will be the responsibility of an on-site facilities management team.

A copy of the final construction drainage layout should be provided in the final Operations and Maintenance Manual.

The surface water network has been designed to accommodate the 1 in 100 year storm rainfall event plus an allowance for climate change particular to the requirements of the site. It may be that the exceedance flows above the 1 in 30 year storm rainfall event are stored within the site partially above ground, on non-habitable external landscaping, parking or other space. As

the flows are generally being attenuated on site and within SuDS features there will be a period of time after storm events where the network is still partially or fully surcharged and is draining down. Where this surcharging is still present after 48hrs appropriate action should be taken as noted below.

It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.

Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.

Long-term management practices include monthly sweeping of external paved areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system.

During the winter months, drainage features such as gullies and channels should be cleared of ice, snow, debris or litter.

Sediment/material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the filter drains and the upstream/downstream chambers.

Should any oil or fuel spillages occur, these are to be cleaned up locally to prevent contaminants being washed into the surface water system by rainfall. Spillages such as these should not be washed into the drainage system.

Manholes and Inspection Chambers

Description

Manholes providing rodding and jetting access to pipe work.

Normally manholes, in similarity to inspection chambers, are designed for access by operatives. Manholes must only be accessed after a risk assessment, and the implementation of a safe system of work, which identifies the specific risk to confined space.

Maintenance Issues

It is not likely that Manholes will present maintenance issues. However, they allow both the access to the drainage infrastructure and allow visual inspection from the surface of any key maintenance issues.

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Remove covers and ensure that there are no blockages. Inspect and ascertain any parts that are not operating correctly and resolve.	For 3 months after installation
	Check covers do not need repairing.	Monthly
	Check drainage is running freely by inspecting manholes and inspection chambers.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Suction sweeping and cleansing (to Water Jetting Association standards) and CCTV where appropriate.	2 – 4 Years
Remedial maintenance	• Silt removal • Inlet/outlet repair • Erosion repairs • System recovery following a pollution event • Manhole Cover replacement • Repairs to brickwork or concrete • Chancel repair	When required (tasks to repair problems due to wear, damage or vandalism)

Catchpits

Description

Catchpits are similar to manholes, however, they include a sump to the base which is designed to capture silt and prevent it reaching other parts of the drainage network. Catchpits provide a useful location to remove silt for drainage networks. Catchpits must only be accessed after a risk assessment, and the implementation of a safe system of work, which identifies the specific risk to confined space.

Maintenance Issues

If the silt captured in catchpits does not get removed regularly it will cause silt to move downstream to other part of the drainage network, some of which may be difficult to access, or totally inaccessible.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Remove manhole covers and ensure that there are no blockages. Inspect and identify any parts that are not operating correctly and resolve. Inspect silt storage in sump. Remove silt as appropriate using subcontractor with vacuum extraction plant.	For 3 months after installation
	Check covers do not need repairing. Repair/replace as required.	Monthly
	Inspect catchpits to ensure that the drainage is running freely, and free of debris. Inspect silt storage in sump. Remove silt as appropriate using subcontractor with vacuum extraction plant.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Suction sweeping and cleansing (to Water Jetting Association standards) and CCTV where appropriate. Resolve any chamber structural defects, or any defects that could reduce the free flow of water.	2 – 4 Years
Remedial maintenance	• Silt removal • Inlet/outlet repair • Erosion repairs • System recovery following a pollution event • Manhole Cover Replacement • Repairs to brickwork or concrete	When required (tasks to repair problems due to wear, damage or vandalism)

Linear Drains

Description

Surface Water is drained over impermeable sections towards grated, or slot-type linear drains at low points and water is carried to below ground pipework.

Maintenance Issues

Linear drains could get blocked by silt or debris, causing flooding.

Linear drains frequently include silt traps at outlets which can cause siltation of downstream drainage infrastructure if the appropriate maintenance is not undertaken.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Inspect linear drains to make sure that there are no blockages at surface level. Remove covers to outflow boxes and check for blockages or siltation. Inspect and identify any parts that are not operating correctly and resolve.	For 3 months after installation
	Inspect linear drains to make sure that there are no blockages at surface level.	Monthly
	Remove covers to outflow boxes and check for blockages or siltation.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Jetting of linear drains and suction vacuuming of outlet boxes (to Water Jetting Association standards) and CCTV where appropriate.	1 – 2 Years
Remedial maintenance	• Silt removal • Inlet/outlet repair • Erosion repairs • System rehabilitation following a pollution event • Linear drain cover replacement • Chancel repair • Ensure that impermeable surfaces surrounding linear drains have not settled below top of linear drain level, causing ponding	When required (tasks to repair problems due to wear, damage or vandalism)

Gullies

Description

Surface Water is drained over impermeable areas towards grated gullies at low points and water is carried to below ground pipework.

Maintenance Issues

Gullies can become blocked by silt or debris, causing flooding.

Gullies include integral silt traps which can cause siltation of downstream drainage infrastructure if the appropriate maintenance is not undertaken.

Gullies frequently include a trapped outlet which prevents liquids lighter than water (ie oil and fuel) departing the gully. If silt and light liquids do not get removed regularly silt and oil will move downstream to other areas of the drainage network, some of which may be difficult to access, or totally inaccessible.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Inspect to ensure that there are no blockages at surface level, and that the outfall is operating efficiently.	For 3 months after installation
	Inspect and identify any parts that are not operating correctly and resolve.	
	Check that there are no blockages at surface level.	Monthly
	Remove covers to check for blockages or siltation.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Remove oil and silt using specialist vacuum extraction plant.	1 – 2 Years
Remedial maintenance	• Silt removal • Inlet/outlet repair • Erosion repairs • System rehabilitation following a pollution event • Cover replacement • Structural failure of gully pot • Ensure that impermeable surfaces surrounding linear drains have not settled below top of gully cover level, causing ponding	When required (tasks to repair problems due to wear, damage or vandalism)

Pipework

Description

Below ground drainage pipework connects drainage inlets (gullies, linear drains etc) to manholes as well as providing connections between manholes.

Maintenance Issues

Pipes could become blocked by silt, debris fat, grease, or collapse. In addition, it's possible for pipe joints to become displaced or for roots to grow from the surrounding ground into the pipes.

These factors can cause a reduction in, or loss of, the hydraulic capability of the pipes which could cause flooding to land and buildings.

Defects in pipes could cause a reduction in stability to ground underlying foundations, thus, causing settlement and damage to buildings and external surfaces.

The material of pipes and associated couplings can be damaged if aggressive liquids are passed through the pipes.

It is recommended that trees are not planted within 3m of pipes to reduce the risk of root ingress.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Inspect and identify any parts that are not operating correctly and resolve.	For 3 months after installation.
	Monitor working of drainage at ground level. The indications damaged pipework's may include localised flooding or emission of smells.	Monthly
	Remove manholes covers to check for blockages.	Every 6 months
Occasional maintenance	CCTV pipework, clean to WRC Sewer Jetting Code of Practice. Resolve issues as appropriate.	1 – 2 Years
Remedial maintenance	• Silt removal. • Fat and Grease removal. • Erosion repairs. • Joint displacement. • Structural failure, cracking or collapse. • System rehabilitation following a pollution event.	When required (tasks to repair problems due to wear, damage or vandalism)

Vortex Controls

Description

Vortex controls, often called Hydrobrakes, are installed in some manholes to limit the rate of flow. Vortex controls are normally constructed in steel and installed in a manhole with a sump.

Maintenance Issues

Vortex controls could become blocked by debris, plastic bags or other sheet material. If silt is allowed to build up in the sump the operation of the device could be impeded causing flooding upstream.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Check manufacturer's specification. Inspect and identify any parts that are not operating, consult supplier and remediate as required.	For 3 months after installation
	Monitor working of drainage at ground level. Where localised flooding occurs, check the condition of all system elements.	Monthly
	Remove manholes covers to check for blockages. Remove sediment from pre-treatment structures, gullies, catchpits etc.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Clean to WRC Sewer Jetting Code of Practice. Resolve issues as appropriate.	1 – 2 Years
Remedial maintenance	Inspect, and remedy to ensure that the features are in fully working order.	As required (tasks to repair problems due to wear, damage or vandalism).

Geocellular Attenuation Storage

Description

Attenuation storage tanks are used to create a below-ground space for the temporary storage of surface water before infiltration, controlled release or use. Geocellular storage crates are advantageous as they allow for spatial versatility as opposed to in situ concrete tanks.

Maintenance Issues

For Geocellular attenuation tanks typical issues relate to the build-up of silt within the tank, causing a decrease in capacity over time.

Maintenance Regime

Schedule	Action Required	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. Take remedial action as appropriate	For 3 months after installation, then annually.
	Remove debris from the catchment surface (where it may cause a risk to performance)	Monthly
	For systems where rainfall infiltrate into the tank from above, check surface of filter for blockage by sediment, algae or other matter. Remove blockage and replace surface infiltration medium as appropriate.	Annually
	Remove Sediment from pre-treatment structures and/or internal forebays.	Annual, or as needed
Remedial Actions	Repair/rehabilitate inlets, outlets, overflows and vents.	As needed
Monitoring	Check all inlets, outlets, vents and overflows to ensure that they are working as designed.	Annually
	Survey inside of tank for sediment build-up and remove as appropriate.	Every 5 years or as needed.

Green Roofs

Description

Green roofs are areas of living vegetation, installed on the top of buildings. Green roofs provide visual, ecological and biodiversity benefits as well as reducing surface water runoff.

Maintenance Issues

Intensive green roofs (similar to gardens) will require regular maintenance, with grassed areas mowed, and plant beds weeded, on weekly or fortnightly basis during the growing season.

Extensive green roofs (shallow with low maintenance planting) normally only need access once or twice a year to remove litter, check fire breaks and drains, and remove unwanted invasive plants.

Maintenance during the green roof establishment period is most likely undertaken by the green roof supplier.

Activity	Action Required	Frequency
Regular inspections	Inspect all components, including where appropriate, soil substrate, vegetation, drains, irrigation systems, membranes and roof structure for accurate operation, reliability of waterproofing and structural stability.	On an annual basis and after severe storms
	Inspect soil substrate for evidence of erosion channels and determine any sediment sources	On an annual basis and after severe storms
	Inspect drain inlets to ensure clear runoff from the drainage layer to the conveyance or roof drain system	On an annual basis and after severe storms
	Inspect underside of roof for evidence of leakage	On an annual basis and after severe storms
Regular Maintenance	Remove debris and litter to avert clogging of inlet drains and obstruction by plant growth	6 monthly, annually or as required
	During establishment (first year), replace dead plants as needed.	Monthly (but usually responsibility of manufacturer)
	After establishment, replace dead plants as required (where > 5% of coverage)	On an annual basis in autumn
	Remove debris from deciduous plant foliage	6 monthly or as required
	Remove nuisance and invasive foliage, including weeds	6 monthly or as required
	Mow grasses, prune shrubs and manage other planting (as necessary).	6 monthly or as required

Remedial actions	If erosion channels are evident, these should be stabilised with extra soil substrate like the original material, and sources of erosion damage should be identified and controlled.	As appropriate
	If drain inlet has settled, cracked or moved, investigate and resolve as necessary.	As appropriate