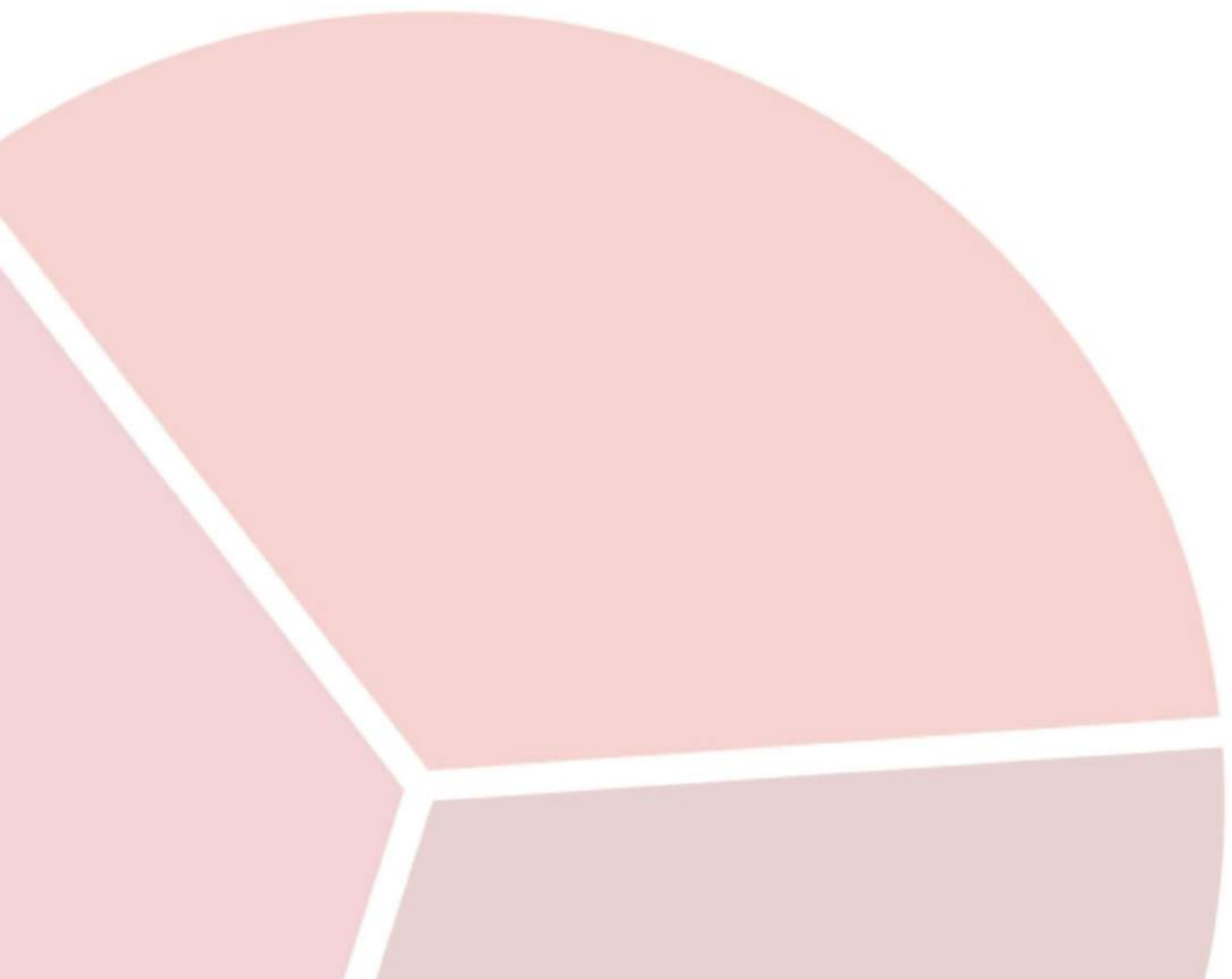




**Flood Risk Assessment
Alexandra Park School
THB02740-01FR**

002740-JPL-ZZ-ZZ-RP-D-2001-A1-C01





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D	Greenfield Runoff Calculation and Storage Calculation
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1.0 Terms of Reference

1.1 Report Details

This Flood Risk Assessment (FRA) has been prepared to reflect the requirements of the National Planning Policy Framework 2021 and guidance documents.

The report relates to the proposed extension of an existing school building.

The report is based on the following information:

- OS Explorer Series mapping
- Internal Drainage Board mapping
- Sewerage Undertaker mapping
- Site visit undertaken by Jackson Purdue Lever

This study relies on statistical assessments and therefore positive conclusions with respect to flooding should not be interpreted as a guarantee against flooding of the study site.

1.2 Report History

Status - Revision	Author	Approved	Issued Date	Purpose
A3-C01	JL	DA	22/09/2023	Issued for Planning



2.0 Site Details

2.1 Existing Site Description

The proposed development site comprises of a parcel of land located on an existing school site and is currently being used as a social area featuring grassland and benches. The site is bound by sport fields to the east and Muswell Golf Club to the west. Allotment areas are positioned to the north of the site with the existing school area lining the site to the south.

The development site is located in Bidwell Gardens, London with main vehicular access to the site from Bidwell Gardens Road towards the east of the site.

The site is further situated at circa 54m AOD (above ordnance datum). Topographical survey information (refer to the topographical survey in Appendix A for further information) indicates site levels fall towards the north of the site. Wider overall level information indicated on local Ordnance Survey Mapping suggests this fall continues several hundred meters away from the site towards a level of 40m AOD. The Bounds Green Brook runs towards the north-west of the site circa 1km away from the site with the main water course in this area being the River Lee and Lockwood Reservoir positioned circa 6km from the site.

British Geology Society (BGS) indicate the bedrock strata as London Clay, and local borehole records indicated the surface strata to also comprise of sandy clay. Provisional Site Investigation information indicates the presence of deep made ground and clay.

A site location plan and aerial photograph are provided below in **Figures 1 and 2**.

Table 1- Site Summary

Address	Alexandra Park School Bidwell Gardens, London, N11 2AZ	
OS Grid Reference	E: 529152	N: 190955
Site Area	0.175 Ha	
Development Type	Educational	
EA Development Control Area	15 – Hertfordshire & North London	
Local Planning Authority	Haringey	



Figure 1 – Site Location Plan

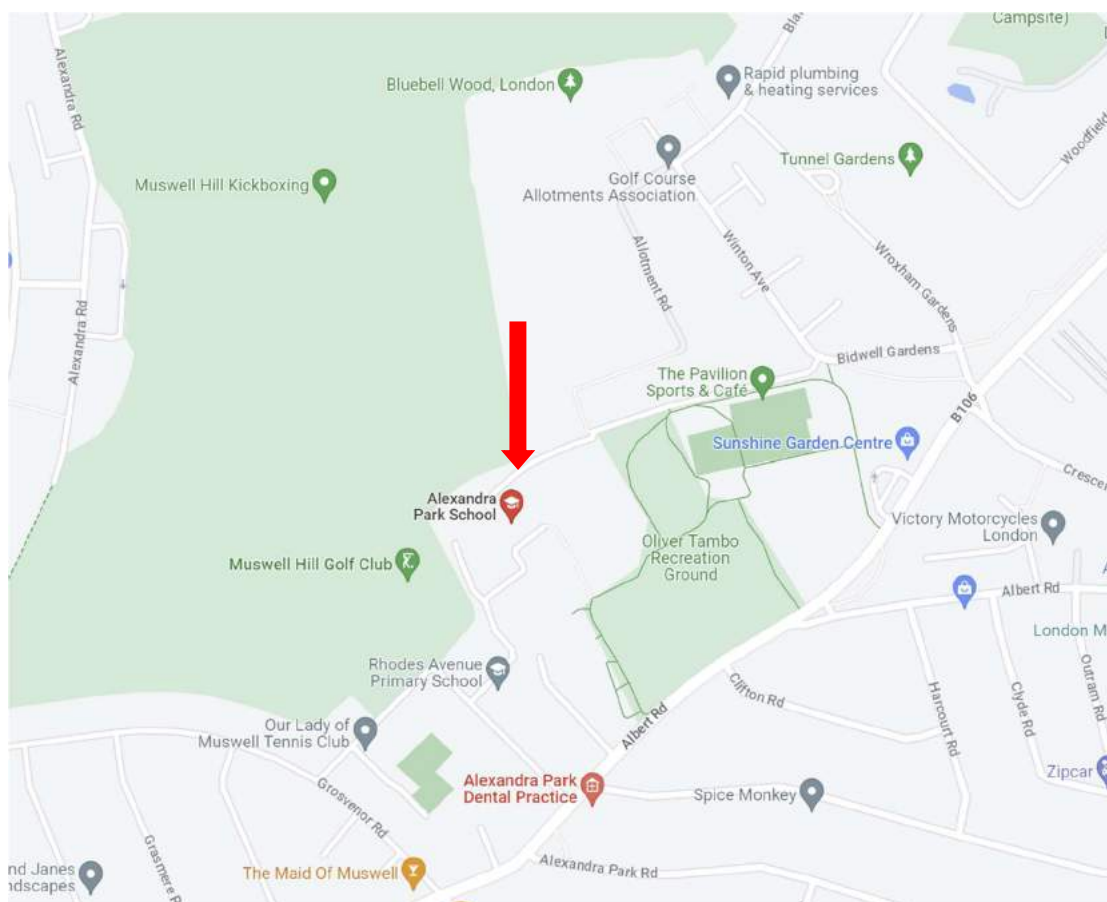
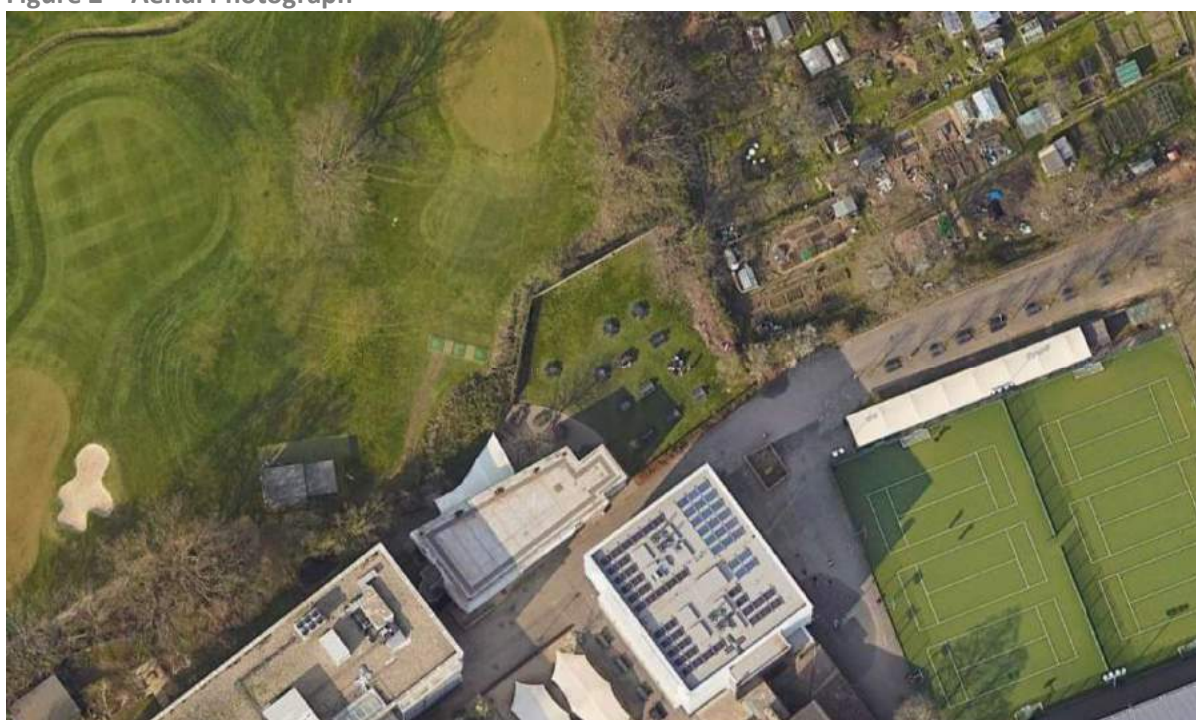


Figure 2 – Aerial Photograph



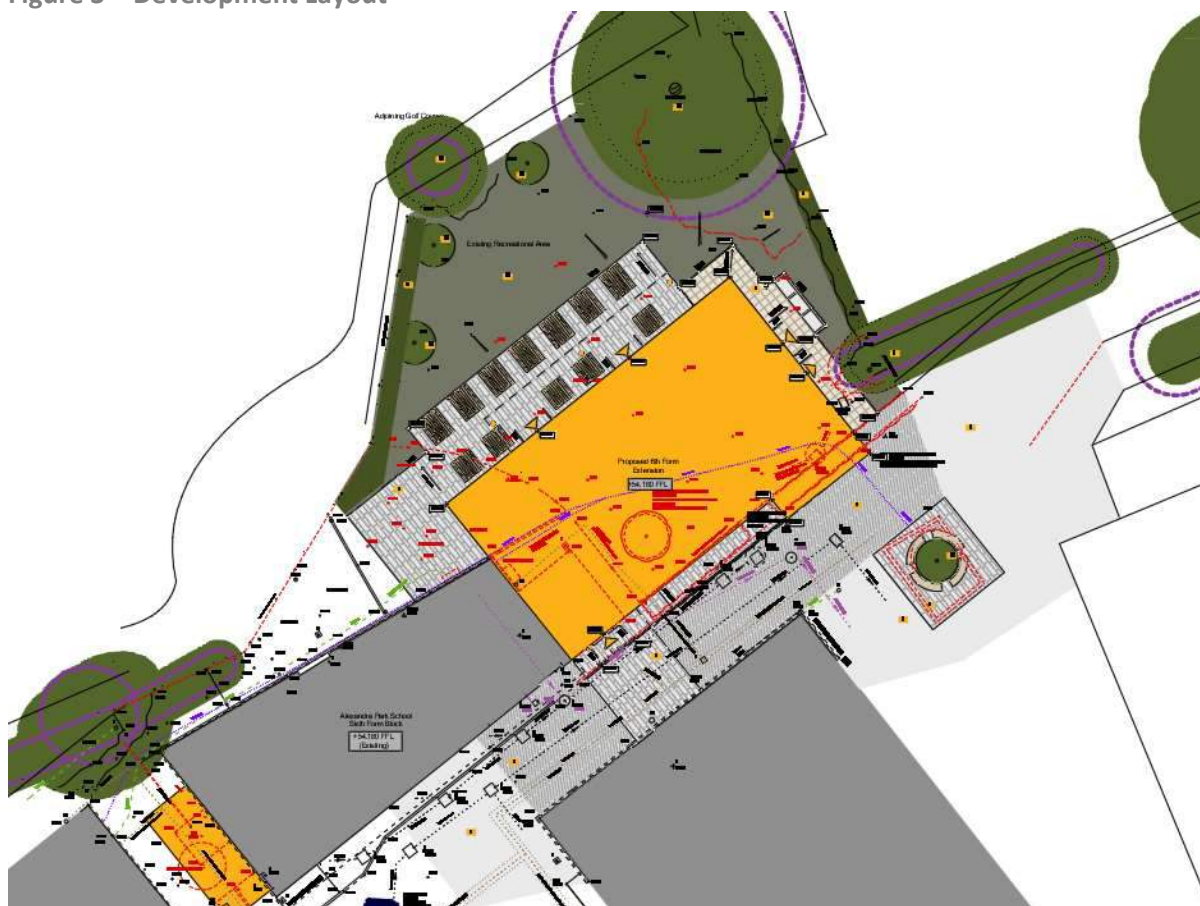


2.2 Proposed Site Description

The proposed development comprises of an extension to the existing Alexandra Park Sixth Form Block. The extension is to be attached to the east elevation of the existing block and features three storeys. The combined floor areas totals to 527m².

A proposed development layout is provided below in **Figure 3**.

Figure 3 – Development Layout



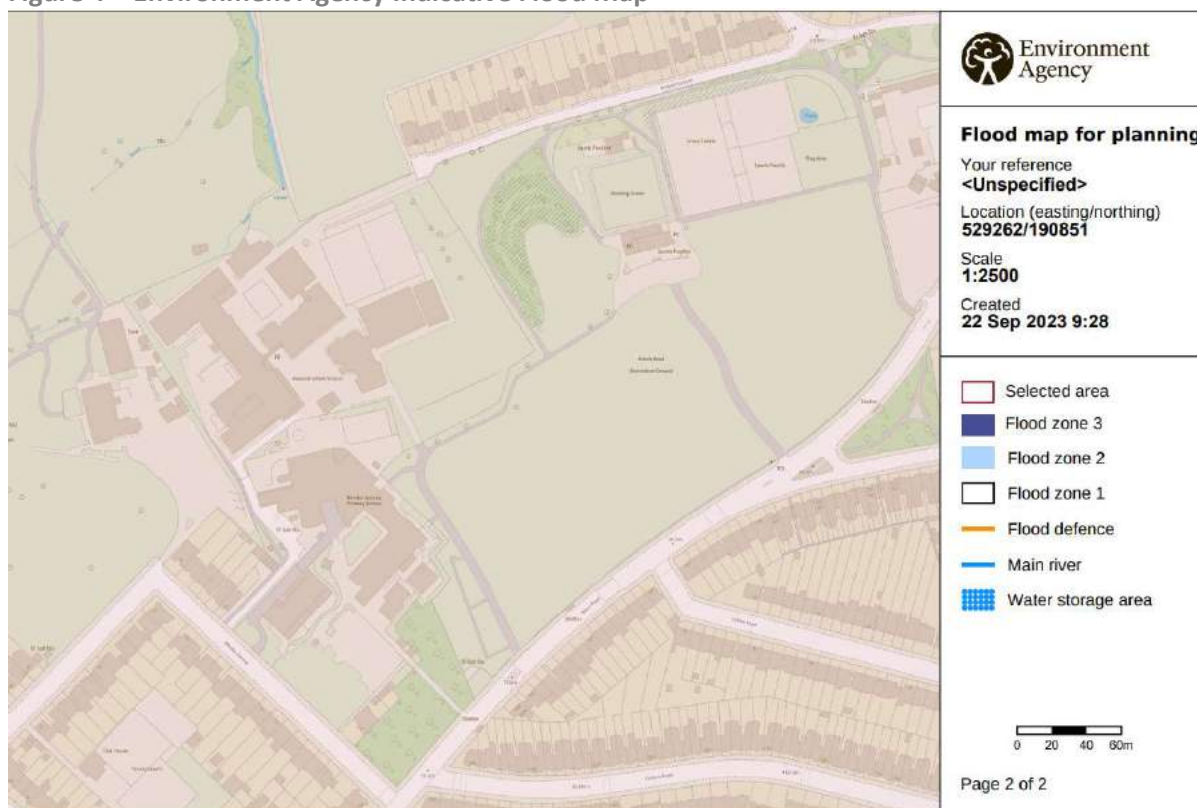


3.0 Initial Assessment

3.1 Flood Zone Classification and Historical Flooding

Figure 4 below shows the indicative flood map as presented on the Government website. The site is shown to lie within Flood Zone 1 outside of both the 1 in 100 year and 1 in 1000-year flood plain.

Figure 4 – Environment Agency Indicative Flood Map



3.2 Possible Flood Mechanisms

Set out below are the potential sources of flood risk to the site. Where applicable the significance of these sources is investigated further in **Section 4.0** of this report.



Table 2 – Possible Flood Mechanisms

Flood Source	Presence	Description
Flooding from Rivers (Fluvial)	X	The site is located within Flood Zone 1 which is defined as low probability of flooding and the site is therefore not deemed to be at risk of flooding from fluvial sources.
Flooding from the Sea (Tidal)	X	The site is situated >65km from the sea and is not considered to be influenced by tidal waters.
Flooding from Groundwater	X	Provisional Information from GOV.UK indicates flooding from ground water is unlikely in this area.
Flooding from Sewers	X	Surrounding topography indicates a fall towards the north of the site. It is known surface water manholes are located along the existing access road towards the south of the building. With these presenting a risk, levels have been designed as such that levels fall to the west and then around the building towards the north as to guide possible notional overland flows around the building. The site is therefore not deemed to be at risk of flooding from sewers.
Overland flows originating off site	✓	Government Flood Mapping indicates this area is subject to a medium risk rating from surface water flooding. To omit this risk, external levels and drainage have been designed as such that levels fall away from the property and generally towards the north of the site where current natural topography falls circa 1.5m. To further mitigate the risk from overland flows and flooding from sewers, proposed floor finished levels are located circa 150mm above local ground levels which will further guide overland flows around the property and prevent water entering the property.
Development Drainage	✓	The proposed extension will generate a net increase in impermeable area, which will increase surface water run-off within the site and therefore needs careful consideration within the drainage strategy for the site. This is discussed further within section 4.1.
Reservoirs, Canals and other Artificial Sources	X	Information from GOV.UK indicate flooding from reservoirs is unlikely in the area. Additionally, the reservoir Act 1975 places restrictions on owners of reservoirs to mitigate the risk of flooding downstream. Flooding from reservoirs is therefore considered not to be at risk of flooding from reservoirs.

Whilst it is considered flooding for the site is very limited in nature, flooding from surface water would be most prominent given its location on an existing school site. However, these are considered negligible and well controlled by manipulating levels to drain towards the north of the site and by having raised finished floor levels (FFL).



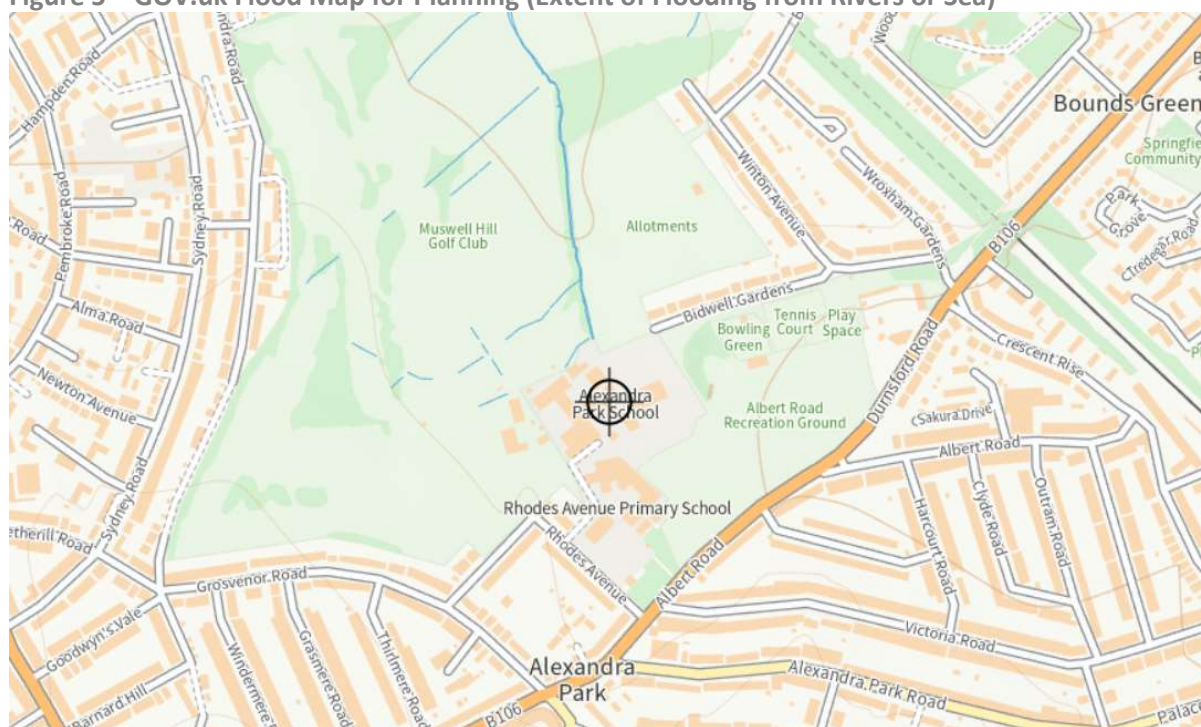
4.0 Flood Risk Assessment

4.1 Flooding from Rivers (Fluvial)

The Government's flood map for planning indicates the development area is located within Flood Zone 1 which is defined as being land at a low probability of flooding (outside of both the 1 in 100 year and 1 in 1000 year flood plain).

Mapping, included below in **Figure 5**, shows the site to be within Flood Zone 1. The maps do indicate there is a small brook towards the north of the site, however given the 1.5m level difference between the building and the brook, potential flooding from this is deemed negligible.

Figure 5 – GOV.uk Flood Map for Planning (Extent of Flooding from Rivers or Sea)



4.2 Flooding from the Sea (Tidal)

The site is situated 65km from the sea and is not considered to be influenced by tidal waters.

4.3 Flooding from Groundwater

Government provided information showing the flood risk summary for the surrounding areas indicates flooding from groundwater is unlikely in this area.



4.4 Flooding from Sewers

Sewer records have been obtained from Thames Water and are included in **Appendix B**. There is a 229mm dia pipe running through the site and draining to the brook located towards the northern corner of the site. Whilst this does provide a potential risk, it is considered in the proposed the sewer is diverted around the new building and the sewer inspected as to determine its condition.

Surface Water

Private surface water sewers run to the south of the proposed building, with these either continuing east or south of the site.

The cover levels of these manholes are positioned at circa 53.950 AOD, with the proposed FFL being positioned at 54.180. This difference of circa 200mm will divert any potential flows away from the building. Additionally, a new surface water channel is being positioned outside the south entrance which will further aid in capturing any potential run off from the existing access road.

Foul Water

Similarly, to the surface water, private foul water sewers are located to the south of the development, along the existing access road with cover levels for these manholes being positioned at circa 53.930 AOD. Given the difference of 200mm between FFL (54.180), potential flows will be diverted away from the building.

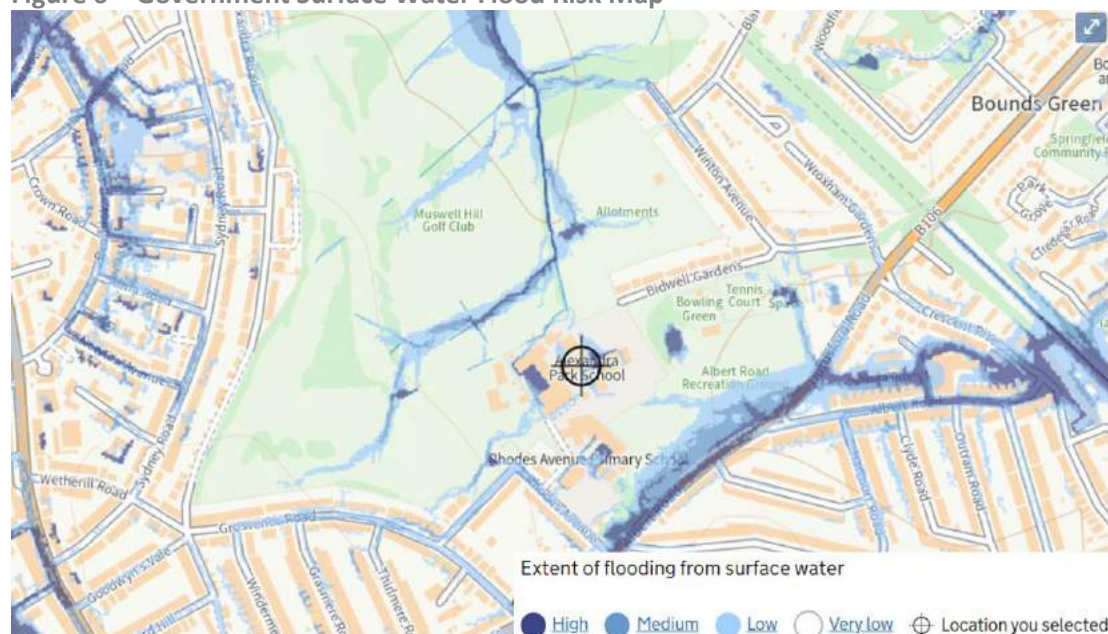
4.5 Overland flows originating off site

Government water flood mapping is shown below in **Figure 6** and shows the site is generally not at risk of flooding from surface water, however small areas of localised flooding are shown around the school site with these presenting as low risk areas.

These areas of flooding are relatively small and do not pose significant risk to development site. Whilst levels from the west do fall towards the site, proposed levels have been designed so they fall around the building to the north of the site where levels reduce to 52.670m. Additionally FFL of the building has been raised by 150mm compared to surrounding levels to further divert overland flows around the building.



Figure 6 – Government Surface Water Flood Risk Map



4.6 Development Drainage

4.6.1 Existing Drainage Network

Whilst As-Built information of the existing drainage isn't available, survey information has allowed a large extent of the existing network around the neighbouring school building to be understood.

It is understood that the private drainage network to the existing building runs from west to east along the existing access road. This network is separated into a total of three separate runs featuring one foul run and two surface water runs.

The foul run and one of the SW runs are routed to the south and the second SW run appears to discharge into the existing Thames Water sewer.

4.6.2 Proposed Drainage Network

The National Planning Policy Framework Technical Guidance seeks to promote the use of Sustainable Drainage Systems (SuDS) for new developments to limit both peak discharges and the volumes of surface water leaving sites.

CIRIA C753 The SuDS Manual defines numerous SuDS components which should be used in combination to create a SuDS Management Train to control the frequency of runoff, the flow rates and volume of runoff and to reduce concentrations of contaminants to acceptable levels. Consideration of suitable development drainage proposals has been undertaken with consideration being given to these components and commentary in relation to the decision-making process is presented below in **Table 3**.



The proposed drainage network comprises circa 455m² of additional impermeable surface (refer to appendix C for catchment plan). It is proposed that both rainwater and surface water utilise the same system drainage system whereby surface water is attenuated to the rear of the development and then drains to a flow control which then enters the existing Thames Water network. The flow control is restricted to green field run off rates of 2l/s with the required attenuation as to limit discharge rates to this amount being 23m³. This attenuation is primarily stored in crates featuring 95% voids, which are designed for a 1 in 100 year rainfall event + 40% climate change. The attenuation tank measures 2.0x12.0x0.8m deep and capable of storing 17m³ of surface water. This attenuation is further supported by a 300mm thick layer of clean 30% voided gravel located towards the rear development which is located beneath permeable pavements. This gravel area is capable of storing circa 6m³ of surface water.

Located outside the south entrance to the building is a channel that extends the length of the footpath, this will capture any potential surface water run off from the footpath and additionally the road as to prevent surface water run-off into the building.

After the flow control the surface water drains into the existing Thames surface water sewer which enters an existing brook located towards the northern corner of the site. Given this is a natural water course, it was considered this drainage location was most suitable as opposed to the smaller 150mm private sewer located on site. Presently the discharge location for this sewer is not known. Additionally given the existing site levels, it is understood that green field run off for the site, will be already entering this brook and therefore discharging new impermeable areas at green field run off rate into this brook will have very minimal impact on the existing Thames Water Sewer.

The foul network is proposed to drain to the south of the building towards an existing foul water sewer. Given the measured invert level of this sewer is only circa 0.6m below cover level, a pumped system will have to be utilised.

The above description should be read in conjunction with the proposed drainage strategy (Appendix G).



Table 3 – Consideration of Appropriate SuDS Components

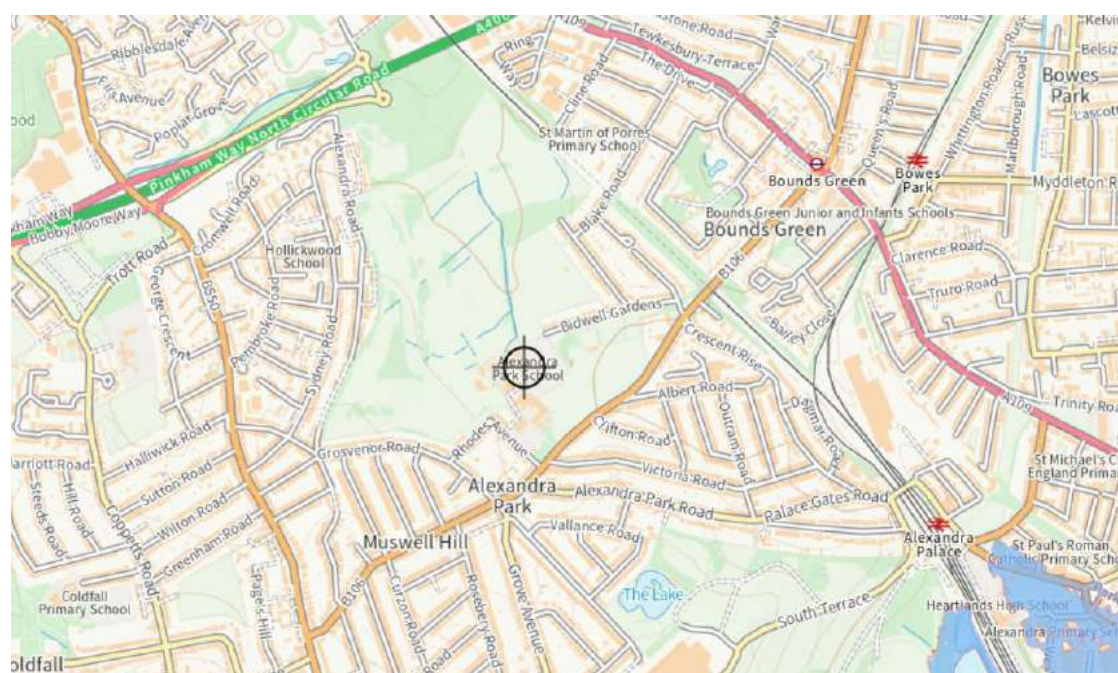
Component Type	Commentary	Suitability
Rainwater Harvesting	Rainwater harvesting has been considered and potential implementation of water butts for irrigation will be adopted for the site.	✓
Green Roofs	For this development, solar panels are being provided on the roof space as opposed to a green roof.	X
Infiltration	Initial ground investigation and local borehole records shows deep made ground and clay. This strata is unsuitable for infiltration.	X
Proprietary Treatment Systems	There are low levels of pollutants from roads entering our proposed drainage systems and the SuDS components below are capable of providing appropriate levels of cleaning to the surface water located on site.	X
Filter Strips/Drains	Filter strips are proposed with the current drainage system and are located along two drainage runs.	✓
Swales	The site has limited space available for construction of the necessary batters for a swale, and swales are therefore not deemed suitable.	X
Bioretention Systems	Outside of the currently paved areas, levels are generally falling towards the north of the site. This gives very limited areas of level landscaped areas required by bioretention systems. It is therefore considered bioretention systems are not suitable for this site.	X
Trees	Existing trees and hedges will be retained and managed where possible, with additional landscaping being provided.	✓
Pervious Pavements	Permeable pavements are being provided with a storage and filtration stone layer beneath to the north of the building.	✓
Attenuation Storage Tanks	Attenuation storage tanks are being used to provide attenuation to allow for surface water to be discharged at greenfield run of rate.	✓
Detention Basins	There is insufficient space on site for detention basins with land to the north of the site being sloped at a considerable incline not facilitating the implementation of	X
Ponds and Wetlands	There is insufficient space for ponds and wetlands on site.	X

4.7 Reservoirs, Canals and other Artificial Sources

The site is not located within the influence of any local reservoirs as shown in the government flood mapping shown below in Figure 7.



Figure 7 – Government Reservoir Flood Risk Map





5.0 Sequential and Exception Test

5.1 Sequential Test

The development proposals comprise educational end use which is classified in the Technical Guidance accompanying the National Planning Policy Framework as a More Vulnerable classification.

As discussed in Section 4.1 the site is classified as being situated in Flood Zone 1 as defined in the National Planning Policy Framework Technical Guidance.

With reference to the requirements of the National Planning Policy Framework Technical Guidance recreated in **Tables 4** and **5** below the site is considered to be sequentially preferable.

5.2 Exception Test

In line with the requirements of the National Planning Policy Framework Technical Guidance an Exception Test is not required.



Table 4 – Flood Risk Vulnerability Classification

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 electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines.
Highly Vulnerable	• Police stations, ambulance stations and fire stations and command centres and 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.
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 of short-let caravans and camping, <i>subject to a specific warning and evacuation plan</i>.
Less Vulnerable	• Police, ambulance and fire stations which are <i>not</i> required to be operational during flooding. • Buildings used for shops, financial, professional and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in 'More Vulnerable', 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 <i>not</i> 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).
Water Compatible	• 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 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 recreations and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, <i>subject to a specific warning and evacuation plan</i>.

Note: Table recreated from Table 2 of the Technical Guidance to the National Planning Policy Framework; March 2012.



Table 5 – Flood Risk Vulnerability and Flood Zone ‘Compatibility’

Flood Risk Vulnerability Classification (See Table 4)		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	X	Exception Test required	✓
	Zone 3b ‘Functional Floodplain’	Exception Test required	✓	X	X	X

Note: Table recreated from Table 3 of the Technical Guidance to the National Planning Policy Framework; March 2012.



6.0 Water Quality Management

Table 6 – Minimum Water Quality Management Requirements

Land Use	Pollution Hazard Level	Requirements for discharge to Surface Waters, including Coasts and Estuaries	Requirements for discharge to Groundwater
Residential roofs	Very Low	Removal of gross solids and sediments only	
Individual property driveways, roofs (excluding residential), residential car parks, low traffic roads (e.g. cul-de-sacs, home zones, general access roads), non-residential car parking with infrequent change (e.g. schools, offices)	Low	Simple index approach (Note: extra measures may be required for discharges to protected resources)	
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/motorways	Medium	Simple index approach (Note: extra measures may be required for discharges to protected resources)	Simple index approach (Note: extra measures may be required for discharges to protected resources) In England and Wales, Risk Screening must be undertaken first to determine whether consultation with the environmental regulator is required. In Northern Ireland the need for Risk Screening should be agreed with the environmental regulator.
Trunk roads and motorways	High	Follow the guidance and risk assessment process set out in HA (2009)	
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	High	Discharges may require an environmental licence or permit. Obtain pre-permitting advice from the environmental regulator. Risk assessment is likely to be required.	

Note: Table recreated from Table 4.3 of the CIRIA C753, The SuDS Manual; 2015.



Based on **Table 6** above the development proposals would be considered to be **Medium** and therefore a simple approach to the assessment of water quality improvement is appropriate.

Table 7 – Pollution Hazard Indices for Different Land Use Classifications

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
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 (e.g. cul-de-sacs, home zones, general access roads), non-residential car parking with infrequent change (e.g. schools, offices) i.e. <300 traffic movements/day	Low	0.5	0.4	0.4
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/motorways	Medium	0.7	0.6	0.7
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 motorways	High	0.8	0.8	0.9

Note: Table recreated from Table 26.2 of the CIRIA C753, The SuDS Manual; 2015.

Based on **Table 6** above the appropriate SuDS mitigation Index required for the site are as highlighted above in **Table 7**.



6.1 Simple Index Approach

Table 8 – Indicative SuDS Mitigation Indices for Discharges to Surface Waters

Type of SuDS Component	Mitigation Indices		
	TSS	Metals	Hydrocarbons
Filter Strip	0.4	0.4	0.5
Filter Drain	0.4	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	0.7	0.7	0.5
Wetland	0.8	0.8	0.8
Proprietary Treatment Systems	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.		

Note: Table recreated from Table 26.3 of the CIRIA C753, The SuDS Manual; 2015.

Table 9.1 – Proposed SuDS Mitigation Indices (Roof Areas Only)

Type of SuDS Component	Mitigation Indices		
	TSS	Metals	Hydrocarbons
Filter Strip	0.4	0.4	0.5
Total	0.4	0.4	0.5

Roof areas for the development will only be filtered through a filter trench. The proposed total mitigation indices in **Table 9.1** above are greater than the required indices indicated in **Table 7** for roof areas and therefore the proposed SuDS features, and drainage scheme provides adequate treatment.



Table 9.2 – Proposed SuDS Mitigation Indices (Roof Areas Only)

Type of SuDS Component	Mitigation Indices		
	TSS	Metals	Hydrocarbons
Permeable Paving	0.7	0.6	0.7
Filter Strip	$0.4/2 = 0.20$	$0.4/2 = 0.20$	$0.5/2 = 0.25$
Total	0.90	0.80	0.95

External paved areas will first be drained through permeable paving, then enter a filter trench. The proposed total mitigation indices in **Table 9.2** above are greater than the required indices indicated in **Table 7** for low traffic roads and therefore the proposed SuDS features, and drainage scheme provides adequate treatment. These areas being specified as low traffic areas/ are an over classification and therefore pollutant levels will be much reduced.

7.0 Summary of Flood Mitigation Measures

The proposed development is not considered to be at a significant risk of flooding and is considered to be a sequentially preferable development when assessed in line with the National Planning Policy Framework Technical Guidance. A summary of individual flooding mechanisms and the proposed mitigation strategies is provided below:

- **Flooding from Rivers (Fluvial)**
The site is located within flood zone 1 and is therefore not considered at risk of fluvial flooding.
- **Flooding from the Sea (Tidal)**
The site is situated 65km from the sea and is not considered to be influenced by tidal waters.
- **Flooding from Groundwater**
Information provided by the flood risk summary for the area from GOV.uk indicates that groundwater flooding is unlikely in this area. Additionally, the lower ground level to the north would also suggest the ground water table is significantly lower than local topography.
- **Flooding from Sewers**
The development is considered to be at a low risk of flooding due to local topography guiding flows to the northern corner of the site.
- **Overland flows originating off site**

Government flood mapping indicates small areas of flooding within the school boundaries. These areas are limited in nature and do not present a significant risk. Additionally, levels located around the site are designed to divert flows around the building to the north of the site. The buildings FFL is also positioned 150mm above surrounding levels as to further prevent potential flooding.



- **Development Drainage**

Stormwater is proposed to drain into the existing Thames water sewer system located towards the east of the site. The site utilises both filter trenches and permeable paving as to provide betterment to the surface water. Water is attenuated using both a combination of permeable paving and crates providing 23m³ of attenuation for the site, capable of storing water for a 1:100 year event plus 40% climate change. Surface water discharges from the site through a flow control to the Thames water sewer at a rate of 2l/s (greenfield runoff rate).

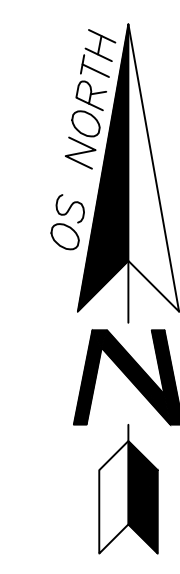
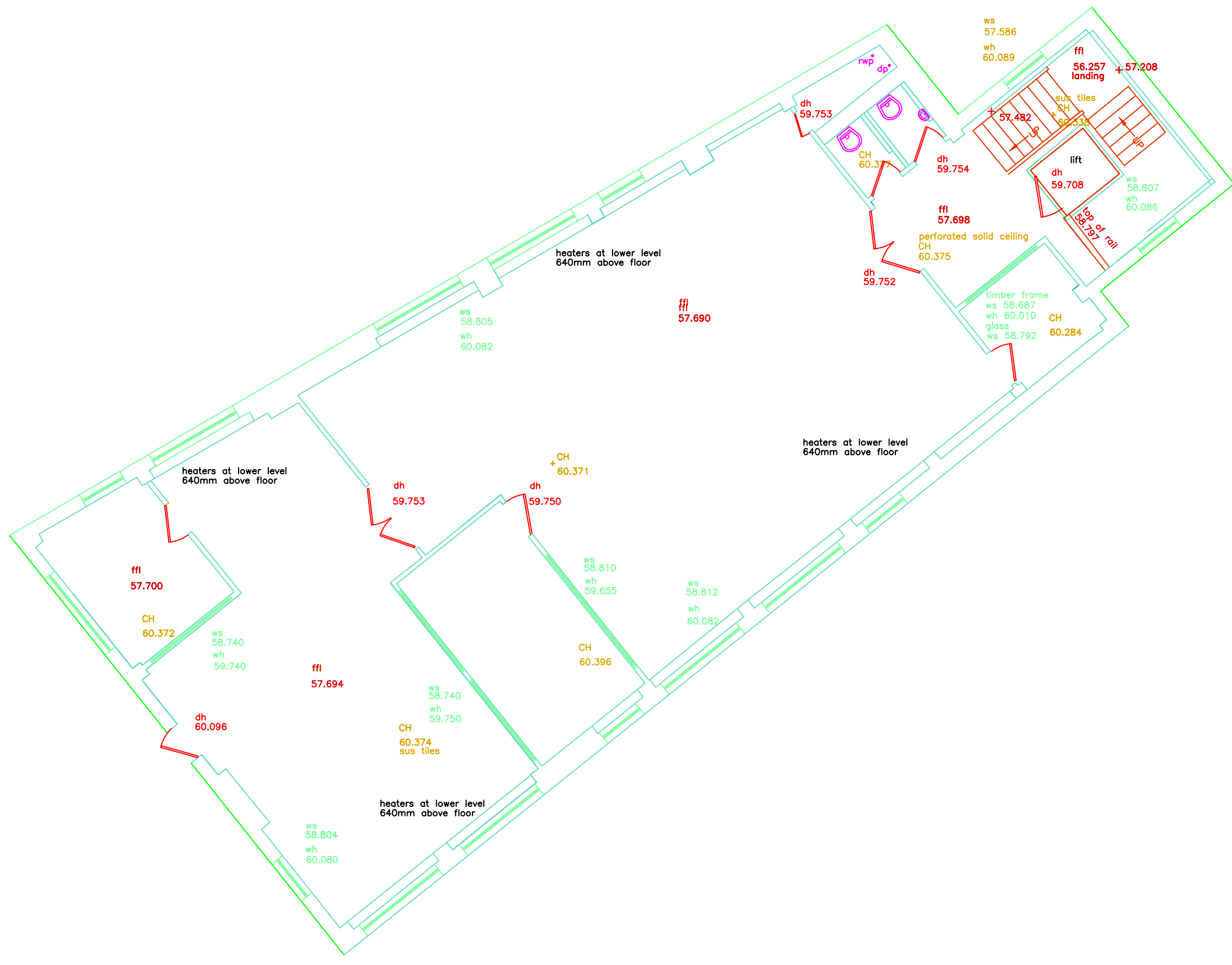
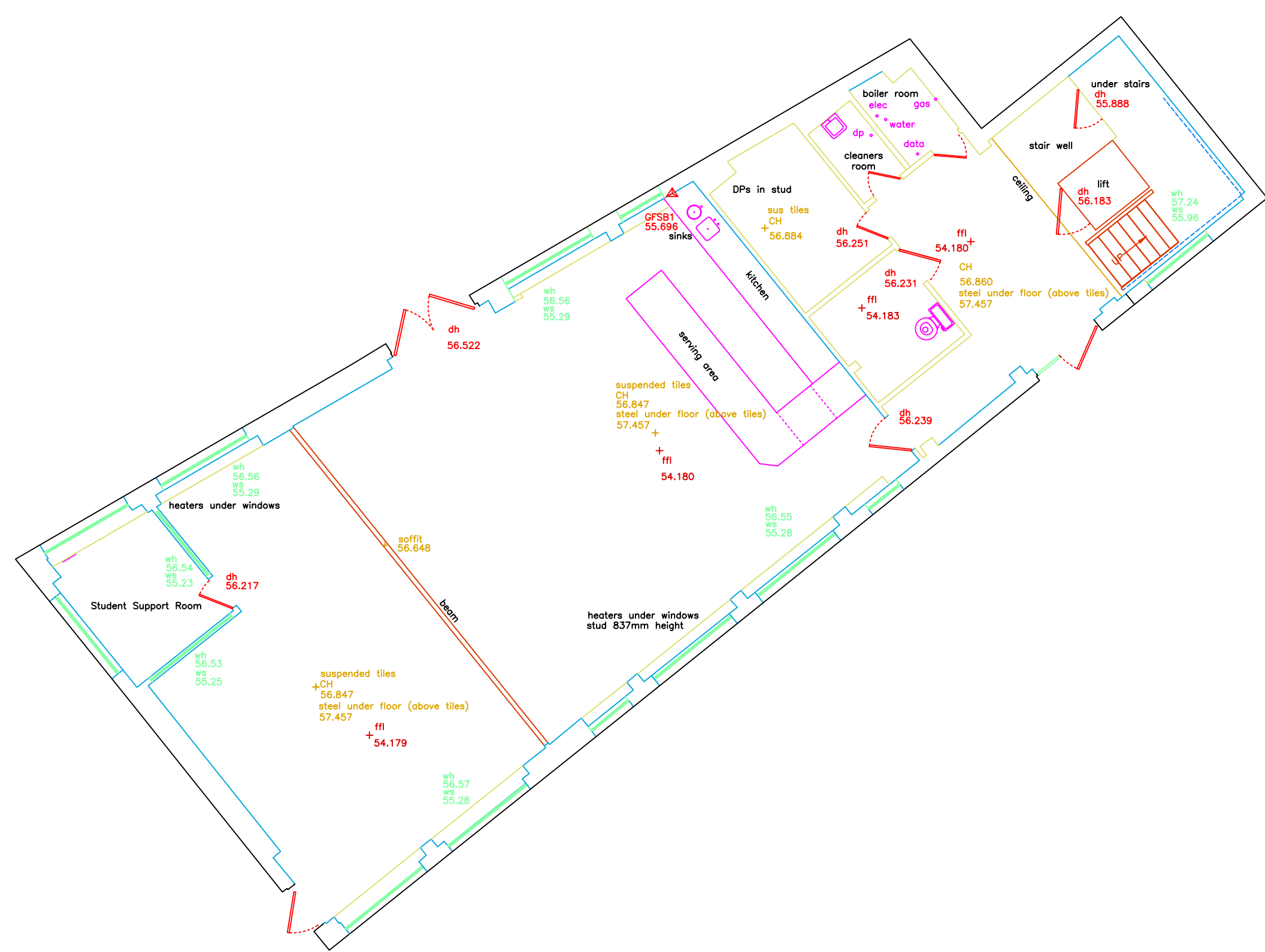
Sustainable urban drainage systems are proposed to improve on site water quality. The SuDS systems selected for this development are permeable paving and filter trenches. These provide filtration for pollutants and is considered in keeping with the scale of development.

- **Reservoirs, Canals and other Artificial Sources**

The site is located outside of the influence of any local reservoirs.

Appendix A

Topographical Survey



Station	Easting	Northing	Level
RG1	529128.795	190920.597	54.557
RG2A	529136.747	190937.674	54.889
TGT31	529130.243	190944.356	56.123
RG3	529140.190	190954.273	54.176
RG4	529114.598	190935.791	54.753
GF5B1	529133.997	190946.220	55.696
INT1	529139.173	190946.605	55.911
INT2	529139.618	190948.291	55.874
JD4	529129.555	190915.194	56.183

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Services Survey verified with Utility Record Plans
CHECK MUST BE MADE BY ANOTHER SURVEYOR

Utility Type	Company	Checked	Verified
Electricity			
Water			
Drainage			
Gas			
Cable TV			
Telecoms			
Oil Pipelines			
Other			

NOT APPLICABLE

[illegible][illegible]



drawing no. _____ date _____

10311-APS 21st August 2002

surveyed _____ drawn _____ checked _____ scale _____ plot _____

SB JD OM SB OM 1:100 A0

SURVEYS TOPOGRAPHIC UTILITIES BUILDING

The first stage of the design process

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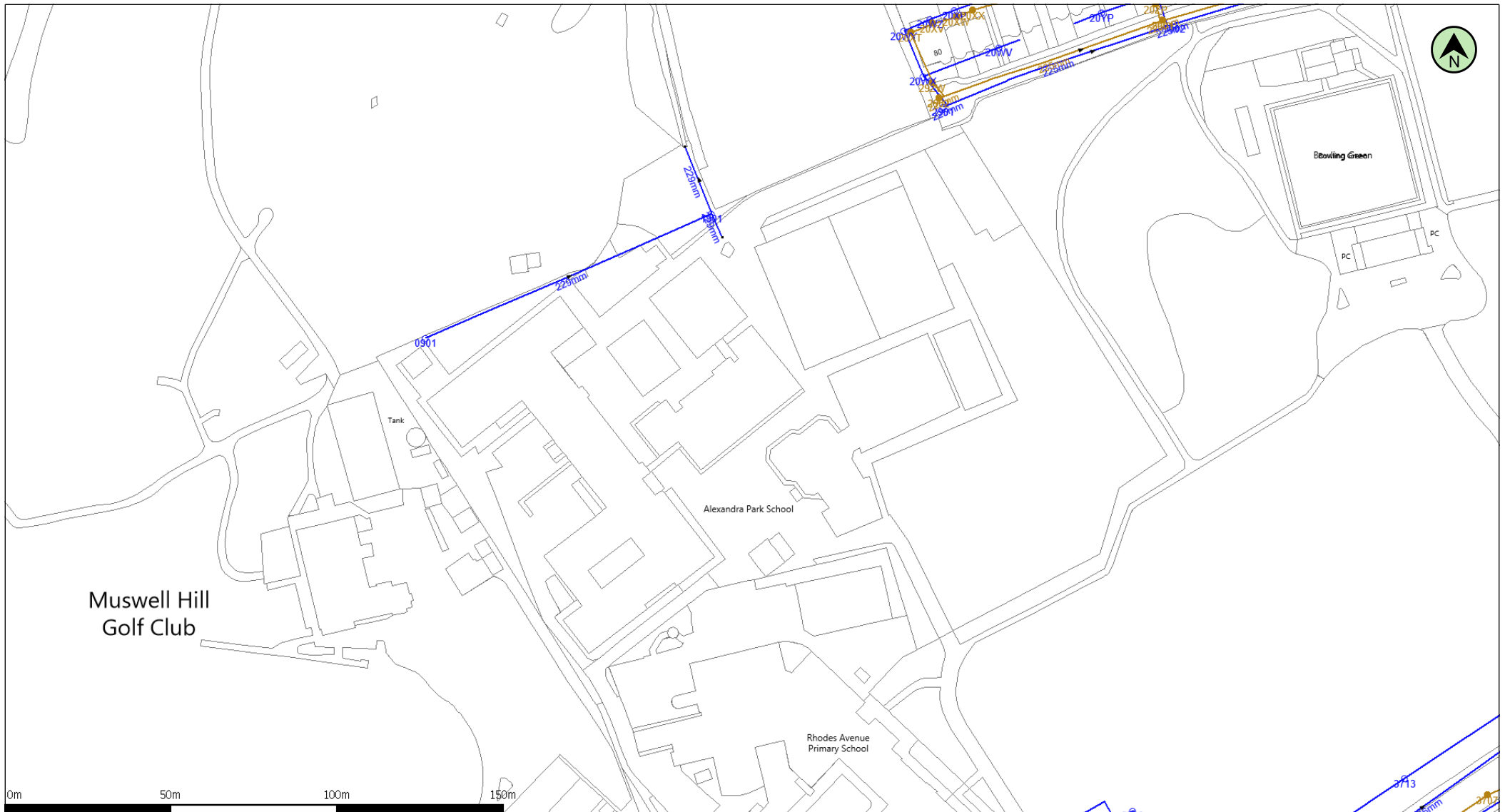
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Appendix B

Sewerage Undertaker Sewer Records



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Date: 05/09/23

Scale: 1:1624

Map Centre: 529173,190901

Data updated: 30/06/23

Wastewater Plan A4

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Foul Sewer	—	Foul Manhole	●
Surface Sewer	—	Surface Manhole	○
Combined Sewer	—	Combined Manhole	●
Abandoned Sewer	—	Abandoned Manhole	○
Pressure Main	—	Other Manhole	●
Private Asset (Colour denotes effluent type)	—	End Item	●
Proposed Asset (Colour denotes effluent type)	—	S104 Boundary	—

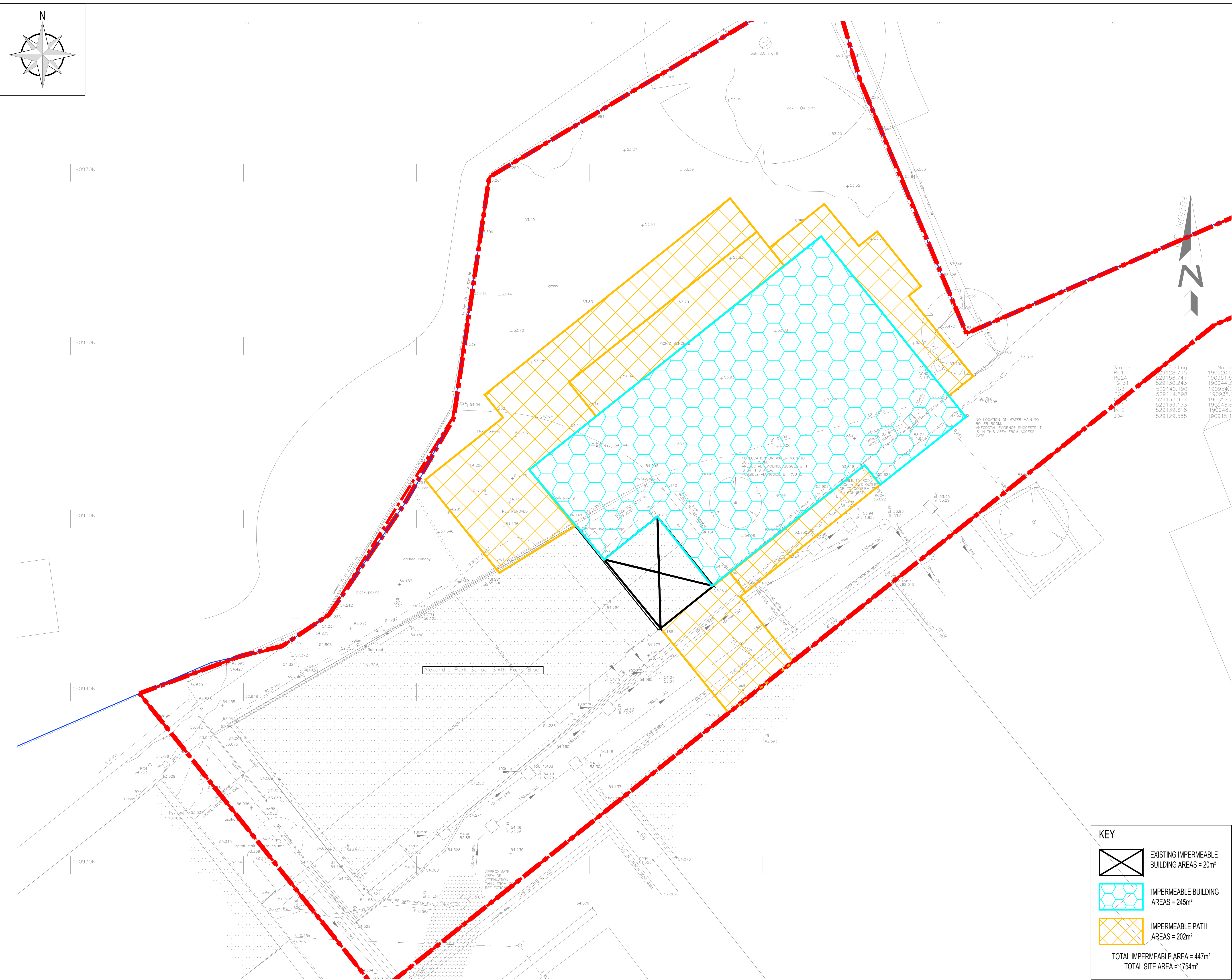
yuvarajjoseph.balakrishnan@thames

Alexandra Park School



Appendix C

Catchment Layouts



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1. DO NOT SCALE THIS DRAWING. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS ON SITE PRIOR TO COMMENCING THE WORKS.

2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.

3. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METRES UNLESS NOTED OTHERWISE.

4. ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

5. THIS DRAWING IS BASED ON:

- THINKING BUILDINGS SITE PLAN NO.2231 DATED 19.09.2023
- THINKING BUILDINGS ALEXANDRA PARK NO.10311_APS DATED 21.08.2023

!

CONTRACTUAL RESIDUAL CDM RISK

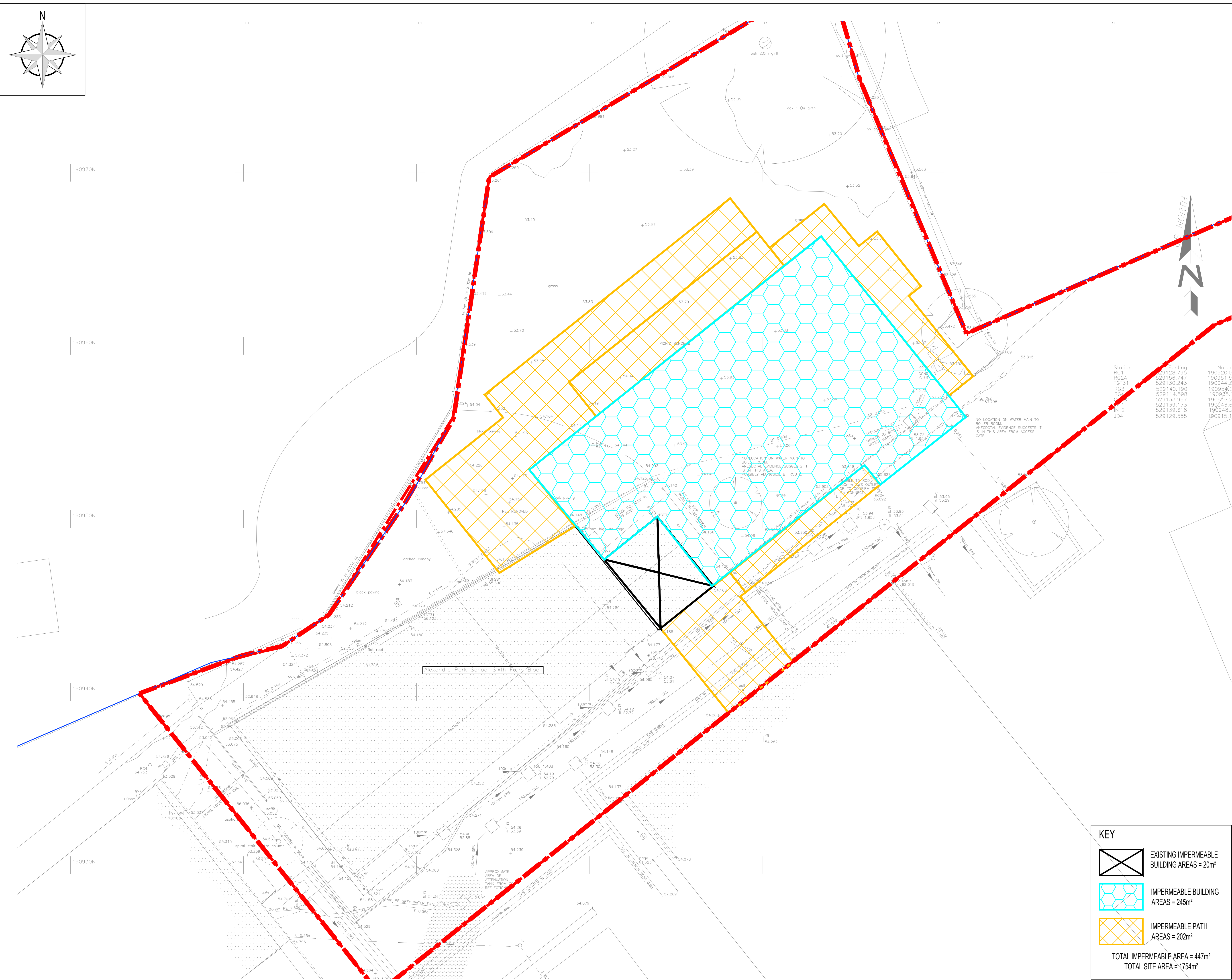
FIRE ESCAPE ROUTES
CONTRACTOR TO AGREE FIRE STRATEGY WITH EXISTING BUILDING MANAGEMENT TEAM, AND PROVIDE SUITABLE ALTERNATE PATHWAY THROUGH THE CONSTRUCTION SITE AND/OR MITIGATION MEASURES

CLOSE PROXIMITY OF SCHOOL
CORRECT PROTECTION TO BE GIVEN TO CHILDREN AND PEDESTRIANS INCLUDING HOARDING AND PRECAUTIONARY MEASURES TO BE TAKEN WITH DELIVERIES AND TRANSPORTATION.

A3-C01	22.09.23	ISSUED FOR INFORMATION	FR	JL	
Rev.	Date	Revision Description	Drawn	Auth'd	
Client					
Thinking Buildings					
Project Title					
ALEXANDRA PARK SCHOOL					
Description					
DRAINAGE CATCHMENT LAYOUT					
Date	22.09.23	Drawn	FR		
Scale	1:100 @A1	Authorised	JL		
JPL Ref.	THB02740				
BIM Ref.					
Project	Orig.	Vol.	Level	Type	Role
02740	JPL	ZZ	ZZ	DR	D
Suitability					Revision
A3 - Developed Design					C01
Jackson purdue lever					
8 Pride Point Drive, Pride Park, Derby, DE24 8BE 03332 364675 enquiries@jacksonpl.co.uk www.jacksonpl.co.uk					

Appendix D

Greenfield Runoff Calculation and Storage Calculation



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1. DO NOT SCALE THIS DRAWING. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS ON SITE PRIOR TO COMMENCING THE WORKS.

2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.

3. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METRES UNLESS NOTED OTHERWISE.

4. ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

5. THIS DRAWING IS BASED ON:

- THINKING BUILDINGS SITE PLAN NO.2231 DATED 19.09.2023
- THINKING BUILDINGS ALEXANDRA PARK NO.10311_APS DATED 21.08.2023

!

CONTRACTUAL RESIDUAL CDM RISK

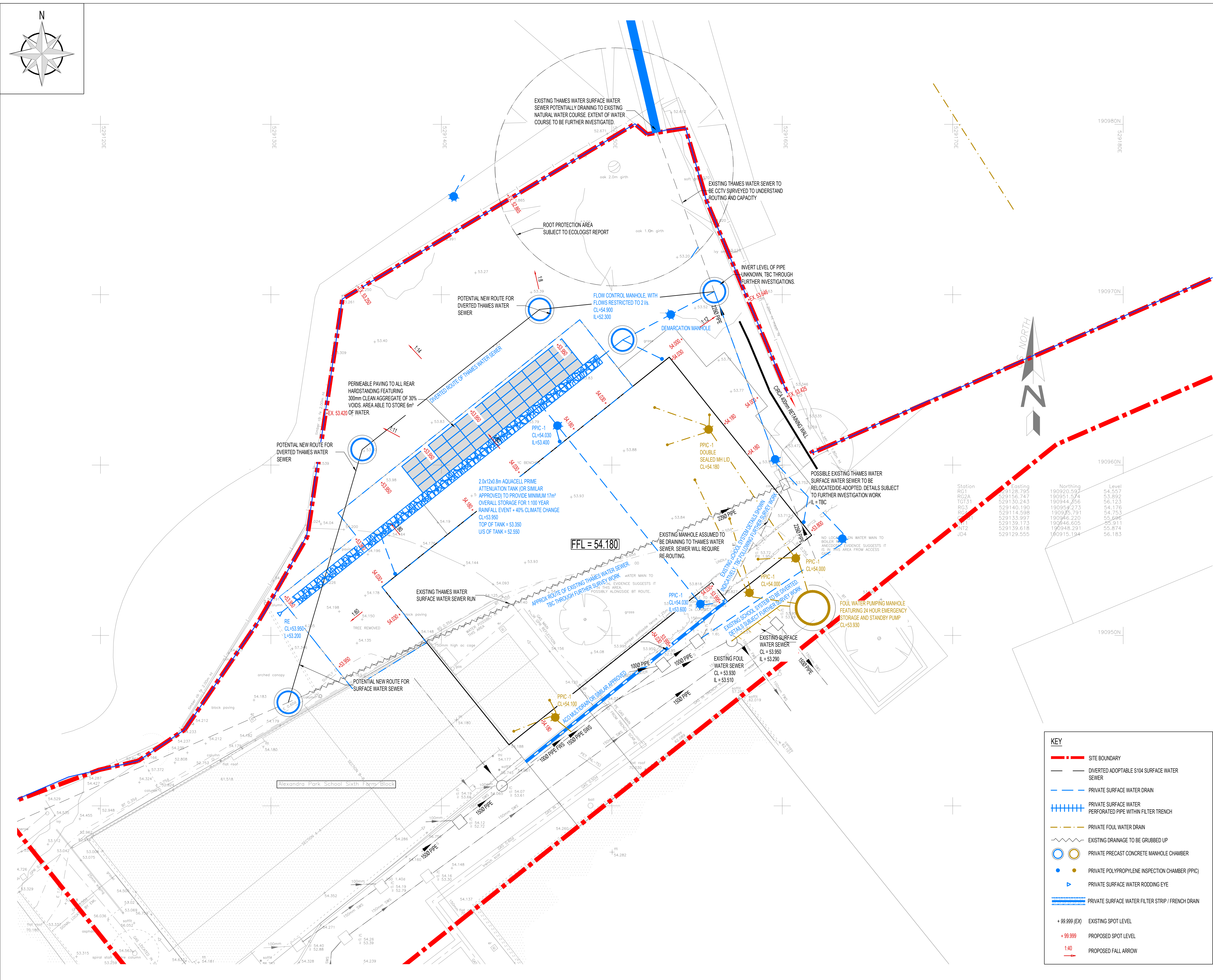
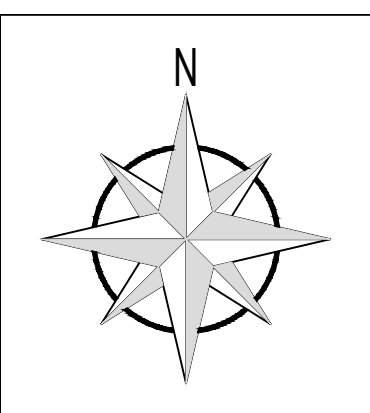
FIRE ESCAPE ROUTES
CONTRACTOR TO AGREE FIRE STRATEGY WITH EXISTING BUILDING MANAGEMENT TEAM, AND PROVIDE SUITABLE ALTERNATE PATHWAY THROUGH THE CONSTRUCTION SITE AND/OR MITIGATION MEASURES

CLOSE PROXIMITY OF SCHOOL
CORRECT PROTECTION TO BE GIVEN TO CHILDREN AND PEDESTRIANS INCLUDING HOARDING AND PRECAUTIONARY MEASURES TO BE TAKEN WITH DELIVERIES AND TRANSPORTATION.

A3-C01	22.09.23	ISSUED FOR INFORMATION	FR	JL	
Rev.	Date	Revision Description	Drawn	Auth'd	
Client					
Thinking Buildings					
Project Title					
ALEXANDRA PARK SCHOOL					
Description					
DRAINAGE CATCHMENT LAYOUT					
Date	22.09.23	Drawn	FR		
Scale	1:100 @A1	Authorised	JL		
JPL Ref.	THB02740				
BIM Ref.					
Project	Orig.	Vol.	Level	Type	Role
02740	JPL	ZZ	ZZ	DR	D
Suitability					Revision
A3 - Developed Design					C01
Jackson purdue lever					
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Appendix E

Proposed Drainage Layout



- DO NOT SCALE THIS DRAWING. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS ON SITE PRIOR TO COMMENCING THE WORKS.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS', ENGINEERS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METRES UNLESS NOTED OTHERWISE.
- ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
- THIS DRAWING IS BASED UPON THE FOLLOWING:
- THINKING BUILDINGS SITE PLAN NO 2231 DATED 19.09.2023
 - RGI SURVEYS ALEXANDRA PARK NO.10311, APS DATED 21.08.2023



CONTRACTUAL RESIDUAL CDM RISK

FIRE ESCAPE ROUTES

CONTRACTOR TO AGREE FIRE STRATEGY WITH EXISTING BUILDING
MANAGEMENT TEAM, AND PROVIDE SUITABLE ALTERNATE PATHWAY THROUGH
THE CONSTRUCTION SITE AND/OR MITIGATION MEASURES

CLOSE PROXIMITY OF SCHOOL

CORRECT PROTECTION TO BE GIVEN TO CHILDREN AND PEDESTRIANS
INCLUDING HOARDING AND PRECAUTIONARY MEASURES TO BE TAKEN WITH
DELIVERIES AND TRANSPORTATION.

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-C01	22.09.23	ISSUED FOR INFORMATION	JL	DA
Rev.	Date	Revision Description	Drawn	Auth

Thinking Buildings

Project Title

ALEXANDRA PARK SCHOOL

Description	Value
Number of participants	100
Number of items	10
Number of trials	10
Number of blocks	10
Number of sessions	10
Number of trials per block	10
Number of items per trial	10
Number of trials per session	10
Number of items per session	10
Number of trials per block	10
Number of items per trial	10
Number of trials per session	10
Number of items per session	10
Number of trials per block	10
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Number of trials per block	10
Number of items per trial	10
Number of trials per session	10
Number of items per session	10
Number of trials per block	10
Number of items per trial	10
Number of trials per session	10
Number of items per session	10

PROPOSED PRIVATE LEVELS AND DRAINAGE LAYOUT

Date	22.09.23	Drawn	JL
Scale	1:100 @A1	Authorised	DA
PL Ref.	THB02740		

Project	Orig.	Vol.	Level	Type	Role	Number
002740	JPL	01	ZZ	DR	D	4101

Suitability	Revision
A3 - Developed Design	C01

Appendix F

Site Photography



IMG_1093



IMG_0949



IMG_0950



IMG_0951



IMG_0952



IMG_0953



IMG_0954



IMG_0955



IMG_0956



IMG_0957



IMG_0958



IMG_0959



IMG_0960



IMG_0961



IMG_0962



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IMG_0982



IMG_0983



IMG_0984



IMG_0985



IMG_0986



IMG_0987



IMG_0988



IMG_0989



IMG_0990



IMG_0991



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IMG_0997



IMG_0998



IMG_0999



IMG_1001



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IMG_1003



IMG_1004



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IMG_1007



IMG_1008



IMG_1009



IMG_1010



IMG_1011



IMG_1012



IMG_1013



IMG_1014



IMG_1015



IMG_1016



IMG_1017



IMG_1018



IMG_1019



IMG_1020



IMG_1021



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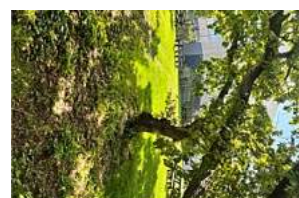
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