All Saints RC High School, Rawtenstall

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY REPORT

6th November 2023

All Saints RC High School, Rawtenstall

Flood Risk Assessment & Drainage Strategy Report

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PREPARED BY JOHN SPEERS

0151 227 1462 info@ajpltd.co.uk www.ajpltd.co.uk 4th Floor, 1 Dale Street, Liverpool, L2 2ET

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Tilbury Douglas - All Saints RC High School, Rawtenstall

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Flood Risk Assessment & Drainage Strategy Report

1.0 INTRODUCTION

This Flood Risk Assessment (FRA) and Drainage Strategy Report has been prepared on behalf of Tilbury Douglas in connection with the construction of the new All Saints Roman Catholic High School in Rawtenstall, BB4 6SH. The site is situated on the existing All Saints High School site, to the south of Haslingden Road in Rawtenstall. Even though the site is located entirely within Flood Zone 1, the total area of the proposed development is over 1.0ha and therefore an FRA is required.

This FRA has been prepared in accordance with the general requirements of the National Planning Policy Framework and the associated Planning Practice Guidance, both published by the Dept. for Levelling Up, Housing and Communities. This involves the identification of flood risk to new development(s) on the site, the possible effect of this development on flood risk elsewhere and the investigation of the impact on the development as a result of increased sea levels, fluvial flows and larger pluvial events due to increased impermeable areas and climate change.

The purpose of this report is to present a site-specific assessment of flood risk based on available information, to identify relevant flood levels affecting the site with respect to a particular probability of flooding. The flood levels identified are dependent on the correctness of the current conditions, as stated in this report and the prediction of future climatic conditions implicit in the National Planning Policy Framework.

For any size of storm event, the procedure will always yield a probability that the event will occur in any year, albeit the probability is smaller for larger events. The predicted storm event has a probability of occurrence in any year and the derived flood level has an associated probability of exceedance. This means that there is always a risk that property flooding could occur one or more times in any year.

Therefore, this report should not be interpreted or relied upon as providing a guarantee against flooding. There is always a residual risk that flooding will occur and it is not possible to predict a zero risk of flooding.

In accordance with National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance, flood risk must be assessed for all sources including tidal (from the sea), fluvial (from rivers), pluvial (from land), groundwater, sewer and artificial water bodies (e.g., reservoirs, canals, major water supply infrastructure etc.).

More specifically, the development of any site must be carried out in such a way as to mitigate any potential flood risk, both on and off site from all sources of flooding.

The other purpose of this report is to present the surface water and foul water outline drainage strategies for the site which have been developed by the Alan Johnston Partnership. To demonstrate how the specific drainage requirements are to be met, the report should be read in conjunction with the relevant drawings and supporting information, included within the appendices.

The drainage strategies outlined within this report, have been prepared in accordance with BS EN 752:2017 (Drain and sewer systems outside buildings), Sewers for Adoption, Building Regulations Approved Document H (Drainage and waste disposal), the National Planning Policy Framework document (Dept. for Levelling Up, Housing and Communities, July 2021) and associated Planning Practice Guidance.

2.0 SITE DESCIPTION

The proposed development is located on the site of the existing All Saints Roman Catholic High School, to the south of Haslingden Road, Rawtenstall, at National Grid reference SD 78542 06952. The site location is illustrated in Appendix A and the extent of the area to which the application relates is shown on the enclosed aerial photo, attached in Appendix B.

The site generally falls from north-west to south-east, with levels falling from approximately 195.00mAOD to approximately 181.0mAOD. As can be seen from the topographic survey, attached in Appendix C, there are numerous slopes across the existing school site. To enable a viable scheme, the proposed site levels are constrained by the existing buildings and highway to the north.

2.1 Geology

An intrusive site investigation was completed in March 2022 by Geotechnics and is contained within the Geotechnics Ground Investigation Report, PY210448. The site investigation report indicates that the underlying strata consists of made ground to depths up to 1.20mbgl, which is underlain by Glacial Till deposits comprising mainly of firm to stiff clays to a maximum recorded depth of 21.50mbgl. The bedrock encountered during the site investigation was reported to be sandstone and located at depths of around 21.00mbgl.

This is supported by the information taken from the British Geological Survey (BGS) 1:50,000 Bedrock geology maps. These show that the site has superficial deposits comprising of Glacial Till deposits, with the bedrock across the southern half of the site reported to be of the Holcombe Brook Grit Formation comprising of sandstone and the northern half bedrock reported to be of the Rossendale Formation, comprising of mudstone and siltstone.

2.2 Hydrogeology

The Environment Agency groundwater maps show that the superficial deposits are classified as Secondary undifferentiated strata. These are defined as areas where it has

not been possible to attribute either category A or B to a rock type, respectively. In most cases this is due to the variable characteristics of the rock type..

The bedrock is classified as a Secondary A Aquifer, defined as permeable layers that can support local water supplies, and may form an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers. The Environment Agency groundwater maps also indicate that the development site is not situated within a groundwater Source Protection Zone (SPZ).

Groundwater was only encountered within one of the exploratory holes undertaken within the Geotechnics Ground Investigation Report, PY210448, at a depth of around 19.00mbgl, with only perched water found within the superficial deposits during the groundwater monitoring. Therefore, it is concluded that the groundwater is actually located at depth, around 19.00mbgl.

2.3 Hydrology

The development site is situated in the direct catchment of Langwood Brook, which is located to the west of the site and is tributary of the River Irwell. Despite this, the site is located within Flood Zone 1 which is categorized by the Environment Agency as land assessed as having less than a 1 in 1,000 annual probability of river flooding (1% - 0.1%). Therefore, the site is an area identified by the Environment Agency as at low risk of flooding from rivers and streams.

3.0 PROPOSED DEVELOPMENT

The entire site covers a total area of 5.195ha but a total area of 3.765ha to the north, south and west of the site will remain as per the existing scenario. These include; the sports pitches/greenfield areas to the south of the site, the greenfield/landscaped areas to the north of the site and the existing sports building and MUGA to the west of the site. As such, the proposed school development will be located within the centre of the overall site boundary and will cover a total area of 1.430ha.

The proposed development is to demolish the existing school buildings and construct a new school building with associated car parking areas, access roads and sports pitches. It is envisaged that the new school building will be constructed prior to the old school building being demolished. The old building will be replaced with the new car park area. As such, the proposed drainage strategy will need to be designed to accommodate this phased approach to the development.

To enable a viable scheme, the proposed site levels are constrained by the existing developments and highways surrounding the site, therefore the site levels may be amended but are likely to remain similar to the existing in order to tie into the surrounding developments and highway. A proposed site plan is attached in Appendix D.

4.0 PLANNING POLICY

The National Planning Policy Framework (NPPF) sets out the Government's policy on meeting the challenges of climate change, flooding and coastal change. The NPPF states that:

"Planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impact of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development. Local planning authorities should adopt proactive strategies to mitigate and adapt to climate change taking full account of flood risk, coastal change and water supply and demand consideration."

This Flood Risk Assessment proposes recommendations to facilitate the proposed development so that it takes into account flood risk at all stages of the development.

4.1 Sequential and Exception Test

Based on the sites location in Flood Zone 1, the development is deemed appropriate according to NPPF therefore the development is appropriately situated and the Sequential Test is not required.

4.2 Exception Test

NPPF classifies the development (Schools) as 'More Vulnerable' but as the site is located within Flood Zone 1 the Exception Test is not required.

5.0 FORMS OF FLOODING

The National Planning Policy Framework requires all forms of flooding to be considered.

5.1 Flooding from Rivers

The Flood Risk map is included in Appendix E.
As can be seen from the Flood Risk map, the entire site is located within Flood Zone 1 and therefore, the site is located in Flood Zone 1 with a chance of flooding of less than 0.1% (or 1 in 1000).

The nearest designated main river is the River Irwell, which is located 190m south- east of the site. Given the distance between the site, the risk of flooding to the new development from rivers is considered to be low.

5.2 Flooding from Sea

The site is not at risk of flooding from the sea. The lowest level of the site is approximately 181.00mAOD, i.e., well above tidal flood levels.

5.3 Flooding from Land

Intense rainfall, often of short duration, that is unable to soak into the ground or enter drainage systems can run quickly off land and result in local flooding. The Surface Water Flooding map is included in Appendix E. It can be seen from the map that the entire site is classified as having a very low or low risk of surface water flooding.

Therefore, the risk of flooding from overland flows due to surface water flooding is considered to be low and as such the overall site is considered to be at low risk of flooding from surface water/surrounding land.

5.4 Flooding from Groundwater

As outlined in Section 2.2, groundwater was only encountered within one of the exploratory holes undertaken within the Geotechnics Ground Investigation Report, PY210448, at a depth of around 19.00mbgl, with only perched water found within the superficial deposits during the groundwater monitoring. Therefore, it is concluded that the groundwater is actually located at depth, around 19.00mbgl.

Therefore, due to the depth of the groundwater table encountered by the site investigation, the site is considered to be at low risk of flooding from groundwater.

5.5 Flooding from Sewers

A record of the public sewers surrounding and serving the development site has been obtained from United Utilities and this is included in Appendix F. As can be seen from the United Utilities sewer map, there are no public sewers located within the site boundary. The only nearby public sewers are located within the existing highway to the north and on the adjacent side of the highway to the south of the proposed site, near the River Irwell.

To the north of the site there is an existing culverted watercourse which runs west to east along the existing highway, Haslingden Road. There is also an existing public foul water sewer located to the north-east of the site, which serves the existing residential development in this area.

Further south of the site, on the opposite side of the A682 highway, there are a number of existing public sewers. There are a number of existing surface water sewers which discharge into the River Irwell and also an existing public combined water sewer which runs east to west parallel with the River Irwell.

Therefore, due to the lack of public sewers within the proposed site, the proposed drainage networks for the site being suitably designed and the fact that the surrounding public sewers are maintained by United Utilities, leads to the conclusion that the site itself is considered to have a low risk of flooding from sewers.

5.6 Flooding from Reservoirs, Canals and Other Artificial Sources

The Reservoir Flood Risk map is included in Appendix E and the closest artificial waterbody is the Langwood Lodge Lake, which is located just outside the western boundary of the site. The nearest reservoir is Holden Wood Reservoir which is located approximately 2.40km west of the site.

As such, it can be seen from the map that the site is not at risk of flooding from reservoirs, canals or other artificial sources.

6.0 PROPOSED DEVELOPMENT

6.1 Effect of Proposed Development

As previously outlined in Section 3.0, the existing site covers a total area of 5.195ha but a total area of 3.765ha to the north, south and west of the site will remain as per the existing scenario. These include; the sports pitches/greenfield areas to the south of the site, the greenfield/landscaped areas to the north of the site and the existing sports building and MUGA to the west of the site.

As such, the proposed school development will be located within the centre of the overall site boundary and will cover a total area of 1.430ha. Therefore, it is envisaged that as the overall 3.765ha areas which are to drain as per the existing scenario will be excluded from the rest of the report.

The pre and post development impermeable areas for the 1.430ha development area have been assessed and are indicated on the attached drawing in Appendix G. The comparison between the pre and post development impermeable areas is also summarised below;

Total Development Site Area (ha)	Existing Impermeable Area (ha)	Proposed Impermeable Area (ha)
1.430	0.920	0.941

Therefore, the changes to the existing site will increase the volume of impermeable areas and as such, the proposed development will lead to an increase in the;

- Volume of surface water ponding on the site
- Volume of surface water runoff leaving the site or discharging into surrounding areas
- Peak discharge rate from the site.

Accordingly, drainage systems are needed to drain the foul and surface water flows arising from the proposed development. Where possible, any existing drainage networks should be utilised. Appropriate design and construction of these systems as set out in Section 6.3 should ensure that there is no increase in offsite flood risk that would otherwise impact downstream areas.

6.2 Existing Drainage Systems

As can be seen from the United Utilities public sewers map, attached in Appendix F, there are no public sewers located within the site boundary. The only nearby public sewers are located within the existing highway to the north and on the adjacent side of the highway to the south of the proposed site, near the River Irwell.

To the north of the site there is an existing culverted watercourse which runs west to east along the existing highway, Haslingden Road. There is also an existing public foul water sewer located to the north-east of the site, which serves the existing residential development in this area.

Further south of the site, on the opposite side of the A682 highway, there are a number of existing public sewers. There are a number of existing surface water sewers which discharge into the River Irwell and also an existing public combined water sewer which runs east to west parallel with the River Irwell.

As there are no public sewers located within the existing school site, all of the existing drainage within the existing school site is classified as private drainage. A review of the CCTV survey of the existing drainage within the school site has been undertaken and this is outlined on the CCTV survey review drawing, also attached in Appendix F.

As can be seen the majority of the surface water drainage for the existing school site is collected and conveyed to the south-east corner of the site but there is also a secondary surface water drainage network which discharges to the west of the site. As can be seen on the secondary CCTV survey plans, also attached in Appendix F, the surface water drainage outfall to the west discharges into the watercourse downstream of the Langwood Lodge pond, which is a tributary of Langwood Brook.

The foul water drainage from the existing school site is all collected and conveyed to the south-east corner of the site. As can be seen on the secondary CCTV survey plans, attached in Appendix F, the foul water drainage outfall from the school site discharges east prior to connecting to the existing United Utilities combined water sewers, further east of the site.

A walk-over survey of the site highlighted 2no. manholes located to the north of the site, which seem to have surface water runoff flowing through these separate systems. The additional CCTV surveys have confirmed that there is flow within these manholes and as such the culvert to the north-east will be diverted around the proposed school development, while the culvert to the west is to remain as per the existing scenario.

Previous correspondence from the Lancashire County Council (Lead Local Flood Authority) in January 2016, which is attached in Appendix F, indicates that the surface water outfall to the south is actually a culverted watercourse that has collapsed within the school site boundary. However, the proposed works will not be utilising this existing outfall and therefore it is assumed that this will be repaired separately by the school.

6.3 Proposed Drainage Strategy

As outlined above in section 6.1, site-wide drainage systems are required to drain the foul and surface water flows arising from the proposed development. The proposed drainage systems must ensure that there is no increase in offsite flood risk that would otherwise impact downstream areas.

6.3.1 Surface Water Drainage

The Planning Policy Guidance and the CIRIA SuDS Manual detail that surface water runoff from a development should be disposed of as high up the following hierarchy as reasonable practicable:

- into the ground (infiltration);
- to a surface water body;
- to a surface water sewer, highway drain, or another drainage system;
- to a combined sewer.

Considering the hierarchy above, the surface water network should infiltrate where possible. An intrusive site investigation was completed in March 2022 by Geotechnics and is contained within the Geotechnics Ground Investigation Factual Report, PY210448.

The site investigation works did not include any BRE365 compliant soakaway tests but the borehole and window sample logs indicate that the site strata consists of made ground underlain by clays which become stiffer with depth. Due to the underlying impermeable strata it is concluded that infiltration would not be suitable for the proposed development.

As the possibility of infiltration has been ruled out, the intention for the development would be to discharge to watercourse. The nearest watercourse is Langwood Brook which is located approximately 70m west of the site.

As indicated, on the CCTV survey drawings, attached in Appendix F, there is an existing surface water connection to the west of the site, which discharges into the tributary of Langwood Brook. Therefore, it is envisaged that this existing outfall connection will be utilised as the outfall for the surface water runoff from the proposed development.

It is assumed that discharging to Langwood Brook to the west of the site would remove the surface water discharge from the existing outfall to the south-east. This will reduce the volume of surface water discharging at this location, which would help mitigate the existing issues around this outfall location.

Therefore, it is envisaged that this existing surface water outfall pipeline to the tributary of Langwood Brook to the west of the site will be utilised by the proposed surface water drainage for the proposed development. As such, the proposed surface water drainage will discharge indirectly to Langwood Brook via the existing outfall pipeline.

As Langwood Brook is not a designated main river it is envisaged that discussions with the Lead Local Flood Authority will be required to obtain the relevant permits to discharge indirectly into the watercourse.

While every effort to use the existing systems should be made, the drainage systems should be designed to suit the proposed site layout and topography which aims to provide an efficient design.

In line with Sewers for Adoption (7th Edition), the requirements for the design of a new surface water drainage systems are as follows:

- Below ground piped drainage to be sized to accommodate the 1 in 2 year (50% AEP) design storm without surcharge.
- System to be designed not to flood any part of the site in a 1 in 30 year (3% AEP) design storm.
- For events in exceedance of the 1 in 30 year design storm and up to and including the 1 in 100 year event, site drainage and topography should be designed where practicable to route surface water run-off away from buildings to safe above-ground storage areas on site, thereby preventing this run-off from leaving the site and increasing flood risk elsewhere.

For each design case described above, the design storm is the critical storm duration for the site conditions. In the case of the 1 in 100 year design storm, a 45% increase in the peak rainfall intensity is applied to allow for the estimated worst case impacts of climate change. This is in accordance with advice, issued by the Environment Agency, which updates previous climate change allowances outlined in the National Planning Policy Framework.

Suitable systems of below ground drainage will be required to contain as a minimum requirement, the 1 in 30 year event. Additionally, any surface water run-off from events that exceed the design capacity of the new drainage system, up to and including the 1 in 100 year (+45%) event, will be retained on-site in safe storage areas.

In line with common practice, it is proposed the surface water discharge from the proposed development should mimic that from the existing site.

Policy ENV9 of the Rossendale Local Plan 2019 to 2036, states; *"On previously developed land, applicants will also be expected to follow the surface water hierarchy and any proposal based on a proposed reduction in surface water discharge from a previously developed site will be expected to target a reduction to a greenfield rate of run-off."*

Therefore, even though the site is brownfield the surface water discharge rates would likely need to be restricted to existing greenfield runoff rates and this will therefore increase the required attenuation storage for the site.

As such, an assessment of the existing surface water run-off from the greenfield site has been completed using the ICP SuDS method within MicroDrainage. For the existing 1.430ha site, the existing greenfield run-off rates were calculated. The greenfield runoff assessment is attached in Appendix H and the results are summarised within the table below.

Rainfall Return Period (years)	Existing Greenfield Runoff Rate (L/s)
Qbar (2 Year)	17.8
30 year	30.1
100 year	37.0

The total post development impermeable area has been estimated as 0.941ha and as previously discussed this does not account for the sports pitches/greenfield areas to the south of the site, the greenfield/landscaped areas to the north of the site and the existing sports building and MUGA to the west of the site, as these areas are all assumed to drain as per the existing scenario.

Therefore, using the total post development impermeable area of 0.941ha, at the restricted discharge rate of 17.8 L/s, for the 1 in 100 year + 45% return period design storm, a storage volume of 759.2m^3 is required. An additional 10% has been added to the impermeable areas to allow for urban creep and the volumetric runoff coefficient has been set to 1.0, within the storage estimate calculations. The preliminary attenuation storage assessment is attached in Appendix I.

As seen in from the Outline Drainage Strategy Drawing attached in Appendix J, it is anticipated that the attenuation storage will be provided in the form of a cellular attenuation tank below the existing MUGA area. However, the granular drainage blankets below the areas of permeable paving, the rain gardens and the surface water drainage network itself will also provide attenuation storage. A vortex flow control device is to be used to restrict the discharge rate to the required discharge rates indicated above.

The surface water drainage calculations have also been included within Appendix J and as can be seen the proposed surface water drainage and attenuation storage prevent any flooding for all rainfall events up to and including the 1 in 30 year event with only very minimal flooding during the 1 in 100 year + 45% climate change event. The calculations also show that the proposed surface water drainage network meets the discharge restrictions above. This is summarised in the table below.

Rainfall Return Period (years)	Existing Greenfield Runoff Rate (L/s)	Proposed Discharge Rate (L/s)
Qbar (2 Year)	17.8	17.8
30 year	30.1	24.7
100 year	37.0	36.7

The minimal flooding during the 1 in 100 year + 45% climate change rainfall event would likely be easily stored within the road gully and RWP branches, which have not been modelled and where there is flooding the flooding would be easily contained within the MUGA and hardstanding areas, away from the proposed building.

The surface water calculations, attached in Appendix J, include an additional 10% impermeable areas to allow for urban creep and the volumetric runoff coefficient has been set to 1.0 for both the summer and winter storms.

As can be seen from the Outline Drainage Strategy Drawing attached in Appendix J, the surface water drainage collects the runoff from the site area via rain gardens, permeable paving, gullies, linear drainage channels and rainwater downpipes and conveys the surface water runoff to the west of the proposed site.

Here the surface water runoff discharges into the proposed cellular attenuation tank, prior to discharging into the tributary of Langwood Brook via the existing outfall pipeline to the west of the site. The runoff discharges into the existing outfall pipeline via a vortex flow control chamber which restricts the runoff to the required surface water discharge rates, for all rainfall events up to and including the 1 in 100 year +45% climate change event.

The surface water drainage strategy and discharge rate should be confirmed via more detailed discussions with Lancashire County Council (LLFA) prior to the commencement of any works.

6.3.2 SuDS Summary

As outlined within the summary table below, all SuDS techniques have been considered for this development;

SuDS Technique	Suitable for This Development?	Reasoning
Green Roof	✗	Not suitable due to minimal roof area available due to plant and equipment on roof.
Rainwater Harvesting	✗	Impractical due to lack of demand for greywater.
Basins & Ponds	✗	Unsuitable due to lack of available space across site.
Filter Strips & Swales	✗	Unsuitable due to impermeable strata and lack of available space across site.
Bio-retention Areas	✓	Suitable and incorporated, where possible.
Infiltration Techniques	✗	Unsuitable due to impermeable strata.
Permeable Surfaces	✓	Suitable and incorporated, where possible, but only non-infiltration due to impermeable strata
Tanked/Piped Systems	✓	Suitable and incorporated.

Green roof areas have been considered but due to numerous reasons, such as; areas of plant, areas of solar panels, maintenance access and increased materials cost associated with heavier roof loads, the use of green roofs has been discounted.

Rainwater harvesting was also considered but due to a lack of greywater demand and the cost associated with tanks and pumping of the separate system, it has been deemed as impractical to include a rainwater harvesting system.

While the grassed areas to the south of the site would seem like a reasonable area to locate a basin or pond, there are 3no. sports pitches in this area and due to Sport England restrictions and the slope stability issues along the southern boundary of the site, there is a lack of available space across these areas to incorporate basins or ponds.

Therefore, due to the lack of available space across the site and the Client's preference of no areas with open water due to inherent safety concerns relating to the end users, the use of basins or ponds across the site have been discounted.

As per the issues surrounding the use of basins and ponds, the use of swales has also been discounted for the same reasons. Filter drains/strips have also been deemed as impractical due to the underlying impermeable strata and topography of the site. They may have been suitable to drain some of the hard standing areas to the north of the proposed building, but these are being drained via permeable paving and bio-retention areas.

Bio-retention areas have been incorporated where possible across the site. These have been proposed to drain some of the hardstanding areas to the north of the proposed school building. These help provide water quality and biodiversity benefits across the site.

As previously discussed in Section 6.3.1 infiltration is not feasible across the site and therefore the use of infiltration SuDS techniques is not possible. However, the use of non-infiltration permeable surfaces such as permeable paving has been incorporated to drain the proposed car park areas to the north of the site. These will help provide attenuation storage as well as provide water quality benefits.

Finally, the use of oversized pipe networks and below ground attenuation tanks have been incorporated where required.

6.3.3 Water Quality Assessment

Managing the water quality of the surface water runoff from the proposed development is important to ensure that the receiving surface waters or groundwater are well protected. Generally, this can be achieved through the use of well-designed SuDS systems which provide treatment and pollution removal to the surface water runoff.

Standard S3 of the Statutory National Standards for Sustainable Drainage Systems (2018) details the water quality management and addresses the drainage design requirements to minimise the potential pollution risk.

As the proposed development consists of roof areas, car park areas and low traffic roads, in accordance within Table G3.2 of the Statutory National Standards for Sustainable Drainage Systems (2018) the pollution hazard level is low and as such the simple index approach can be used to assess the treatment requirements for the low risk of pollution.

The simple index approach is outlined within Chapter 26 of CIRIA Report C753 - The SuDS Manual. Therefore, using Table 26.2 and applying the proposed site description above, results in a low pollution hazard level, with the pollution hazard indices being; TSS - 0.5, Metals - 0.4 and Hydrocarbons - 0.4.

Assessing this against Table 26.3 of CIRIA Report C753 - The SuDS Manual using the SuDS treatment train of permeable paving together with bio-retention areas results in the mitigation indices outweighing the pollution hazard indices identified above. The use of permeable paving itself would result in mitigation indices of; TSS - 0.7, Metals - 0.6 and Hydrocarbons - 0.7, which would be sufficient on its own.

Therefore, as the mitigation indices are equal to or greater than each of the pollution hazard indices the use of a single infiltration basin is deemed acceptable from a pollution mitigation perspective and as such complies with the water quality requirements of Standard S3 of the Statutory National Standards for Sustainable Drainage Systems (2018).

6.3.4 Foul Water Drainage

Foul water drainage disposal is set out in Part H of the Building Regulations in order of priority the preferred methods are;

1. Public sewer
2. Septic tank
3. Cesspool

The foul water system shall be designed in accordance with;

- BS EN 752:2017 (Drain and sewer systems outside buildings)
- Sewers for Adoption (7th Edition)
- Planning Practice Guidance and the National Planning Policy Framework document (Dept. for Levelling Up, Housing and Communities, July 2021).
- BS EN 12056-2:2000 (Drainage systems inside buildings)
- Building Regulations Approved Document H, Drainage and waste disposal. (Office of the Deputy Prime Minister, December 2015).

As can be seen from the Outline Drainage Strategy Drawing attached in Appendix J, it is anticipated that the foul water drainage will collect the runoff from the proposed buildings and convey the foul water to the south-east of the proposed site. Here it will, discharge into the existing foul water drainage outfall pipeline, at an unrestricted rate.

As previously discussed, the secondary CCTV survey plans, attached in Appendix F, indicate that the foul water drainage outfall from the school site discharges east prior to connecting to the existing United Utilities combined water sewers located further east of the site.

The foul water drainage strategy and unrestricted discharge rate should be confirmed via more detailed discussions with Lancashire County Council (LLFA) and United Utilities prior to the commencement of any works.

7.0 FUTURE MANAGEMENT & MAINTENANCE

The proposed drainage solution uses SUDS techniques in accordance with the CIRIA SUDS Manual C753. The surface water run-off from the proposed development is restricted using a vortex flow control device and the attenuated run-off is stored using a below ground cellular attenuation tank.

It is envisaged that the following components have been or will be included within the drainage strategy for the proposed development:

- Inspection chambers, manholes and catchpits.
- Pipes.
- Drainage channels and gullies.
- Vortex flow control device.
- Permeable paving.
- Bio-retention systems.
- Cellular attenuation tank.

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 proposed drainage will remain private and therefore maintenance of the surface and foul water drainage systems will be the responsibility of All Saints Roman Catholic High School or an on-site facilities management team and therefore a copy of the final construction drainage layout should be provided in the final Operations and Maintenance Manual.

It should be noted that the maintenance strategy also includes the existing culverted watercourses that are present across the site and as such the management and maintenance of these watercourses should be undertaken in the same way as the proposed drainage networks.

As such, the maintenance of the specified SuDS should be included within the developments Operation and Maintenance Manual and should be detailed in accordance with the CIRIA SuDS Manual C753, as per the operation and maintenance guidance outlined below.

7.1 General Maintenance & Inspection Requirements

- No work shall be carried out on the drainage system without permission from a nominated person, who has access to information/a working knowledge of the system.
- Maintenance/inspection work shall be carried out in a safe/planned manner.
- All work is to be carried out by competent persons suitably trained and equipped in accordance with current statutory safe working policies.
- Entry into confined spaces shall be kept to a minimum and be restricted to suitably qualified/equipped persons working in accordance with current statutory safe working policies.
- Drainage systems shall be inspected on a regular basis or should any problems be suspected. Any debris/defects discovered shall be recorded and a programme of

cleaning or repair initiated. Urgent repairs/cleaning shall be actioned as soon as practicable.

- 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.
- Clearing of the drainage system can be achieved by a number of methods depending on the nature of the work;
    - Rodding - Manual/Mechanical with flexible rods.
    - Jetting - High pressure water jetting.
    - Plunging.

7.2 Inspection Chambers, Manholes and Catchpits

The appropriate health and safety equipment must be used when accessing manholes/catchpits. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained from the Maintenance Manager prior to any access. The following operations should be carried out annually.

- Covers of inspection chambers and manholes shall be removed and the sides, benchings and channels cleared.
- Accumulated deposits of silt in inspection chambers, catchpits and manholes shall be removed. Any traps shall then be plunged and thoroughly flushed out with clean water. This should be completed in Autumn, after leaf fall.
- Main and branch drains shall be cleared as required and afterwards be flushed with clean water. Any obstructions found shall be removed and not flushed down the system.
- Covers of inspection chambers, manholes and catchpits shall be replaced, bedded in suitable grease or other sealing material as required and bolted/locked down as appropriate. Missing bolts and broken items shall be replaced in accordance with the manufacturer's details.

7.3 Pipes

Regular inspection and maintenance are important to identify areas which may have become obstructed/clogged and may not be draining correctly, as failure to do so would expose the development to a greater level of flood risk.

Pipes are proprietary products and therefore the materials used can vary across the site. As such, where used the manufacturer's recommendations should be followed. Access for maintenance of the pipes is provided through inspection chambers and manholes. The below table sets out the maintenance schedule for the pipe components of the proposed drainage systems.

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect for evidence of poor operation via water levels. If required take remedial action.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.
	Check and remove large debris and/or vegetation growth near pipe runs.	Monthly or as required.
Remedial Actions	Rod through poorly performing runs as initial remediation.	As required.
	If continued poor performance jet and CCTV survey poorly performing runs.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue.	As required, if above actions do not improve performance.
Monitoring	Initial Inspection should be provided as post construction CCTV survey.	N/A
	Inspect/check all inlets, outlets and overflows to ensure they are in good condition and operating as designed.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.

7.4 Drainage Channels and Gullies

Channels and gullies should be inspected and cleaned in accordance with the manufacturer's details. Channel units can be cleaned through the use of a high-pressure hose; this can be fed into the channel system through access units strategically placed along the channel run. The throat section of channel units should be kept clear at all times to ensure uninterrupted flow of surface water into the drainage channel and any debris within the throat should be removed.

Locking bolts should be replaced and sufficiently tightened, taking care that the bolt heads do not stand above the top surface of the cover or grate. If covers are allowed to move within their frame, this may cause damage to the frame or seating. The below stable sets out the maintenance schedule for the drainage channel and gullies components of the proposed drainage systems.

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Litter and debris removal.	Monthly or as required.
	Check and remove large debris and/or vegetation growth near pipe runs.	Monthly or as required.
	Inspect for evidence of poor operation and/or weed growth. If required take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.
Remedial Actions	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue.	As required, if above actions do not improve performance.
Monitoring	Initial Inspection including channel outlet boxes and gully sumps.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.

7.5 Vortex Flow Control Device

Regular inspection and maintenance is important to identify if the vortex flow control device has become obstructed/clogged and may not be functioning correctly, as failure to do so would expose the development to a greater level of flood risk.

Vortex flow control devices are proprietary products and therefore can vary from manufacturer to manufacturer. As such, where used the manufacturer's recommendations should be followed.

- Normally, little maintenance is required as there are generally a vortex flow control device has no moving parts.
- If blockages occur, they tend to do so at the intake of the vortex flow control device.
- Vortex flow control devices are generally fitted with a pivoting by-pass door, which allows the manhole chamber to be drained down should blockages occur.
- The smaller type conical units, below the minimum recommended size, are also supplied with rodding facilities or vortex suppressor pipes as standard.
- Following installation of the vortex flow control device it is vitally important that any extraneous material i.e., Building materials are removed from the unit and the chamber.
- After the system is made live, it is recommended that each unit be inspected monthly for three months and thereafter at six monthly intervals with hose down if required. Units should also be inspected within 48 hours after large storms.

7.6 Permeable Paving

Regular inspection and maintenance is important to identify if the inlets/outlets have become obstructed/clogged and may not be functioning correctly, as failure to do so would expose the development to a greater level of flood risk. The maintenance requirements for permeable paving are outlined within Table 20.15 of the CIRIA SUDS Manual C753. An extract of that table is given below to set out the maintenance schedule for the permeable paving components of the proposed drainage systems.

TABLE 20.15 Operation and maintenance requirements for pervious pavements

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphospate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48 h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

7.7 Bio-retention Systems

The maintenance requirements for a bio-retention systems (rain gardens/tree pits) is covered under the bioretention systems section within the CIRIA SUDS Manual C753.

As such, the maintenance requirements for bioretention systems are outlined within Table 18.3 of the CIRIA SUDS Manual C753. An extract of that table is given below to set out the maintenance schedule for the potential bioretention systems component of the proposed drainage system.

Regular inspection and maintenance is important to identify if the inlets/outlets have become obstructed/clogged and may not be functioning correctly, as failure to do so would expose the development to a greater level of flood risk.

TABLE 18.3 Operation and maintenance requirements for bioretention systems

Maintenance schedule	Required action	Typical frequency
Regular inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance is necessary	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular maintenance	Remove litter and surface debris and weeds	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
Occasional maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial actions	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

7.8 Cellular Attenuation Tank

Regular inspection and maintenance is important to identify if the inlets/outlets have become obstructed/clogged and may not be functioning correctly, as failure to do so would expose the development to a greater level of flood risk.

The maintenance requirements for cellular attenuation tanks are outlined within Table 21.3 of the CIRIA SUDS Manual C753. An extract of that table is given below to set out the maintenance schedule for the cellular attenuation tank component of the proposed drainage systems.

TABLE 21.3 Operation and maintenance requirements for attenuation storage tanks

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

It should be noted that the Main Contractor should provide a Verification Report, including photographic evidence, to demonstrate that the drainage has been constructed as per the design drawings. As-built drawings should as be supplied by the Main Contractor, where the construction of the drainage varies from the design construction status drawings.

8.0 CONCLUSIONS

- The site is located within Flood Zone 1 and has a low risk of flooding from rivers & sea, surface water, reservoirs and all other sources.

- Only existing private drainage is located across the site, with the only nearby public sewers located to the north of the site within the existing highway, Haslingden Road and further south of the site, on the opposite side of the A682 highway.

- Existing private surface water drainage has 2no. outfalls, one to the west of site, which discharges into a tributary of Langwood Brook and one to the south-east of the site, which discharges south towards the A682 highway and the River Irwell.

- Existing private foul drainage is all collected and conveyed to the south-east corner of the site, where it discharges east prior to connecting to the existing United Utilities combined water sewers, located further east of the site.

- Current CCTV survey indicates that existing drainage networks are in poor condition and therefore it is envisaged that new private drainage networks will be required to drain the proposed development.

- The site investigation report indicates that the site strata consists of made ground underlain by firm to stiff clays. Due to the underlying impermeable strata it is concluded that infiltration is not be suitable for the proposed development.

- Previous correspondence from the Lancashire County Council indicates that the surface water outfall to the south-east of the site is actually a culverted watercourse that has collapsed within the school site boundary. However, as the proposed works will not be utilising this existing outfall, it is assumed that this will be repaired separately by the school and will therefore not be a part of the proposed works.

- Policy ENV9 of the Rossendale Local Plan 2019 to 2036, indicates that even though the site is classified as brownfield, the proposed surface water discharge rates should target the existing greenfield rates of run-off. Therefore, the proposed surface water runoff should be restricted to the existing greenfield runoff rates, for all rainfall events up to and including the 1 in 100 year +45% climate change event.

- The proposed drainage has been designed to restrict the surface water runoff to the existing greenfield runoff rates, for all rainfall events up to and including the 1 in 100 year + 45% event.

- It is anticipated that the surface water drainage will collect the runoff from the proposed development and convey it to the west of the site. Here it will be restricted to the required greenfield discharge rates, via a vortex flow control prior to connecting to the existing surface water outfall pipeline.

- A below ground cellular attenuation tank, together with the granular drainage blankets below the areas of permeable paving, the rain gardens and the surface water drainage network itself will be used to attenuate the surcharged surface water runoff.

- It is anticipated that the foul water drainage will collect the runoff from the proposed buildings and convey the foul water to the south-east of the proposed site. Here it will, discharge into the existing foul water drainage outfall pipeline, at an unrestricted rate.

9.0 RECOMMENDATIONS

- As Langwood Brook is not a designated main river it is envisaged that discussions with the Lead Local Flood Authority will be required to obtain the relevant permits to discharge indirectly into the watercourse.

- The surface and foul water drainage strategies and relevant discharge rates should be confirmed via more detailed discussions with Lancashire County Council (LLFA) and United Utilities prior to the commencement of any works.

- The external ground levels around proposed buildings shall fall away from the proposed building with any new levels being designed to ensure any overland flood routes, for events in excess of the 100 Year + 45% climate change rainfall event, exit towards the surrounding highways and landscaped areas, for use in exceptional circumstances.

Appendix A – Site Location Plan

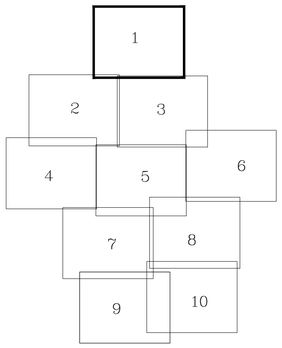
SITE LOCATION PLAN

Ground Investigation
at
All Saints Primary School, Haslingden Rd, Rawtenstall, Rossendale, BB4 6SH
for
Department for Education

GEOTECHNICS
geotechnical and geoenvironmental specialists

Appendix B – Aerial Photograph

Appendix C – Topographic Survey



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Building Abbreviations

BL	Basement Level	RWP	Rain Water Pipe
BSL	Beam Soffit Level	SL	Soffit Level
HD	Heating Duct	SVP	Soil and Vent Pipe
DP	Down Pipe	VP	Vent Pipe
DPC	Damp Proof Course	C	Cill Height from FFL
FFL	Finished Floor Level	W	Window Height from Cill
FCL	Finished Ceiling Level	H	Door Height
2100	Floor to Ceiling Height		Direction of Floor Joist Span

Topographical Abbreviations

A/R	Assumed Route	MKR	Marker
BH	Borehole	MT	Mercury Telecom Cover
BOL	Bollard	OHC	Overhead Cable
BT	British Telecom Cover	OHP	Overhead Pipe
BW	Barbed Wire Fence	OSBM	Ordnance Survey Bench Mark
BWK	Brickwork	PB	Post Box
CATV	Cable TV Cover	PGM	Permanent Ground Marker
CB	Close Boarded Fence	PR	Post & Rail Fence
CCTV	Closed Circuit TV	PW	Post & Wire Fence
CHLK	Chainlink Fence	PWM	Post & Wire Mesh Fence
CHPL	Chestnut Paling Fence	RE	Rodding Eye
CL	Cover Level	RG	Road Gully
CM	Cable Marker	RN	Road Name
CP	Catch Pit	RS	Road Sign
CPL	Catch Pit Base Level	RW	Retaining Wall
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Notes

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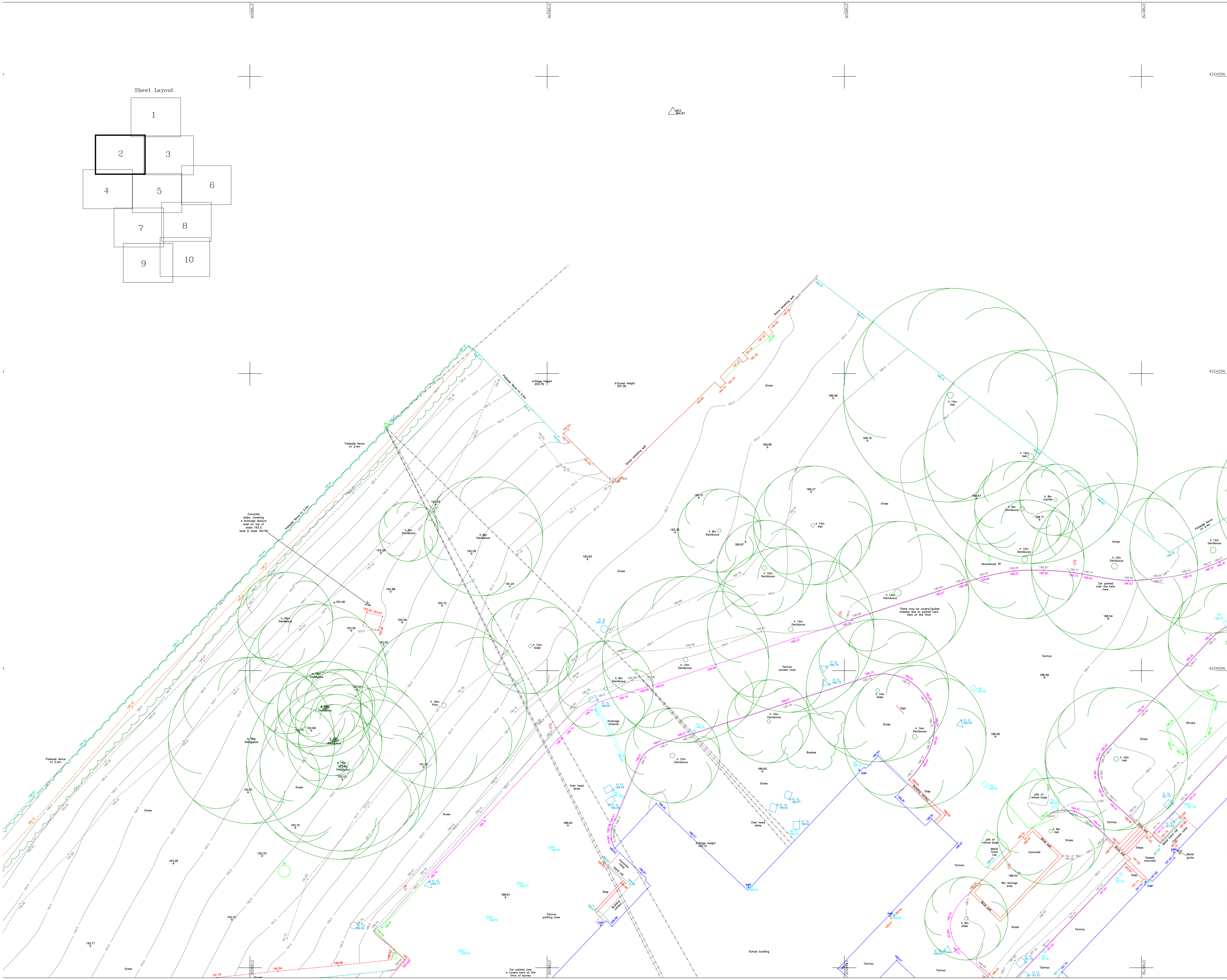
All Saints RC School

TOPOGRAPHICAL SURVEY

JOB No	DRAWING NUMBER
UM7215738	UM7215738P0001

A0 Sheet - 1,189mm X 841mm



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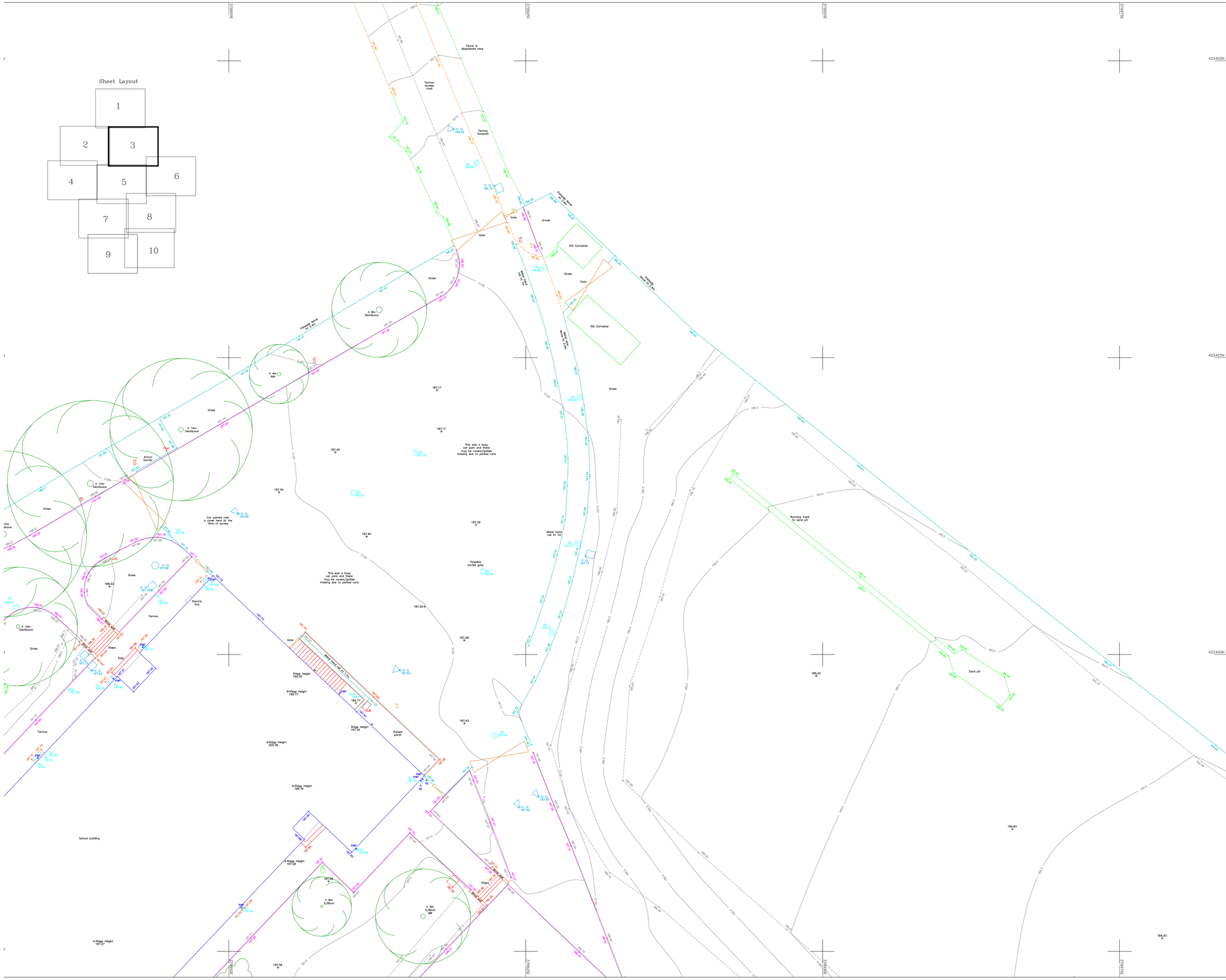

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SCALE	1: 100	

All Saints RC School

TOPOGRAPHICAL SURVEY

JOB No	DRAWING NUMBER
UM7215738	UM7215738P0003

A0 Sheet - 1,189mm X 841mm

OS NORTH / INDICATIVE ONLY

Building Abbreviations

BL	Basement Level	RWP	Rain Water Pipe
BSL	Beam Soffit Level	SL	Soffit Level
HD	Heating Duct	SVP	Soil and Vent Pipe
DP	Down Pipe	VP	Vent Pipe
DPC	Damp Proof Course	C	Cill Height from FFL
FFL	Finished Floor Level	W	Window Height from Cill
FCL	Finished Ceiling Level	H	Door Height
2100	Floor to Ceiling Height		Direction of Floor Joist Span

Topographical Abbreviations

A/R	Assumed Route	MKR	Marker
BH	Borehole	MT	Mercury Telecom Cover
BOL	Bollard	OHC	Overhead Cable
BT	British Telecom Cover	OHP	Overhead Pipe
BW	Barbed Wire Fence	OSBM	Ordnance Survey Bench Mark
BWK	Brickwork	PB	Post Box
CATV	Cable TV Cover	PGM	Permanent Ground Marker
CB	Close Boarded Fence	PR	Post & Rail Fence
CCTV	Closed Circuit TV	PW	Post & Wire Fence
CHLK	Chainlink Fence	PWM	Post & Wire Mesh Fence
CHPL	Chestnut Paling Fence	RE	Rodding Eye
CL	Cover Level	RG	Road Gully
CM	Cable Marker	RN	Road Name
CP	Catch Pit	RS	Road Sign
CPL	Catch Pit Base Level	RW	Retaining Wall
DIA	Diameter	RWP	Rain Water Pipe
DK	Drop Kerb	SAP	Sapling
DP	Down Pipe	SC	Stop Cock
EJB	Electricity Junction Box	SPR	Spread
EC	Electricity Cover	STA	Traverse Station
EP	Electricity Pole	SV	Stop Valve
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FCL	Finished Ceiling Level	SW	Storm Water
FH	Fire Hydrant	TB	Telephone Box
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H	Height	TL	Traffic Light
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Survey Station Information

Station	Easting	Northing	Level	Station description
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MC4	379761.358	422367.873	197.213	Nail
MC5	379843.394	422346.069	188.651	Nail
MC6	379864.610	422315.609	187.378	Peg
MC7	379833.321	422321.611	188.185	Nail

Notes

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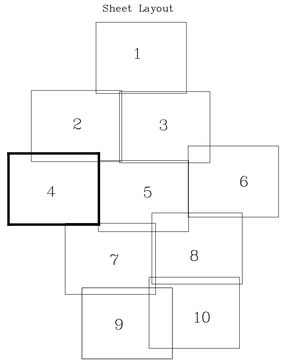

Rev	Svyr	QA Check	Description	Date
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Prelim		IS		13/12/2021

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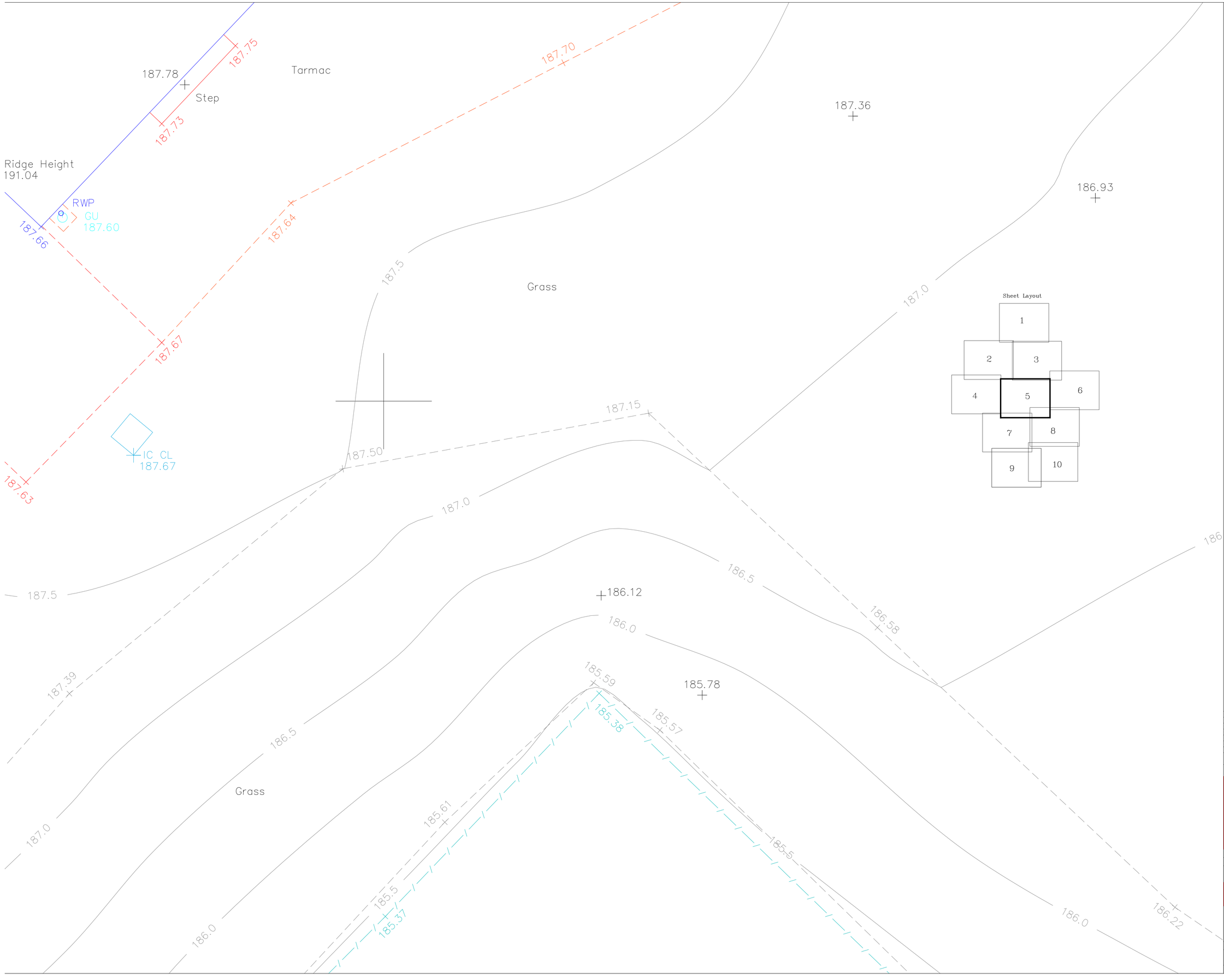
SURVEYED	MC	WOOD
DRAWN	MC	
SCALE	1:100	

All Saints RC School

TOPOGRAPHICAL SURVEY

JOB No	DRAWING NUMBER
UM7215738	UM7215738P0004

A0 Sheet - 1,189mm X 841mm



OS NORTH / INDICATIVE ONLY

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SURVEYED	MC	WOOD
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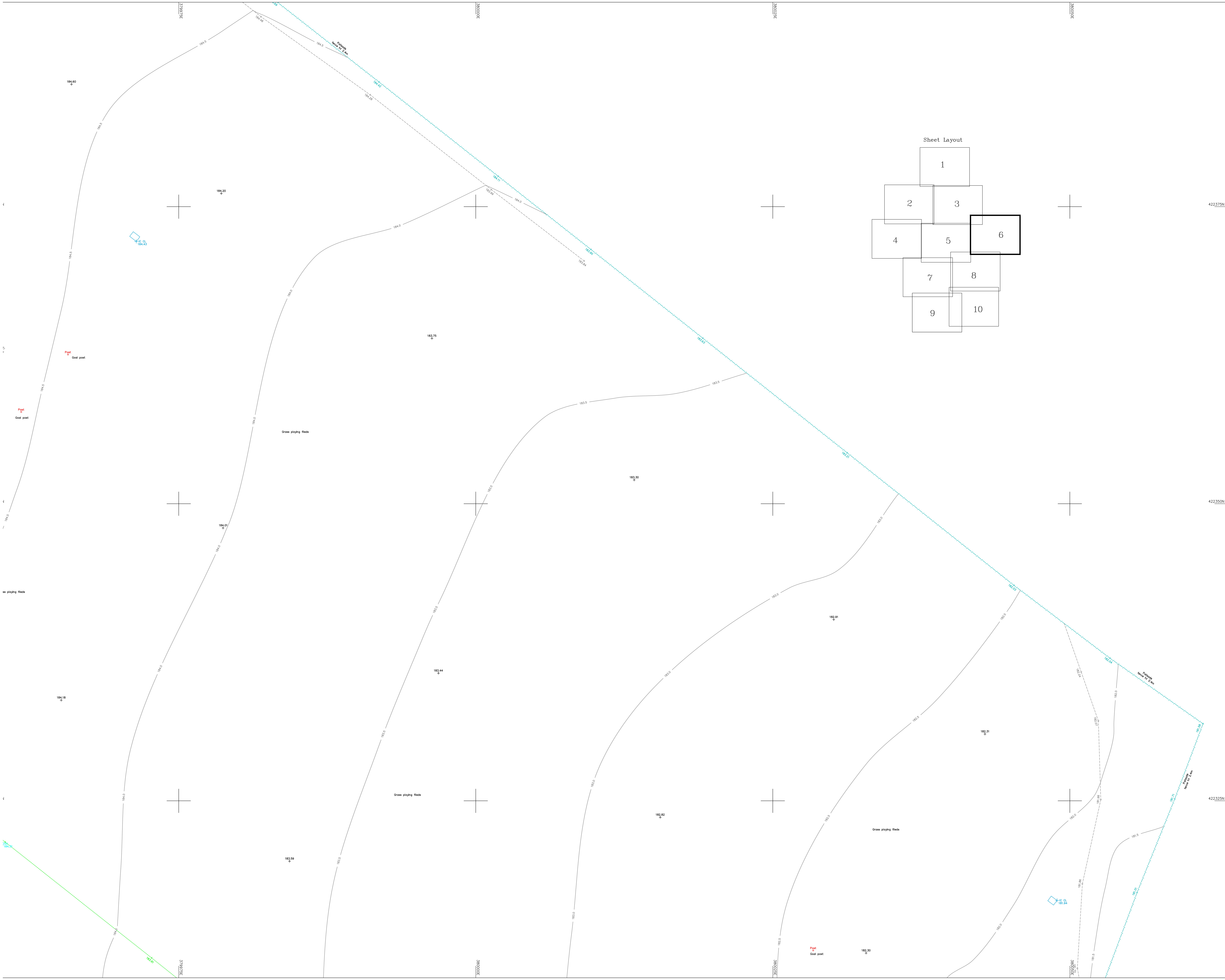
All Saints RC School

TOPOGRAPHICAL SURVEY

JOB No	DRAWING NUMBER
UM7215738	UM7215738P0005

A0 Sheet - 1,189mm X 841mm



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All Saints RC School

TOPOGRAPHICAL SURVEY

JOB No	DRAWING NUMBER
UM7215738	UM7215738P0006

A0 Sheet - 1,189mm X 841mm

OS NORTH / INDICATIVE ONLY

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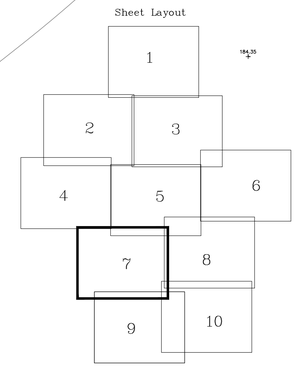

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SURVEYED	MC	WOOD
DRAWN	MC	
SCALE	1:100	

All Saints RC School

TOPOGRAPHICAL SURVEY

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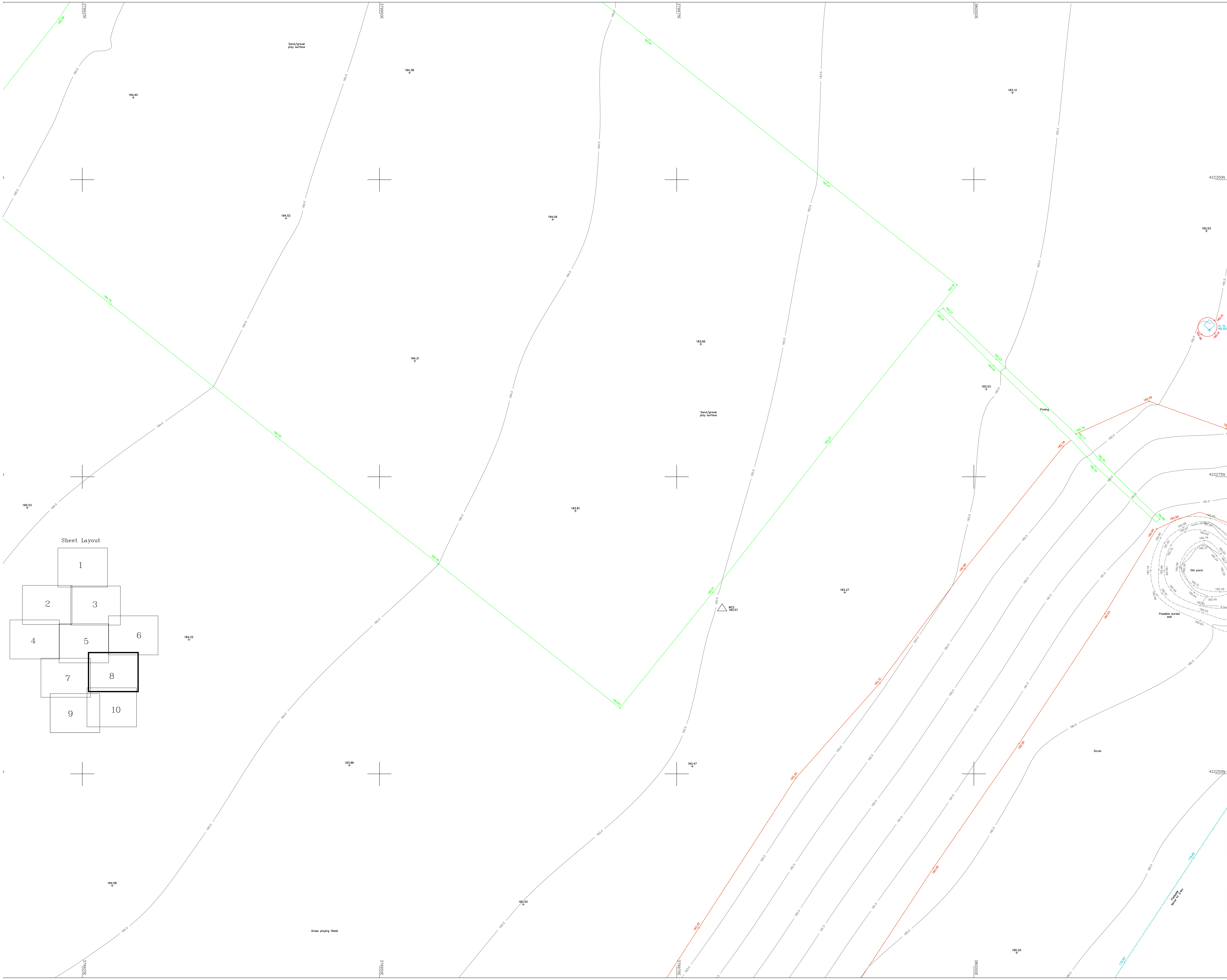
UM7215738	UM7215738P0007

A0 Sheet - 1,189mm X 841mm



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A0 Sheet - 1,189mm X 841mm

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BWK	Brickwork	PB	Post Box
CATV	Cable TV Cover	PGM	Permanent Ground Marker
CB	Close Boarded Fence	PR	Post & Rail Fence
CCTV	Closed Circuit TV	PW	Post & Wire Fence
CHLK	Chainlink Fence	PWM	Post & Wire Mesh Fence
CHPL	Chestnut Paling Fence	RE	Rodding Eye
CL	Cover Level	RG	Road Gully
CM	Cable Marker	RN	Road Name
CP	Catch Pit	RS	Road Sign
CPL	Catch Pit Base Level	RW	Retaining Wall
DIA	Diameter	RWP	Rain Water Pipe
DK	Drop Kerb	SAP	Sapling
DP	Down Pipe	SC	Stop Cock
EJB	Electricity Junction Box	SPR	Spread
EC	Electricity Cover	STA	Traverse Station
EP	Electricity Pole	SV	Stop Valve
ER	Earthing Rod	SVP	Soil Vent Pipe
FCL	Finished Ceiling Level	SW	Storm Water
FH	Fire Hydrant	TB	Telephone Box
FIG	Feed Into Ground	TBM	Temporary Bench Mark
FW	Foul Water	TFR	Taken From Records
GU	Gully	TJB	Telephone Junction Box
GV	Gas Valve	TPT	Trial Pit
H	Height	TL	Traffic Light
IC	Inspection Cover	TP	Telephone Pole
IL	Invert Level	UTL	Unable To Lift
IR	Iron Railing Fence	UTT	Unable To Trace
KO	Kerb Outlet	VP	Vent Pipe
LB	Litter Bin	WKH	Water Key Hole
LC	Lamp Column	WM	Water Meter
LP	Lamp Post	WV	Water Valve
MH	Manhole		

Survey Station Information

Station	Easting	Northing	Level	Station description
MC1	379897.435	422501.437	193.149	Nail
MC2	379978.825	422363.910	183.566	Peg
MC3	379835.578	422447.017	194.874	Nail
MC4	379761.358	422367.873	197.213	Nail
MC5	379843.394	422346.069	188.651	Nail
MC6	379864.610	422315.609	187.378	Peg
MC7	379833.321	422321.611	188.185	Nail

Notes

The survey has been oriented to Ordnance Survey (OS) National Grid (OSGB36) using Industry Standard Network RTK GPS equipment utilising the OS Active Network (OS Net). A true OSGB36 coordinate has been established on site using the OSTN15 (transformation) & OSGB15 (geoid) models. The survey detail has been correlated to this point and a further one (or more) OSGB36 points established to produce a true OS bearing for angle orientation. Scale factor 1.0 has been applied therefore the survey coordinates are shown on a pseudo OS grid.
All levels are in metres unless otherwise specified
All heights are in millimetres unless otherwise specified

Rev	Svyr	QA Check	Description	Date
5	-	-	-	-
4	-	-	-	-
3	-	-	-	-
2	-	-	-	-
1	-	-	-	-
0	-	-	-	-
Prelim		IS		13/12/2021

Drawn in BricsCAD – www.bricsys.com
part of www.hexagon.com

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5th Floor 1 Temple Way BRISTOL. BS2 0BY T +44 (0)117 301 8137
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SURVEYED	MC	
DRAWN	MC	WOOD
SCALE	1:100	

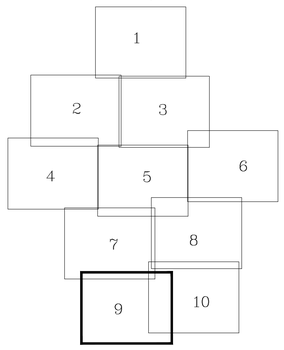
All Saints RC School

TOPOGRAPHICAL SURVEY

JOB No	DRAWING NUMBER
UM7215738	UM7215738P0009

A0 Sheet - 1,189mm X 841mm

Sheet Layout



OS NORTH / INDICATIVE ONLY

Building Abbreviations

BL	Basement Level	RWP	Rain Water Pipe
BSL	Beam Soffit Level	SL	Soffit Level
HD	Heating Duct	SVP	Soil and Vent Pipe
DP	Down Pipe	VP	Vent Pipe
DPC	Damp Proof Course	C	Cill Height from FFL
FFL	Finished Floor Level	W	Window Height from Cill
FCL	Finished Ceiling Level	H	Door Height
2100	Floor to Ceiling Height		Direction of Floor Joist Span

Topographical Abbreviations

A/R	Assumed Route	MKR	Marker
BH	Borehole	MT	Mercury Telecom Cover
BOL	Bollard	OHC	Overhead Cable
BT	British Telecom Cover	OHP	Overhead Pipe
BW	Barbed Wire Fence	OSBM	Ordnance Survey Bench Mark
BWK	Brickwork	PB	Post Box
CATV	Cable TV Cover	PGM	Permanent Ground Marker
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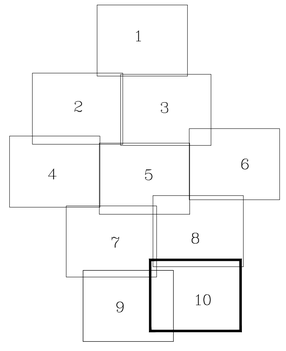
Sheet Layout



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SURVEYED	MC	WOOD
DRAWN	MC	
SCALE	1:100	

All Saints RC School

TOPOGRAPHICAL SURVEY

JOB No	DRAWING NUMBER
UM7215738	UM7215738P0010

A0 Sheet - 1,189mm X 841mm

Appendix D – Proposed Site Plan

Cribden House School

Existing scrub enhancement

2F Schwegler Bird box located 3m above ground level fixed to tree with entrance facing between north & east.

2F Schwegler Bird box located 3m above ground level fixed to tree with entrance facing between north & east.

2F Schwegler Bird box located 3m above ground level fixed to tree with entrance facing between north & east.

1No. Schwegler 2FN Bat Box fixed to tree 4 - 6m above ground level fixed to surface of existing brickwork with entrance facing between south & east.

2F Schwegler Bird box located 3m above ground level fixed to tree with entrance facing between north & east.

2No. Sequoiadendron gigantieum 2 - 3m high, 100 litre pot size

1No.Quercus robur

1No.Tilia cordata

2No.Carpinus betulus fastigiata

6No.Alnus glutinosa

Roadway to north & west of Rain garden to drain into area through gaps in road kerbs

Sub-station

Sub Water Garden

Bin Store

Plant

Kitchen

Cycle Shelter

1No.Crataegus lavigata

PV Canopy 178m² tbc

PV Canopy 308m² tbc

PV Canopy 508m² tbc

PV Canopy 169m² TBC

2No.Crataegus lavigata

1No.Tilia cordata

1No.Malus sylvestris

1No.Sorbus aria

1No.Sorbus aria

1No.Pyrus chanticleer

Soft Social

Hard Social

Main Entrance

Pupil Entrance 1

Pupil Entrance 2

Proposed New School Building

12No.Tilia mongolica

4No.Prunus avium Plena

New MUGA
3no. Netball Courts / 2no. Basketball Courts

4No. Artificial swift nesting cups fixed to existing building minimum of 5m from ground level on north east elevation

EFAC
Existing Sports Hall
(No Remodeling Works / Services provision to be reconnected)

Area of existing trees retained
(not part of the Topo Survey received)

Existing MUGA
4no. Tennis Courts / 4no. Netball Courts
(Existing, no works to be undertaken)

Access to Sports Pitches

Football Pitch 02
(Existing)

Astro
(Existing, no works to be undertaken)

Football Pitch 01
(Existing)

Existing Soft Informal

Existing Soft Informal

Long Jump
(Existing, relocated)

Habitat Area
(Wildflower meadow)

3No.Alnus glutinosa

Area of existing trees retained
Not usable space
NO WORKS TO BE UNDERTAKEN

Fixed mirror to be added to lamppost opposite main entrance to aid visibility. (Location TBC)

HASLINGDEN ROAD

School Access Drive

A682

m 0 5 10 15 20 25 30 35 40 45 50
SCALE

SCALE 0 1 2 3 4 5 6 7 8 9 10

NOTES

Dimensions are in millimetres unless specified.

Rev	Date	Notes	By	Chk
P5	24.02.2023	Planning Issue - Mirror added to Haslgden Road	AS	JH
P6	09.03.2023	Kerb information added	AS	JH
P7	13.03.2023	Latest GA issue	JH	AS
P8	27.03.2023	Draft CP Issue	JH	AS
P9	03.04.2023	Full CP Issue	JH	AS
P10	18.05.2023	Updated PV Canopy Area	JH	AS
P11	22.05.2023	Trees & hedges relocated & PV inverters added	NH	AS
P12	07.06.2023	Levels adjusted as agreed with AJP and TD	AS	NH

- Vehicular grade Permeable Asphalt Concrete to Engineers spec with 125mm HB2 road kerbs
- Pedestrian grade macadam to Engineers spec with 50mm flush pcc kerbs
- Multi Use Games Area macadam / Tennis Courts to Engineers spec with 50mm flush pcc edgings
- Existing trees to be removed, felled trunks and branches to be stacked on site in existing woodland areas to create wildlife refugia (12no. trees to be removed)
- Existing trees with root protection area shown in orange. Retained and protected during construction in accordance with Tree Protection Plan
- New tree planting, 14 - 16cm girth (36no. new trees to replace 12no. trees to be removed).
- New tree planting, 2 - 3m high, 100 litre pot size
- Maintain / re-establish amenity grass areas. New grass areas to be seeded over 150mm depth of topsoil
- Wildflower meadow Emorsgate Seeds EM3 Special General Purpose Meadow Mixture 4g/m2, plus Emorsgate Seeds EH1F Wildflowers for Hedgerows – to shaded areas 5g/m2.
- Rain Gardens. Species to include: Viburnum opulus, Cornus sanguinea, Helleborus foetidus, Ajuga reptans, Vinca minor, Bergenia spp. Iris pseudocorus, Iris sibirica, Junous effusus, Carex pendula, Osmunda regalis, Dryopteris felix mas, Dryopteris dilatata, Eupatorium cannabinum, Campanula glomerata.
- Ornamental shrub planting into 400mm depth topsoil & compost. 4No. shrubs per m2 in 3 litre pots. 75mm depth bark mulch spread on completion of planting
- Hedge shrub planting into 400mm depth topsoil & compost. 4No. shrubs per m2 in 3 litre pots. 75mm depth bark mulch spread on completion of planting. Hawthorne, field maple, holly, crab apple, field rose, wild cherry & guelder rose. Planted in a double staggered row.
- 157.957 + Levels, see Engineers drawing for detailed levels
- EV EV charging (1no. unit for 2no. cars)
- Door Hoop - 8no. Langley Design, Swindon. Malford Door Barrier MDB203
- Cycle Shelter (Cycle shelter 16 spaces) Broxap - Newcastle Senior Cycle Shelter BXMWNEW-CS 3600x4000mm Black with 2no. 4 hoop racks Broxap - BXMW/GS (galv) Sheffield racks
- Allotment Store *(not included in contract)*
- Picnic Bench 5no. TDP Limited -Brassington Picnic Table Black 760 H x 1370 D x 1500 L mm *(not included in contract)*
- Seating Furnitubes Railroad Edge Straight benches with backrests 3250mm & 2650mm lengths *(not included in contract)*
- Seating Furnitubes Railroad Circular seat 2.5m diameter *(not included in contract)*
- Bin 5no. Furnitubes - Zenith Litter bin RAL 7016 *(not included in contract)*
- Timber Planter 3no. Langley Design - Sheldon Planter *(not included in contract)*
- Barrier fencing to sloped walkway and top of bank. Recycled plastic post and 2 rail fence. 1100mm high. Supplier British Recycled Plastic.
- Timber knee rail 900mm post height
- Stair / Ramp to MUGA guarding and handrail system *Delta Balustrades Orbis Ultra 50mm stainless steel handrail / guarding system with vertical bar infill panels.*
- Signage. Signage Informing visitors on how to access / enter the Site during operational hours
- 50mm pcc pin kerb laid flush
- 125mm pcc HB2 road kerb, allow for radius, transition, drop and flush channel kerbs as required
- dk Dropped kerb
- tk Transition kerb
- FH Fire Hydrant
- T External Tap
- DF External Drinking Fountain
- Existing Legal Site Boundary Line (Fencing to remain as existing)
- Existing internal fencing to remain
- New 1.8m high weld mesh fence
- New 2.4m high weld mesh fence
- New 3m high MUGA / Tennis Court Sports fence
- Existing brick retaining wall (retain)
- Proposed retaining structure (type TBC)
- New 1.8m high timber hit and miss fencing
- No works to be undertaken within this area
- PV canopy location size required TBA by Engineer
- PV Inverters/ Switch Box

elliswilliams

Project Number: 2872
Project Name: All Saints' RC Secondary School
Drawing Number: **SRP1051-EWA-ZZ-ZZ-D-A-9002**
Drawing Name: Site Plan
Scale: 1:500 @ A1 Rev: P12

Appendix E – Flood Maps

Flood map for planning

Your reference	Location (easting/northing)	Created
222-089	**379930/422300**	**16 Dec 2022 8:11**

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

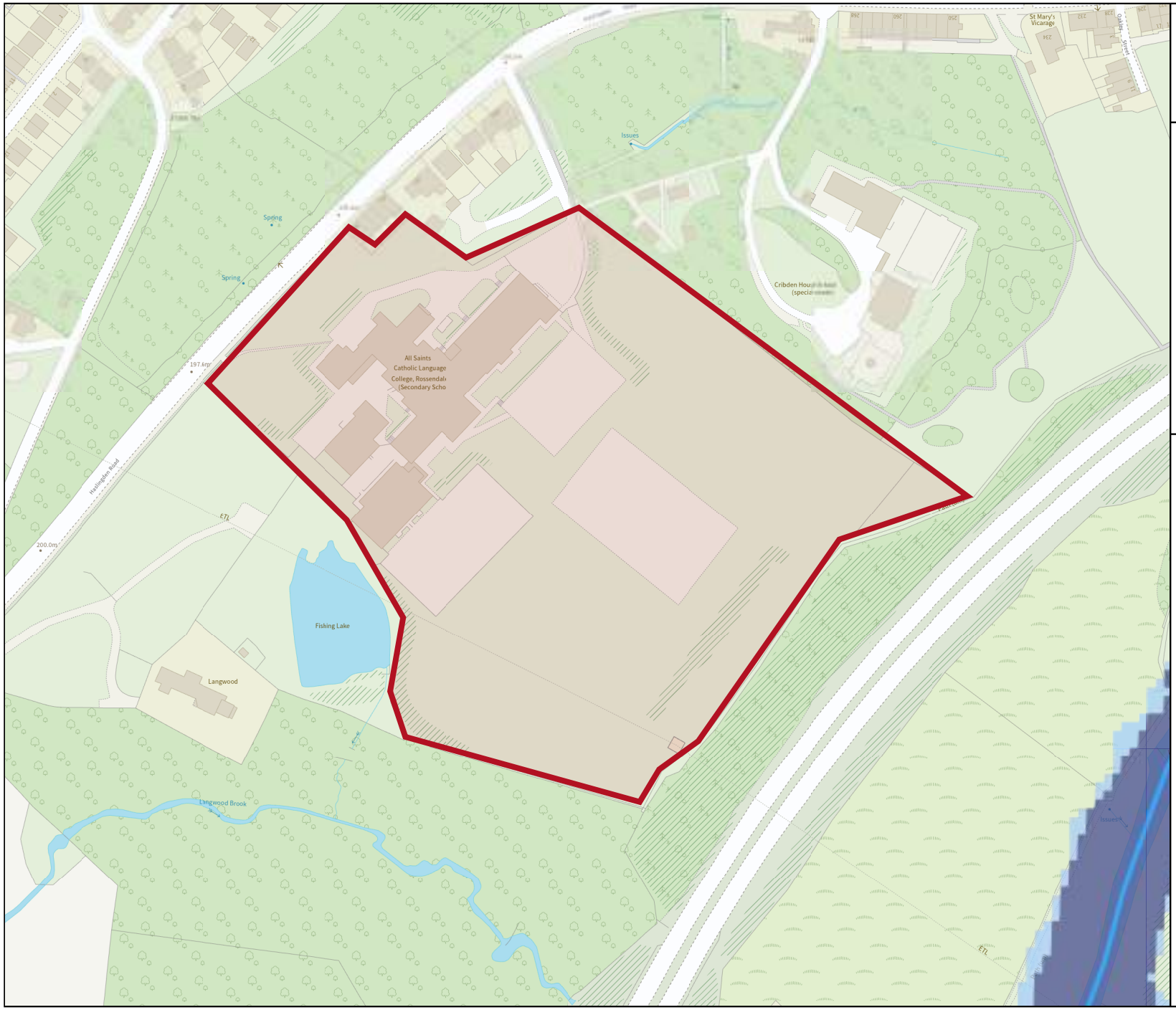
You will need to do a flood risk assessment if your site is **any of the following:**

- bigger that 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.



Environment Agency

Flood map for planning

Your reference
222-089

Location (easting/northing)
379930/422300

Scale
1:2500

Created
16 Dec 2022 8:11

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

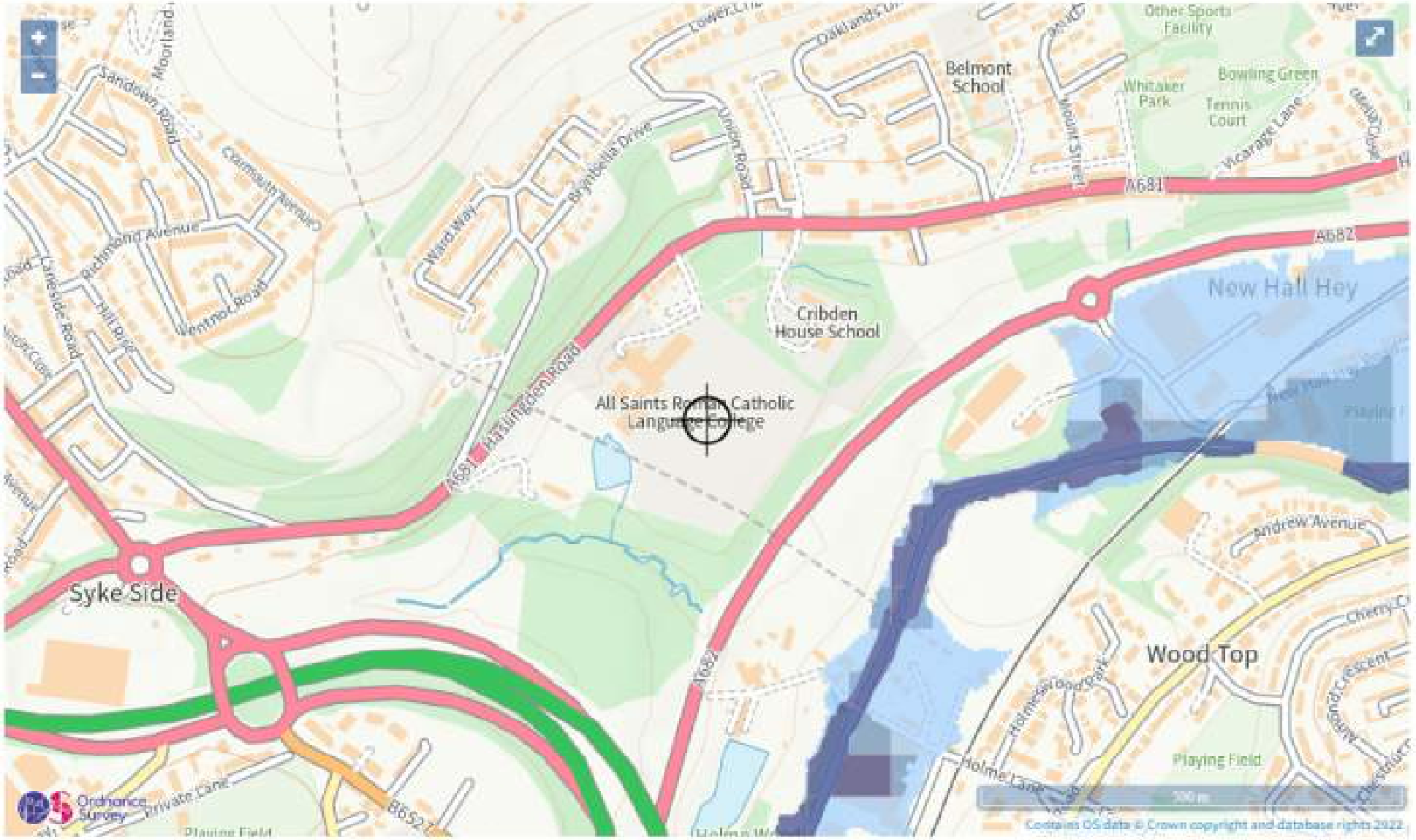
0 20 40 60m

Flood risk

Extent of flooding

Location

Enter a place or postcode



Extent of flooding from rivers or the sea

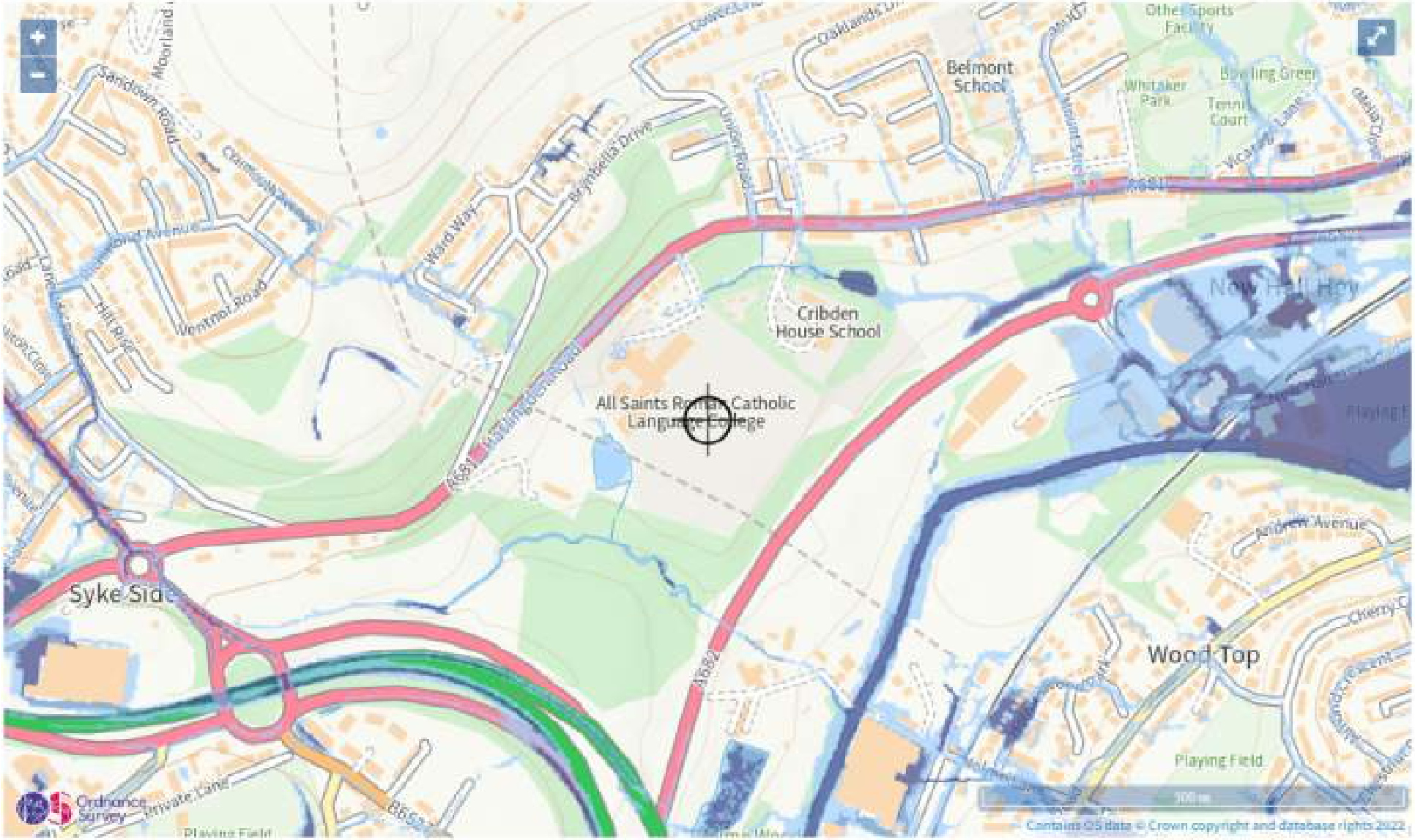
High Medium Low Very low Location you selected

Flood risk

Extent of flooding

Location

Enter a place or postcode



Extent of flooding from surface water

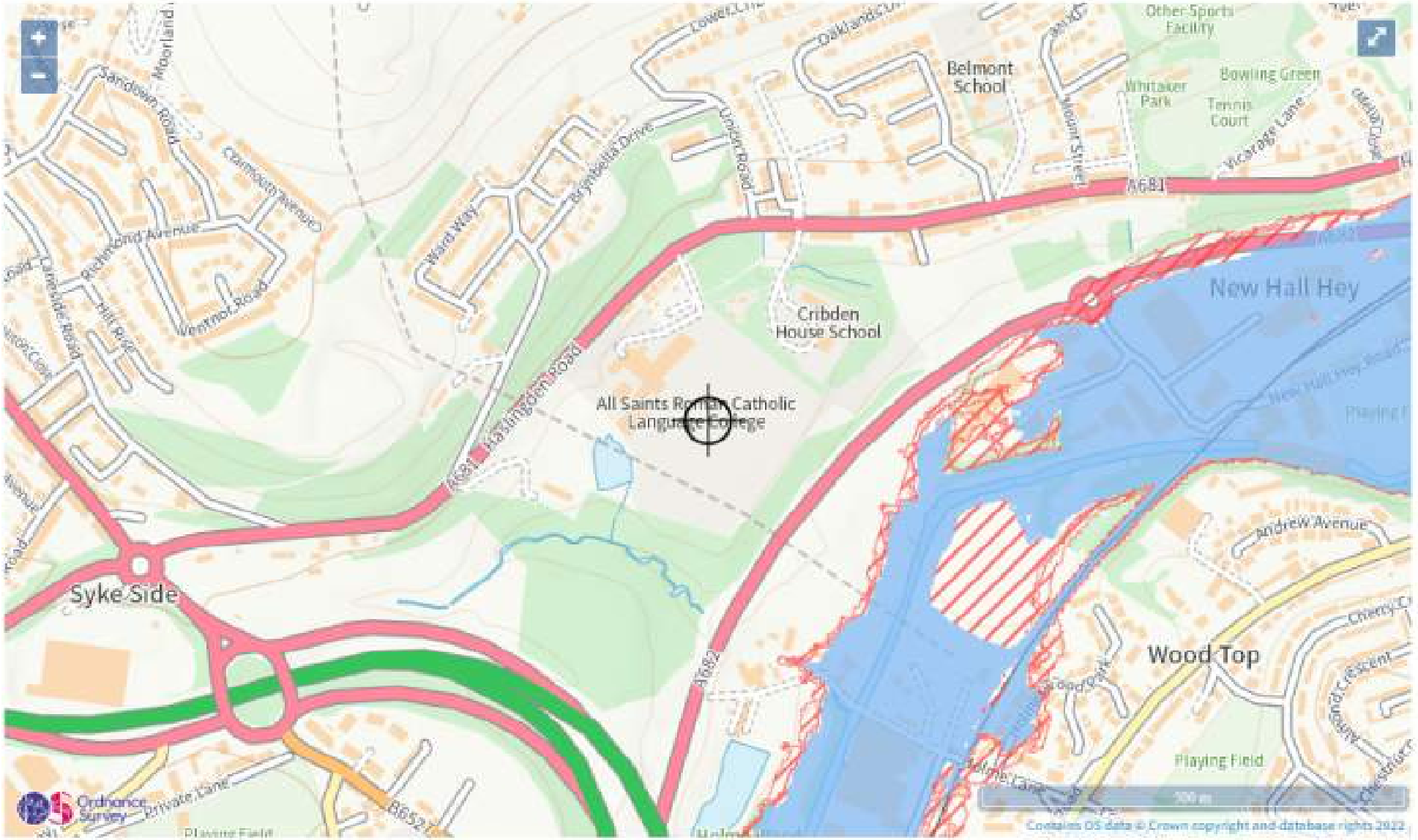
High Medium Low Very low Location you selected

Flood risk

Extent of flooding

Location

Enter a place or postcode



Maximum extent of flooding from reservoirs:

when river levels are normal | when there is also flooding from rivers | Location you selected

United Utilities Maps for SafeDig

Date :	29/06/2022 10:11:13
Centre X:	379911
Centre Y:	422325
Scale :	2000
UserName:	4MY37

Extract from maps of United Utilities' Underground Assets

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private service pipes may be shown by a blue broken line. United Utilities Water will not accept liability for any damage caused by the actual position being different from those shown.

United Utilities
Water for the North West