



Flood Risk Assessment and Drainage Strategy Report

PLON01, Prologis Park West, Units DC5 and DC6, Iron Bridge Road North, West
Drayton, Uxbridge, UB11 1BT

Prologis

8 April 2026

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Prepared for:



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Number	By	Date	Context
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EXECUTIVE SUMMARY

This Flood Risk Assessment has been prepared on behalf of Prologis UK CCCXXXVIII S.à r.l. as part of a planning application for the adaptation of the existing buildings including the installation of new gantry decks for plant and equipment to facilitate a 'data centre' operation at Prologis Park West, Units DC5 and DC6, Iron Bridge Road North, West Drayton, Uxbridge.

The existing 6.3 ha site currently comprises two logistics buildings with associated parking.

This FRA has been developed based on current design information and publicly available information, including the FRA and site surveys approved as part of the 2021 Permission. The Proposed Development is predominantly an adaption of the buildings developed pursuant to the 2021 Permission to provide the infrastructure requirements for a Data Centre.

Existing feature	Proposed Development
Unit 1 (building)	Retained and repurposed: DC5 - Distribution Centre 5
Unit 2 (building)	Retained and repurposed: DC6 - Distribution Centre 6
Impermeable Area	Unchanged
Discharge Rate	Unchanged

Flood risk to the proposed development from all sources is assessed to be low.

The proposed surface water drainage strategy includes attenuation tanks, swales and permeable paving which have been designed to accommodate events up to the 1:100yr + 40% climate change event.

It is proposed that surface water will discharge into the Grand Union Canal to the south of the Site, via an existing Thames Water surface water sewer in the southeast corner of the Site at greenfield runoff rates (12.5l/s). This discharge rate matches the existing site discharge rate as there is no increase in impermeable area and this still aligns with the current planning advice.

The Flood Risk Assessment and proposed mitigation measures show that the proposed development, and its users, will be safe from all sources of flood risk over its lifetime. Proposals for the site are therefore considered to be acceptable in terms of the requirements of the NPPF.

1 INTRODUCTION

Pinnacle Consulting Engineers Ltd have been commissioned to complete a combined Flood Risk Assessment report (FRA) and Drainage Strategy (DS) for a Proposed Development on behalf of Prologis UK CCCXXXVIII S.à r.l., as part of a planning application for the adaptation of the existing buildings including the installation of new gantry decks for plant and equipment to facilitate a 'data centre' operation at Prologis Park West, Units DC5 and DC6, Iron Bridge Road North, West Drayton, Uxbridge, UB11 1BT.

Figure 1.1 shows the site location.

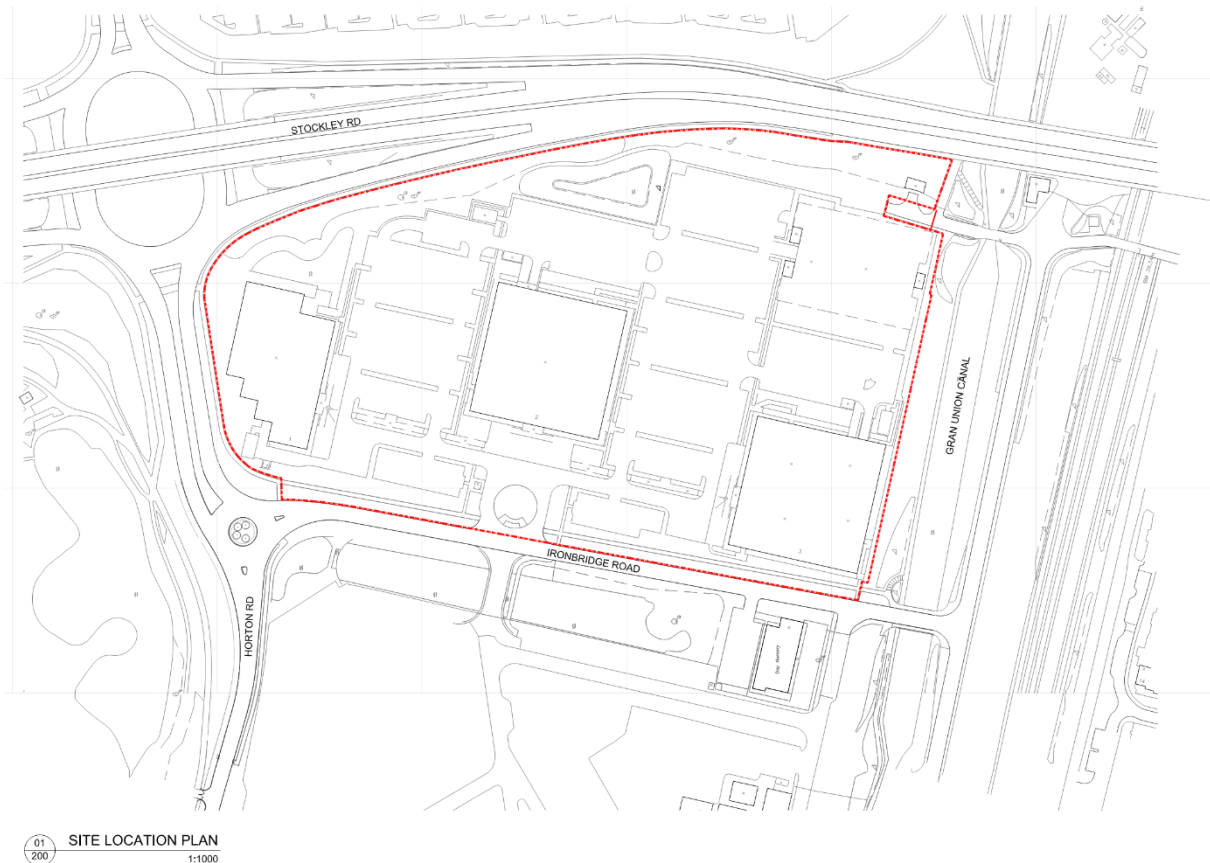


Figure 1.1 – Site location

With reference to the Flood Maps for Planning published by the Environment Agency, the site is located within Flood Zone 1. This FRA/DS report has been prepared in accordance with the requirements contained within National Planning Policy Framework (NPPF, December 2024) and the associated Planning Practice Guidance (PPG, updated August 2022). The guidance refers to the Environment Agency's "standing advice" on flood risk. Based on requirements set by the Environment Agency, a Flood Risk assessment is needed to support the planning application.

This report has been prepared in accordance with the following:

- (i) National Planning Policy Framework (NPPF), (Ministry of Housing, Communities and Local Government, December 2024)
- (ii) Planning Practice Guidance – Flood Risk and Coastal Change (Ministry of Housing, Communities and Local Government) (August 2022)
- (iii) The London Plan (2021)

- (iv) West London Strategic Flood Risk Assessment (SFRA) (March 2018)
- (v) London Borough Of Hillingdon Local Plan: Part 1 – Strategic Policies (November 2012)
- (vi) London Borough Of Hillingdon Local Flood Risk Management Strategy (LFMS) (February 2016)
- (vii) London Borough Of Hillingdon Surface Water Management Plan (SWMP) (January 2013)
- (viii) London Borough Of Hillingdon Preliminary Flood Risk Assessment (PFRA) (May 2011)
- (ix) London Borough Of Hillingdon Sustainable Drainage: Design And Evaluation Guide (January 2017)
- (x) Greater London Authority: London Sustainable Drainage Proforma (2019)
- (xi) Other statutory laws and local bylaws and rules.

It is stated in Paragraph 30 of the Flood Risk and Coastal Change chapter within the Planning Practice Guidance that *“a site-specific flood risk assessment is carried out by (or on behalf of) a developer to assess the flood risk to and from a development site. Where necessary the assessment should accompany a planning application submitted to the local planning authority. The assessment should demonstrate to the decision-maker how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its users”*.

This report has been prepared to address the requirements of the NPPF and has derived the following data/information from various sources including:

- Information published or explicitly provided by the Environment Agency;
- Information published by the Local Planning Authority, including the SFRA;
- A site specific topographical survey;
- A site specific GPR survey
- Existing Water Authority asset records and
- Specific design works carried out for this report.

A Flood Risk Assessment and Drainage Strategy including site investigations was completed for the previous development on the site, completed in 2020. As part of this FRA, previous reports have been reviewed and used to obtain site information where new investigations are not available to inform the design and review of the site. All conclusions based on previous investigations will be verified as part of the proposed development where appropriate.

A copy of the historic FRA is available from the documents associated with the London Borough of Hillingdon planning reference 39207/APP/2020/2188 (known as the 2021 Permission) available on the Planning Portal.

2 EXISTING SITE CONDITIONS

2.1 Site description

The Site forms part of Prologis Park West, London which comprises a total of six, large scale industrial buildings. It is the eastern section of the estate and measures approximately 6.3 ha.

The Site currently accommodates two warehouse buildings which were completed in 2023:

- Unit 1 (DC5 - Distribution Centre 5);
- Unit 2 (DC6 - Distribution Centre 6).

Unit 1 and Unit 2 are single-storey warehouse units measuring: 18,063 sq m (194,428 sq ft) and 13,290 sq m (143,052 sq ft) respectively. Each building has a clear haunch height of 15m and an overall building height of 18m.

The existing buildings are currently vacant but benefit from the flexible use included within the following use classes: Classes B2, B8 and E(g)(iii).

Direct access to the Site is via Iron Bridge Road, which forms the western boundary and runs in a north-south direction from the Stockley Road roundabout to West Drayton.

2.2 Topography

The development site has a moderate slope with ground levels across the site varying between approximately 34.3m Above Ordnance Datum (AOD) in the north and 32.6mAOD in the south of the site.

A topographical survey of the existing development site is provided in **Appendix A**.

2.3 Geological ground conditions

Geological conditions at the site are detailed below and are based on a British Geological Survey (BGS) map. The focus of an FRA study on geology is on the potential movement of water through Made Ground, Drift Geology and Solid Geology.

These strata are depicted in Figure 2.1 and summarised in Table 2-1.

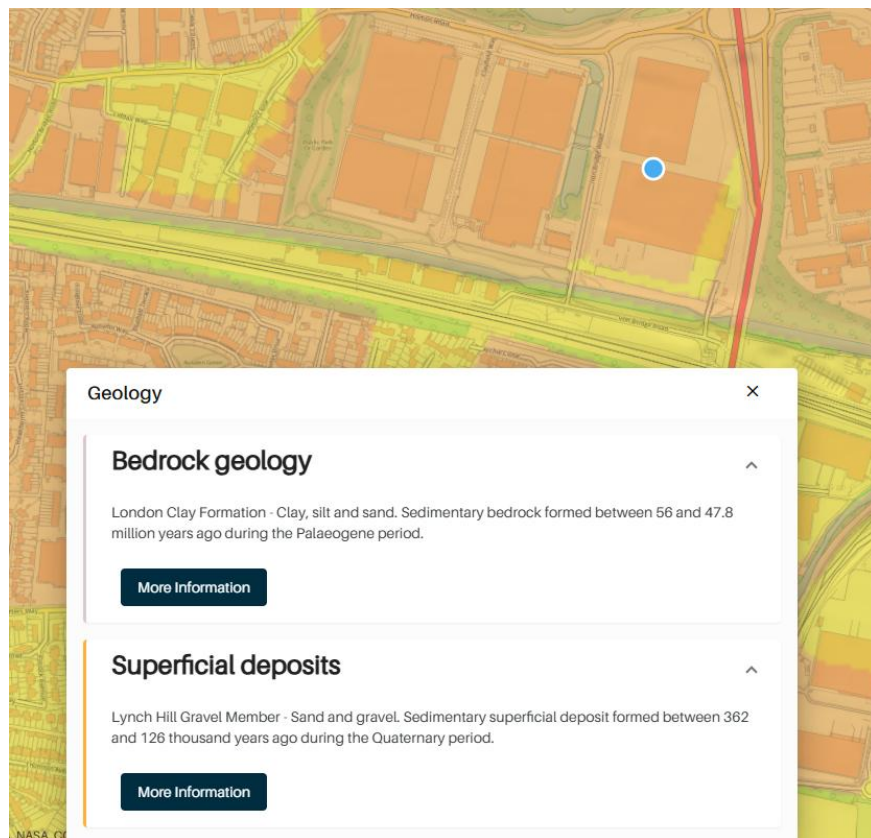


Figure 2.1 - British Geological Map – Bedrock Geology (Accessed September 2025)

Formation	Description
Artificial Ground (Made Ground)	Present from previous development
Superficial Deposits (Drift Deposits)	Lynch Hill Gravel Member
Bedrock	London Clay

Table 2-1 - Geological Ground Conditions

Magic Map includes details of areas where there is an elevated risk of are depicted in Figure 2.1 and Figure 2.2 shows an excerpt from Magic Maps indicating the site to be at medium-high risk of groundwater vulnerability.

A Flood Risk Assessment for the original development on the site (2021 Permission) undertook detailed ground investigations including groundwater monitoring which found that the shallowest recording was at 0.49 m below ground level (bgl), towards the south of the Site, whilst the deepest recording was at 4.95mbgl in the centre of the Site.

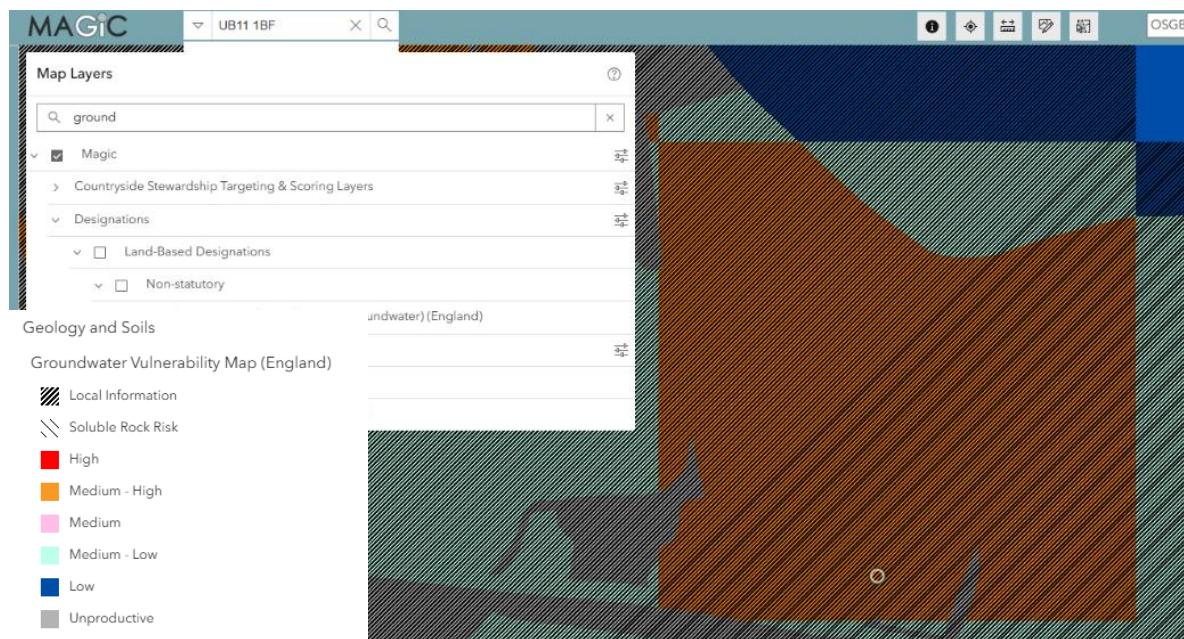


Figure 2.2 – Magic Map – Groundwater Vulnerability Map (Accessed September 2025)

2.4 Source Protection Zones

Source Protection Zones (SPZs) identify areas of land through which water infiltrates into a groundwater borehole, well or spring that is used for public drinking water supply. The MAGIC Maps website identifies that the development area is not located within a Source Protection Zone.

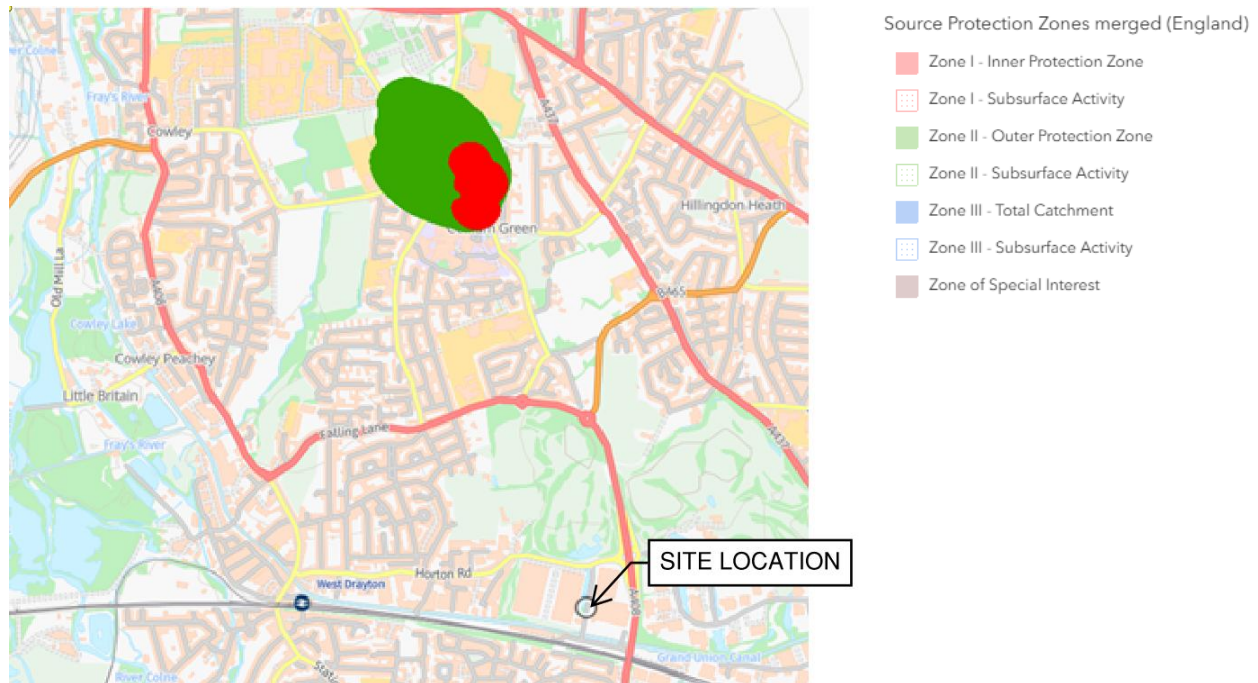


Figure 2.3 - MAGIC Maps Source Protection Zone (Accessed September 2025)

2.5 Existing surface water management

The existing development is drained by a Sustainable Drainage System (SuDS) in line with the approved drainage strategy associated with the 2021 Permission. This includes;

- Surface water discharge restricted to 12.5l/s for all storms up to 100yr + 40% climate change allowance (equivalent to 2l/s/ha)
- Below ground surface water attenuation storage
- Surface water discharge into the Grand Union Canal

The previous FRA also confirms all surface water up to the 100yr + 40% climate change event will be managed and contained on the site, effectively removing surface water flood risk from the development.

3 PROPOSED DEVELOPMENT

The Proposed Development is the partial demolition and adaptation of existing buildings; installation of new gantry decks housing MEP, a sub-station and fire suppression infrastructure; and associated physical works including alterations to the layout of the site.

Externally, the site and drainage will remain largely as existing, with minor modifications as required to suit the revised site layout and new installations.

The proposed development plans are provided in **Appendix B**.

4 PROBABILITY OF FLOODING

The NPPF identifies six potential sources of flooding, these are considered below:

- Flooding from rivers (fluvial flooding);
- Flooding from the sea (tidal flooding);
- Flooding from land;
- Flooding from sewers;
- Flooding from groundwater; and
- Flooding from reservoirs, canals, and other artificial sources.

4.1 Flooding from rivers (fluvial flooding) & sea (tidal flooding)

The assessment of flood risk in this report is based on the definitions in Table 1 of the Flood Risk and Coastal Change, Planning Practice Guidance (Dec 2024), which recognises the following Flood Zones:

- Flood Zone 1 - little or no risk, with annual probability of flooding from rivers and the sea of less than 0.1% (1 in 1000-year)
- Flood Zone 2 - low to medium risk, with annual probability of flooding between 0.1% and 1.0% from rivers and between 0.1% and 0.5% from the sea
- Flood Zone 3a - high risk of flooding with an annual probability of flooding of 1.0% or greater from rivers, and 0.5% or greater from the sea.
- Flood Zone 3b – the 'Functional Floodplain' with an annual probability of flooding of 5% or greater.

An extract from the Environment Agency's online flood map published on their website is shown in Figure 4.1 below, with Flood Zone 3a & 3b denoted by dark blue hatch and Flood Zone 2 a light blue. The site is located within a Flood Zone 1 'Low Probability' area and therefore is at low risk of fluvial/tidal flooding.

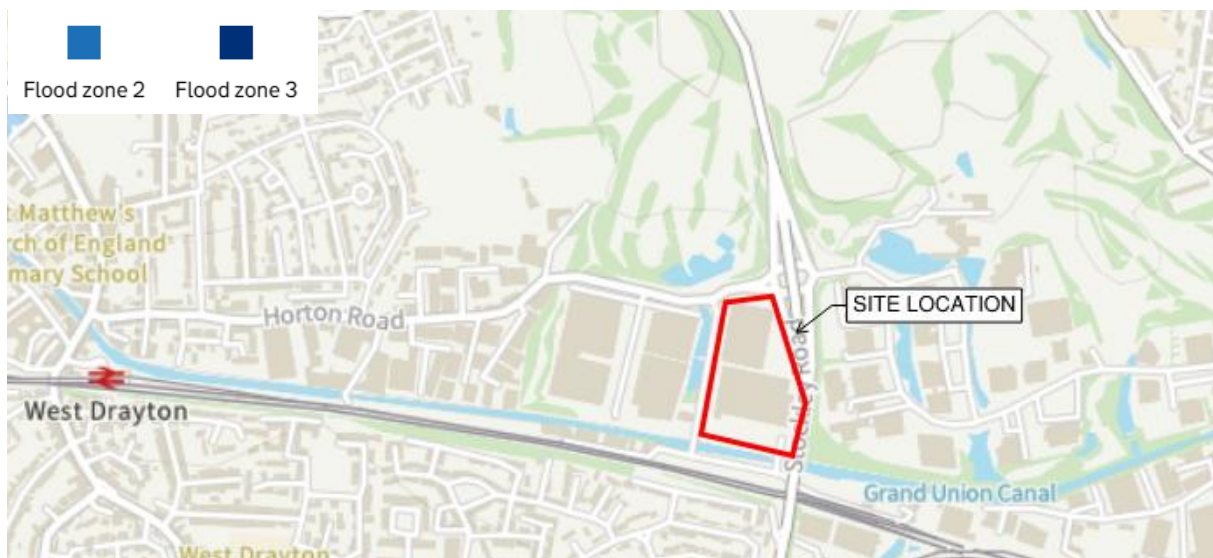


Figure 4.1 - Flood Zone Map (GOV.UK) (Accessed September 2025)

4.2 Flooding from Surface Water (1 in 100 years)

With reference to GOV.UK flood risk map, (filtered for surface water 1 in 100), Figure 4.2, Surface Water Flooding Map, indicates that that some flooding is expected within the development boundary. This is based on site levels and does not account for the mitigation implemented by the surface water strategy and attenuation that has been provided as part of the 2021 Permission and is proposed as part of this new development..

The site is therefore at a low risk of surface water flooding. The drainage of the proposed development mimics the existing drainage strategy, it is therefore concluded that the low risk of surface water flooding does not change pre-post development.

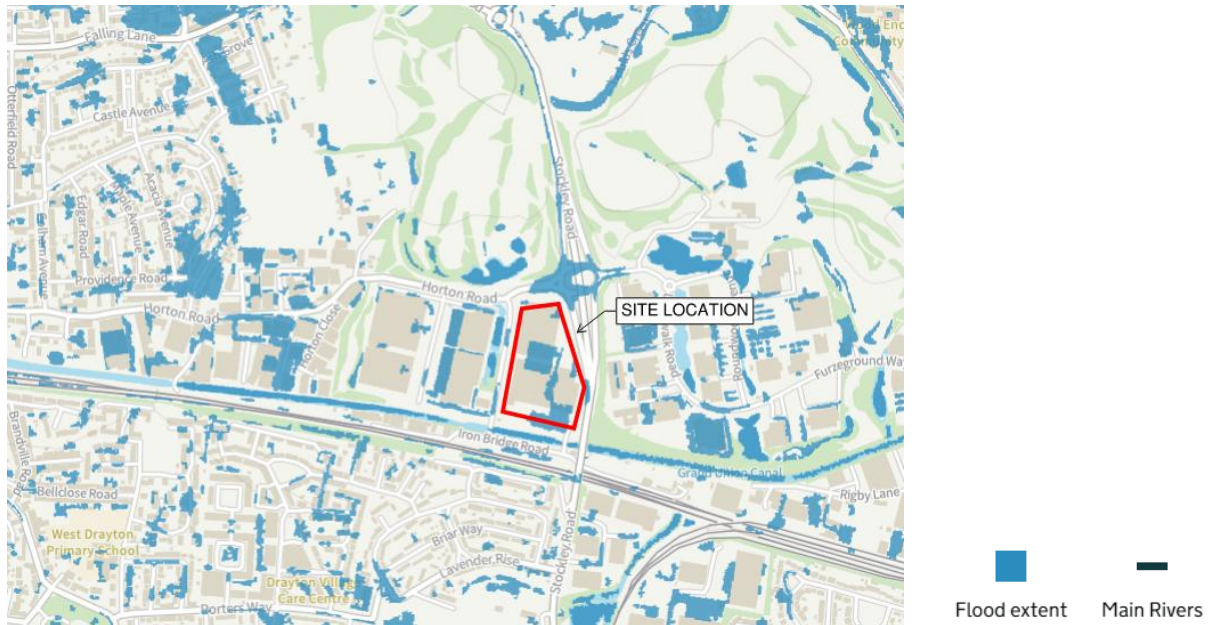


Figure 4.2 - Surface Water Flooding Map (GOV UK) (Accessed September 2025)

4.3 Flooding from reservoirs and other artificial sources

With reference to GOV.UK flood risk map, filtered for reservoirs, Figure 4.3, indicates that that no flooding is expected within the development boundary each year from artificial sources.

The southern boundary of the Site is located approximately 20m to the north of the Grand Union Canal. Based on the FRA completed for the 2021 Permission, the Canal and River Trust advised that it is not aware of any records of overtopping or breaching in this area. The water level of the canal is between 29.3 and 29.5m AOD. The ground level at the southern end of the Site is approximately 2 - 3m higher than this level.

As can be seen in Figure 4.2, the flood risk from artificial sources is therefore low.

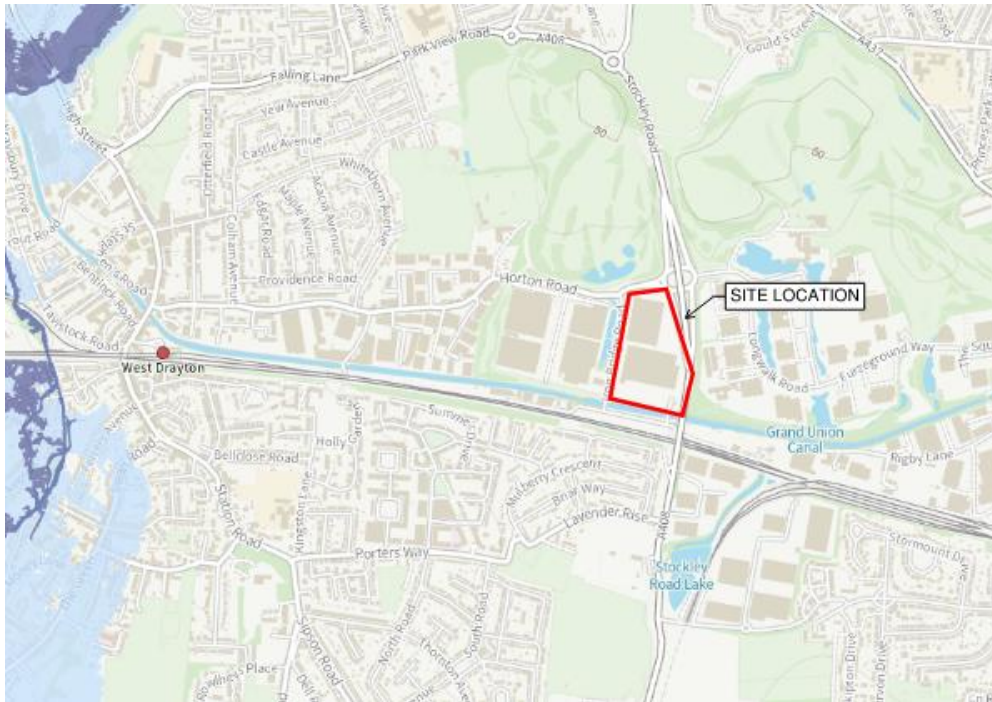


Figure 4.3 - Reservoir Flooding Map (GOV UK) (Accessed September 2025)

4.4 Flooding from groundwater

Groundwater flooding occurs when water stored below ground reaches the surface. It is commonly associated with porous underlying geology, such as chalk, sands and gravels.

The Site is underlain by bedrock of London Clay Formation (Clay, Silt and Sand). Superficial deposits within the site are predominately Lynch Hill Gravel Member – Sand and Gravel. However, Langley Silt Member – Clay and Silt can also be found towards the south east of the Site.

The aquifer designation of the bedrock beneath the Site is classified as ‘unproductive’ strata. This means that the bedrock is considered to have a low permeability and has negligible significance for water supply or river base flow. The London Clay Formation is also classified as “rocks with essentially no groundwater” by the Environment Agency.

The aquifer designation of the superficial deposits beneath the Site, however, is a ‘Principal Aquifer’.

These are defined by the Environment Agency as ‘layers of rock or drift deposits that have high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage’.

Based on the FRA completed for the 2020 development and the associated groundwater monitoring;

- The monitoring shows that groundwater is confined to the shallow superficial deposits by the impermeable nature of the London Clay Formation beneath. Groundwater flood risk at the Site is therefore derived from the interconnected superficial deposits at the Site and in the vicinity.
- The risk of flooding from this source is considered to be Medium, given the shallow groundwater levels encountered during monitoring, and the presence of the permeable superficial deposits.
- During the groundwater monitoring undertaken during February 2019, groundwater was encountered at shallow levels across the Site, in 11 boreholes and window samples. Groundwater contour mapping included within the report indicates a dominant flow direction

towards the south of the Site but suggests that there is no hydraulic connectivity between the canal and the Site.

- The risk of the proposed development increasing flood risk from this source to the Site is considered to be Low, however a recommendation is made within the Geo-environmental report that 'further groundwater level data is needed to fully establish the hydrogeology at the Site'.
- The groundwater monitoring could be controlled via planning condition.

The overall flood risk from groundwater is therefore likely to be low.

4.5 Flooding from Sewers

Based on the evidence provided in the FRA completed for the 2021 Permission;

- Historic flood records provided by Thames Water confirm that there have been no known incidents of flooding at the Site as a result of surcharging of public sewers.

The flood risk from artificial sewers is therefore low.

4.6 Flood Risk Summary

Based on the available information and a desk study analysis the overall risk of flooding from any source at the Proposed Development has been assessed as **low**, see Table 4-1.

Table 4-1 - Flood Risk Summary

Flood Risk Source	Flood Risk Posed by Source
Rivers	Low Probability
Sea	Low Probability
Land (surface water)	Low Risk following implementation of site drainage strategy. (surface water flood risk has been removed by the current positive drainage network)
Reservoirs	Low Risk
Canals	Low Risk
Groundwater	Low Risk
Sewers	Low Risk

5 POLICY STATUS FOR PROPOSED DEVELOPMENT

5.1 Vulnerability classification

The proposed development complies with the following principles:

- The proposed development lies within Flood Zone 1;
- The proposed development is classified as 'less vulnerable' in accordance with Table 2 and highlighted in Table 5-1 of the Flood Risk and Coastal Change, Planning Practice Guidance (December 2024) (reproduced as Table 5-1 & Table 5-2 below).

Table 5-1 - Flood Risk Vulnerability Classification, Planning Practice Guidance (Accessed 2025)

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, Fire stations, 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 or short-let caravans and camping, subject to a specific warning and evacuation plan.
Less Vulnerable	Police, ambulance and fire stations which are not required to be operational during flooding. Buildings used for shops; financial, professional and other services, restaurants 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 plants and sewage treatment plants (if adequate pollution control measures are in place). Sewage treatment works (if adequate measures to control pollution and manage sewage during flood events are in place).
Water-compatible	Flood control infrastructure. Water transmission infrastructure, pumping stations. Sewage transmission infrastructure and pumping stations.

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

1 - This classification is based partly on Defra/Environment Agency research on Flood Risks to People (FD2321/TR2)21 and also on the need of some uses to keep functioning during flooding.

2 - Buildings that combine a mixture of uses should be placed into the higher of the relevant classes of flood risk sensitivity. Developments that allow uses to be distributed over the site may fall within several classes of flood risk sensitivity.

3 - The impact of a flood on the particular uses identified within this flood risk vulnerability classification will vary within each vulnerability class. Therefore, the flood risk management infrastructure and other risk mitigation measures needed to ensure the development is safe may differ between uses within a particular vulnerability classification.

The proposed development is appropriate in accordance with Table 3 of the Flood Risk and Coastal Change, Planning Practice Guidance, reproduced in Table 5-2.

Table 5-2 - Flood Risk Vulnerability 'Compatibility', Planning Practice Guidance (Accessed 2025)

Vulnerability Classification		Essential Infrastructure	Water-compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test	✓	✓
	Zone 3a	Exception Test	✓	✗	Exception Test	✓
	Zone 3b	Exception Test	✓	✗	✗	✗
Key ✓ Development is appropriate ✗ Development should not be permitted						

5.2 Sequential Test & Exception Test

The NPPF requires that all development is tested to steer new development to areas at the lowest probability of flooding (Flood Zone 1). The Sequential Test would normally be completed by the Local Planning Authority (LPA) to inform the preparation of the Local Development Framework (LDF), where one exists. However, where this process has not yet been completed the onus for the provision of evidence demonstrating successful application of the Sequential Test falls to the developer, or promoter of the site. The NPPF also requires the layout of a site to be sequentially tested to locate the most vulnerable land uses in the areas at lowest risk of flooding.

The NPPF and PPG acknowledge that in some circumstances it may not be possible to locate development in areas of low or appropriate (considering development vulnerability) flood risk or that there may be other valid reasons for a development to take place within the floodplain. In these circumstances, it is necessary to apply the Exception Test to clearly demonstrate that the benefits for development of a site outweigh the flood risks to the development and its occupants. Table 3 of the Flood Risk and Coastal Change, Planning Practice Guidance (reproduced in Table 5-2 above) indicates when the Exception Test is required.

The proposed development site falls entirely into Flood Zone 1, flooding risks including those from fluvial, tidal, land, sewers, groundwater and reservoirs and other artificial sources have been presented and addressed within Section 4 of this report, therefore the Sequential Test is deemed to be passed, and the Exception Test is not required.

5.3 Local Policy

5.3.1 The London Plan

Chapter 9 'Sustainable Infrastructure' of The London Plan includes several policies relating to flood risk and water management.

- Policy G5 'Urban Greening' refers to urban greening as a fundamental element of building design and introduces the 'Urban Greening Factor' to identify the amount of urban greening required in developments.
- Policy SI 12 'Flood Risk Management' reiterated the requirement to comply with the NPPF, but places a greater emphasis on creating space for water in development and using natural flood management measures where possible.
- Policy SI 13 'Sustainable Drainage' reiterates the drainage hierarchy (refer to Section 6.1), with a greater emphasis on drainage with multiple benefits being preferred.
- Policy D11 'Safety, Security and Resilience to Emergency' states that development proposals should maximise building resilience and minimise potential physical risks that arise from flood related hazards.
- Policy GG6 'Increasing Efficiency and Resilience' states that buildings and infrastructure should be designed to adapt to climate change, utilise water efficiently and reduce flooding impacts.

5.3.2 West London Strategic Flood Risk Assessment (SFRA) (March 2018)

West London's Strategic Flood Risk Assessment (SFRA) provides an overview of flood risk within six London boroughs, including the London Borough of Hillingdon (LBH). It provides an update to the individual borough SFRAs, completed in 2008.

Interactive mapping within the SFRA confirms the Site is not within a Critical Drainage Area (CDA) or an area with records of Thames Water Sewer flooding (based on 2017 data).

5.3.3 London Borough Of Hillingdon Local Plan: Part 1 – Strategic Policies (November 2012)

The LBH Local Plan: Part 1 – Strategic Policies is the key strategic planning document for Hillingdon and contains several policies related to Flood Risk and Sustainable Drainage.

- Policy EM1 ‘Climate Change Adaptation and Mitigation’ emphasises the requirement for development to be located outside of flood risk areas, and for development to consider the whole water cycle in its design.
- Policy EM6 ‘Flood Risk Management’ highlights the requirement for SuDS to be incorporated into all new development, which may require developer contributions to ensure long term maintenance.
- The document also specifies that SuDS should be designed to accommodate the 1 in 100-year event plus a 40% allowance for climate change.

5.3.4 London Borough Of Hillingdon Local Flood Risk Management Strategy (LFMS) (February 2016)

LBH, as the Lead Local Flood Authority (LLFA), is required to develop a Local Flood Risk Management Strategy (LFRMS) for its area, under the Flood and Water Management Act 2010. The aim of the LFRMS is to produce a plan to reduce and manage flood risk in a way that will benefit people, property and the environment.

The LFRMS does not refer to the Site specifically but provides an overview of sources of flooding within the Borough, and the importance of SUDS in developments.

5.3.5 London Borough Of Hillingdon Surface Water Management Plan (SWMP) (January 2013)

The Surface Water Management Plan (SWMP) outlines the preferred surface water management strategy for the LBH.

The SWMP confirms that the Site is not located within a Critical Drainage Area and there are no recorded incidents of sewer, pluvial or fluvial flooding.

The mapping within the SWMP also indicates that the Site is within an area with permeable superficial deposits but is not located near to any historic records of groundwater flooding. Furthermore, that the Site is within an area with uncertain SuDS suitability, and is located adjacent to a historic landfill site, to the east.

5.3.6 London Borough Of Hillingdon Preliminary Flood Risk Assessment (PFRA) (May 2011)

The LBH Preliminary Flood Risk Assessment (PFRA) provides a coarse assessment for identifying potential Flood Risk Areas within the Borough using a precautionary approach.

West Drayton, where the Site is located, is currently excluded from the indicative Flood Risk Areas, as flooding in this area is considered unlikely to result in “significant harmful consequences”.

5.3.7 London Borough Of Hillingdon Sustainable Drainage: Design And Evaluation Guide (January 2017)

This guide provides an overview of SuDS and their benefits, and what LBH require from developers, to support planning applications for new developments.

The guidance is comprehensive but does not deviate from standard SuDS best practice. There is an objective for flows from brownfield sites to be reduced to greenfield rates.

5.3.8 Greater London Authority: London Sustainable Drainage Proforma (2019)

The London Sustainable Drainage Proforma was introduced in April 2019 by London's 33 LLFAs and is required to be submitted alongside Planning Applications to set a clear standard for surface water drainage strategies in London.

The Proforma has been completed for the Proposed Development and is provided in **Appendix C**.

6 PROPOSED SURFACE WATER STRATEGY

6.1 Water disposal hierarchy

The LLFA, the CIRIA SuDS Manual and Building Regulations state a hierarchy of methods of disposal of surface water. In order, these are re-use, disposal by infiltration, discharge to watercourses and if none of these options are reasonably practical then discharge to a public surface water sewer and finally discharge to a combined sewer. Within Table 6-1, the most appropriate means of discharge has been identified.

The Proposed Development will retain the existing scheme, with minor adaptations where needed to suit the proposed site use.

Table 6-1 – Surface Water Disposal Hierarchy

Disposal Method	Comment
Re-use water at source	No demand for harvested rainwater on site
Infiltration	Site geology and constraints prevent infiltration
Surface water body	Discharge is into the Grand Union Canal
Surface water sewer	n/a
Combined Sewer	n/a

6.2 Proposed Surface Water Strategy

The site will be drained via a series of SuDS, controlling the rainwater at source before discharging through existing connections into the Grand Union Canal.

Surface water run-off from the proposed development will be restricted to a greenfield runoff rate of 2 l/s/ha. The total discharge rate from both proposed units is 12.5 l/s.

Attenuation will be provided in the form of below ground attenuation tanks and permeable pavements before discharging from the site. The proposed strategy will modify the existing layout to remove the Tubosider attenuation pipes (to make space for buried services) and offset the loss of storage through increasing the capacity in the attention crates.

Due to the ground conditions, such as the perched groundwater, infiltration is not considered viable.

The surface water drainage strategy has been designed to accommodate run off from all storms up to and including the 1% AEP with a 40% allowance for climate change.

Full Drainage Calculations, are provided in **Appendix D**.

The Proposed Drainage Strategy Drawings are provided in **Appendix E**.

6.3 Exceedance Flow

All storms up to and including 1 in 100 year + 40% climate change events will be retained within the site.

6.4 Pollution Management

6.4.1 Level of Pollution Risk

To ensure that adequate treatment for surface water runoff is provided, the equation below must be satisfied.

**Total SuDS mitigation index
(for each contaminant type)**

≥

**Pollution hazard Index
(for each contaminant type)**

6.4.2 Mitigation Measures

The SuDS mitigation Index = mitigation index + 0.5 (mitigation index)

The tables below highlight the land use pollution levels and SuDS mitigation indices for the elements proposed as part of the development (CIRIA SuDS Manual, 2015).

Table 6-2 - Pollution Hazard Indices CIRIA SuDS Manual 2015

Pollution Hazard Indices (CIRIA Table 26.2)				
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) <i>(Metals up to 0.8 where there is potential for metals to leach from the roof)</i>	Low	0.3	0.2	0.05
Individual property driveways, residential car parks, low traffic roads (e.g. cul-de-sacs homezones and general access roads) and non-residential car parking with infrequent change (e.g. schools, offices) ie <300 traffic movements per 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

Table 6-3 - Pollution Hazard Indices CIRIA SuDS Manual 2015

SuDS Mitigation Indices (CIRIA Table 26.3)			
Type of SuDS component	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

6.4.3 Development Treatment Identification and Strategy

The proposed land use, its associated contaminants and respective treatment is summarised in Table 6-4. As shown below, the appropriate level of treatment has been proposed, and the treatment for surface water runoff equation has been satisfied.

Table 6-4 – Catchment 1 Treatment Mitigation Indices

		TSS	Metals	Hydrocarbons
Proposed Surface	Commercial / industrial Roof Pollution Indices (remove as applicable)	0.3	0.2	0.05
	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 (remove as applicable)	0.7	0.6	0.7
Proposed Treatment	Swale (remove as applicable)	0.5	0.6	0.6
	Permeable Pavement (remove as applicable)	0.7	0.6	0.7
	Petrol Interceptor (typical indices, for SPEL full retention separator)	0.8	0.6	0.9
	Treatment Compliance Is the treatment > pollution indices?	✓	✓	✓

7 MAINTENANCE REQUIREMENTS

The Applicant (or any future owner), or appointed maintenance company, will be responsible to maintain all elements of the proposed drainage network for the development.

7.1.1 Gullies/Channels/Pipes/Manholes

All components are to be periodically cleaned of foreign particles and silt accumulation, on a quarterly basis. Components located in unadopted areas will be maintained by the landowner. Those located in adopted areas will be maintained by the adopting authority.

7.1.2 Proprietary Treatment System (includes petrol interceptors)

TABLE 14.2 An example of operation and maintenance requirements for a proprietary treatment system		
Maintenance schedule	Required action	Typical frequency
Routine maintenance	Remove litter and debris and inspect for sediment, oil and grease accumulation	Six monthly
	Change the filter media	As recommended by manufacturer
	Remove sediment, oil, grease and floatables	As necessary – indicated by system inspections or immediately following significant spill
Remedial actions	Replace malfunctioning parts or structures	As required
Monitoring	Inspect for evidence of poor operation	Six monthly
	Inspect filter media and establish appropriate replacement frequencies	Six monthly
	Inspect sediment accumulation rates and establish appropriate removal frequencies	Monthly during first half year of operation, then every six months

Figure 7.1 - Operation and maintenance, Proprietary Treatment, CIRIA SuDS Manual 2015

7.1.3 Swales

TABLE 17.1	Operation and maintenance requirements for swales		
	Maintenance schedule	Required action	Typical frequency
	Regular maintenance	Remove litter and debris	Monthly, or as required
		Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required
		Manage other vegetation and remove nuisance plants	Monthly at start, then as required
		Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
		Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
		Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
		Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
	Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
	Remedial actions	Repair erosion or other damage by re-turfing or reseeding	As required
		Relevel uneven surfaces and reinstate design levels	As required
		Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
		Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
		Remove and dispose of oils or petrol residues using safe standard practices	As required

Figure 7.2 - Operation and maintenance, Swales, CIRIA SuDS Manual 2015

7.1.4 Permeable Paving

The CIRIA SuDS Manual, 2015, outlines the maintenance requirements for permeable pavement, pictured below.

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 glyphosate 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

Figure 7.3 - Operation and maintenance, Permeable Paving CIRIA SuDS Manual 2015

7.1.5 Attenuation Tanks

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

Figure 7.4 - Operation and maintenance, Attenuation Tanks, CIRIA SuDS Manual 2015

8 CONCLUSIONS

This Flood Risk Assessment has been prepared on behalf of Prologis UK CCCXXXVIII S.à r.l.. to as part of a planning application for the adaptation of the existing buildings including the installation of new gantry decks for plant and equipment to facilitate a 'data centre' operation at Prologis Park West, Units DC5 and DC6, Iron Bridge Road North, West Drayton, Uxbridge.

The existing 6.3 ha site currently comprises two logistics buildings with associated parking.

This FRA has been developed based on publicly available information, including the FRA and site surveys approved as part of the 2021 Permission. The Proposed Development is predominantly an adoption of the buildings developed pursuant to the 2021 Permission to provide the infrastructure requirements for a Data Centre.

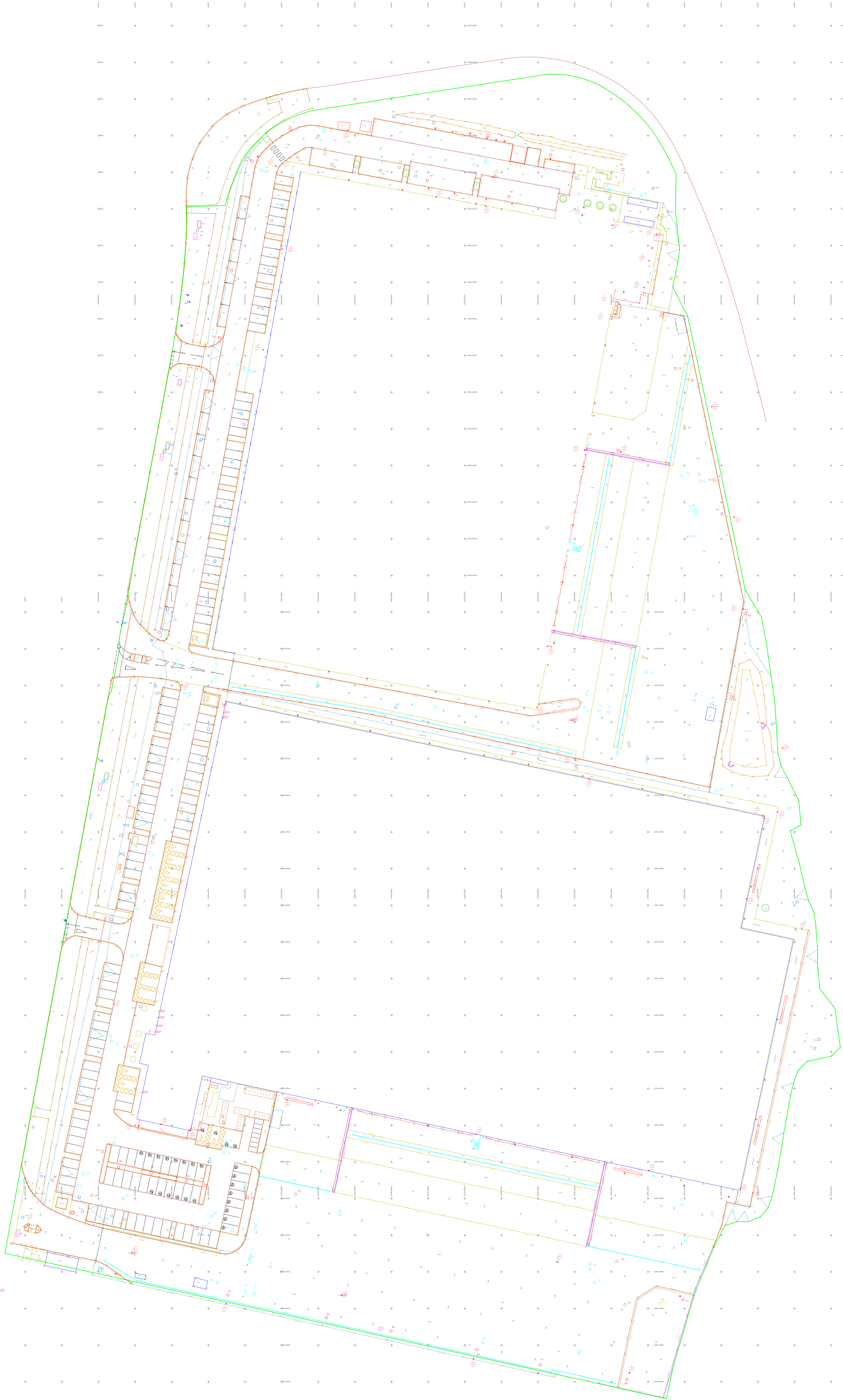
Flood risk to the proposed development from all sources is assessed to be low.

The proposed surface water drainage strategy includes attenuation tanks, swales and permeable paving which have been designed to accommodate events up to the 1:100yr + 40% climate change event.

It is proposed that surface water will discharge into the Grand Union Canal to the south of the Site, via an existing Thames Water surface water sewer in the southeast corner of the Site at greenfield runoff rates (12.5l/s).

The Flood Risk Assessment and proposed mitigation measures show that the proposed development, and its users, will be safe from all sources of flood risk over its lifetime. Proposals for the site are therefore considered to be acceptable in terms of the requirements of the NPPF.

Appendix A – Topographical Survey



LEGEND		
Topographic Linework Features		
— Air-Con Unit (ACU)	— Hand Rail	— Service
— Barrier	— Hedge	— Sky Light
— Beam Line	— Hoarding	— Slope Bottom
— Bench	— Kerb Bottom	— Slope Top
— Bin	— Kerb Drop	— Slot Drain
— Bollard Illuminated	— Lake	— Speed Bump
— Bollard	— Land Drain	— Steel Casing
— Bridge	— Obstruction	— Steel Structure
— Building Facade	— Opening - Slab	— Step Line
— Building	— Overhang	— Surface Change
— Bus Stop Shelter	— Overhead Cables	— Tank
— Cable Trough	— Partition	— Telephone Box (TB)
— Canopy	— Platform Meter (PM)	— Ticket Machine(TVM)
— Ceiling Line	— Platform Train/Tram	— Top of Fence Line
— Centre Line	— Pond	— Top of Wall Line
— Column	— Post-box	— Traffic Ctl Box(TCB)
— Column Bottom Line	— Ramp	— Track
— Column Top Line	— Red Line Dashed	— Tree Drip Line
— Concrete Base/Slab	— Red Line Solid	— Tree Line
— Contour Major	— Red Line Double	— Trial Pit
— Contour Minor	— River Edge	— Vegetation Line
— Cycle Lane	— Road Edge	— Vent
— Ditch	— Road Edge	— Verge Line
— Door	— Road Scar Line	— Wall Line
— Duct	— Road Text	— Window
— Electric Box (EBOX)	— Roof	— Window Glazing
— Fence	— Sanitary	— White Line Dashed
— Fixture		— White Line Double
— Flowerbed		— White Line Solid
— Footpath		— Yellow Line Dashed
— Grating		— Yellow Line Solid
— Grid Line		

Topographic Point Features		
AV Air Valve	IC Inspection Cover	RS Road Sign
APEX Apex Building	IC - CATV	RE Rodding Eye
BL Bed Level	IC - Comms	SA Sector Antenna
BB Bellisha Beacon	IC - Electric	SIGN Sign (General)
B Bollard	IC - Round	SOF Soffit Level
BOLT Bolt	IC - Telecom	SH Spot Height
BH Borehole	IC - Traffic	SC Stop Cook
B Bush	Invert Level	TP Telegraph Pole
CCTV Camera Pole	L Lamp Post	T12.24 Top of Fence Level
C Ceiling Elevation	M Manhole	T12.24 Top of Tree Level
D Dipole	MH - Foul	T12.24 Top of Wall Level
DS Earth Rod	MH - Round	T Traffic Light
EAVE Eave	MH - Surface Water	T Tree (TX,XX,SX,XX)
EP Electrical Pole	MK Marker Post	T-Spread Radius(m)
FH Fire Hydrant	MW Microwave Dish	T-Tree Deciduous
F Floor Level	POLE Pole	T-Tree Trunk
FM Gas Meter	POST Post	V Valve General
GW Gas Valve		WL Water Level
G Gate		WM Water Meter
Gully		WV Water Valve
Gully Round		

Special Features		
ID A E-XXXX-XXX	ID B E-XXXX-XXX	ID C E-XXXX-XXX
N-YYYY-YYY Survey Station	N-YYYY-YYY Scan Target	H-ZZZ-ZZZ
H-ZZZ-ZZZ		
Fence Types		
B/W Barbed Wire	C/L Chain Link	O/B Open Boarded
C/B Close Boarded	H Heras	P/W Post and Wire
C/I Corrugated Iron	I/R Iron Railings	P/R Post and Rail

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Location Plan		
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Revisions				
Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	BP - 22/05/2025	BP - 28/05/2025	TB - 28/05/2025
B	Second Issue	BP - 22/05/2025	BP - 01/06/2025	TB - 25/06/2025

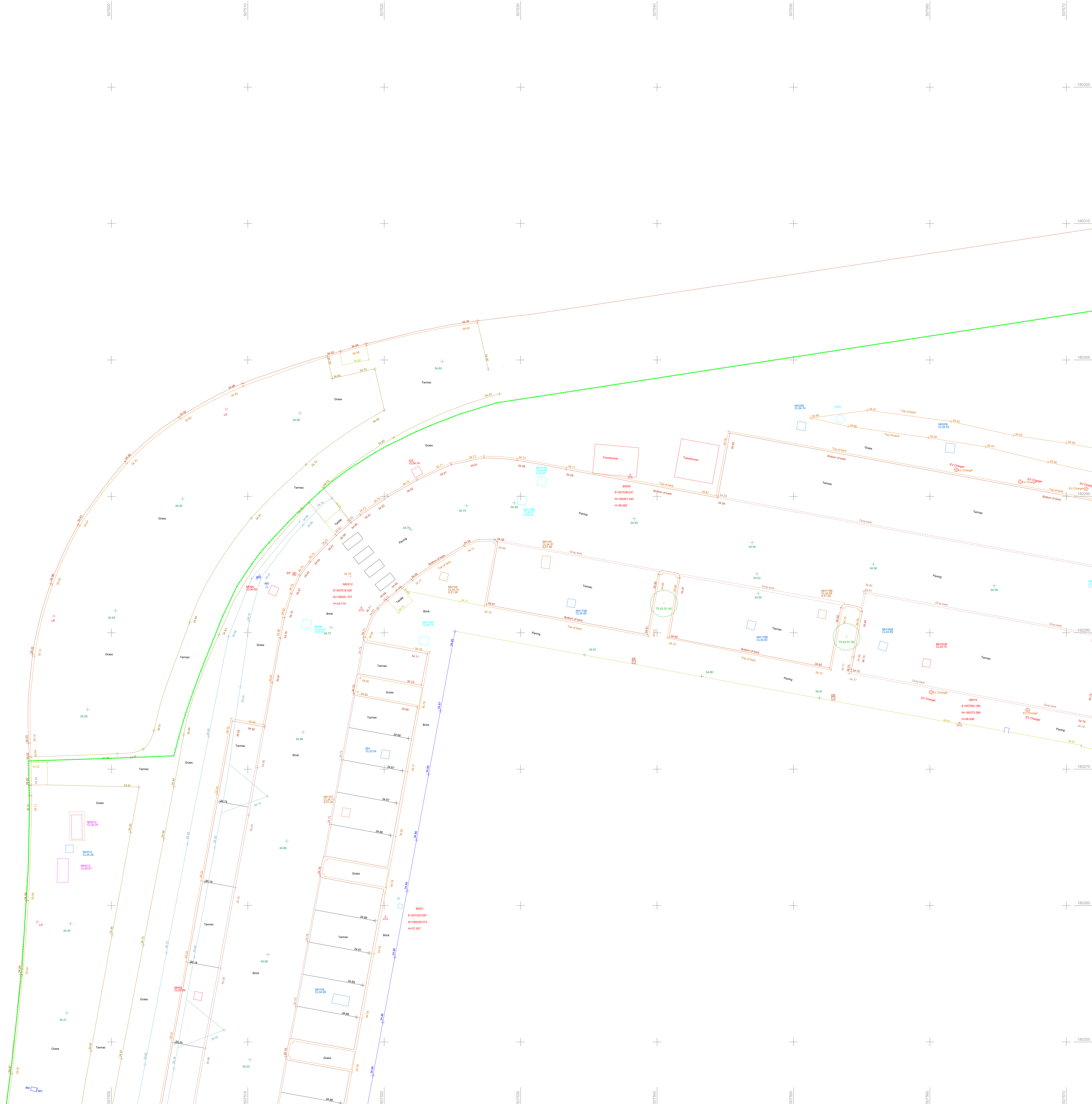


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London Manchester Birmingham Glasgow Belfast Cork Kildare

Client	Red Engineering Design Ltd.
Project	Stockley Park, Uxbridge
Site Address	Stockley Road, Hayes Uxbridge, London UB11 1FE
Description	Underground Utility Survey(PAS128)
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	NOT TO SCALE
Drawing Number	MGS63239-UT-RevB-01



LEGEND		
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FL Floor Level	POLE Pole	Tree Coniferous
FM Fire Meter	POST Post	Tree Deciduous
GM Gas Meter	Post	Tree Trunk
GW Gas Valve		Tree Trunk
Gate		Tree Trunk
Gully		Tree Trunk
Gully Round		Tree Trunk

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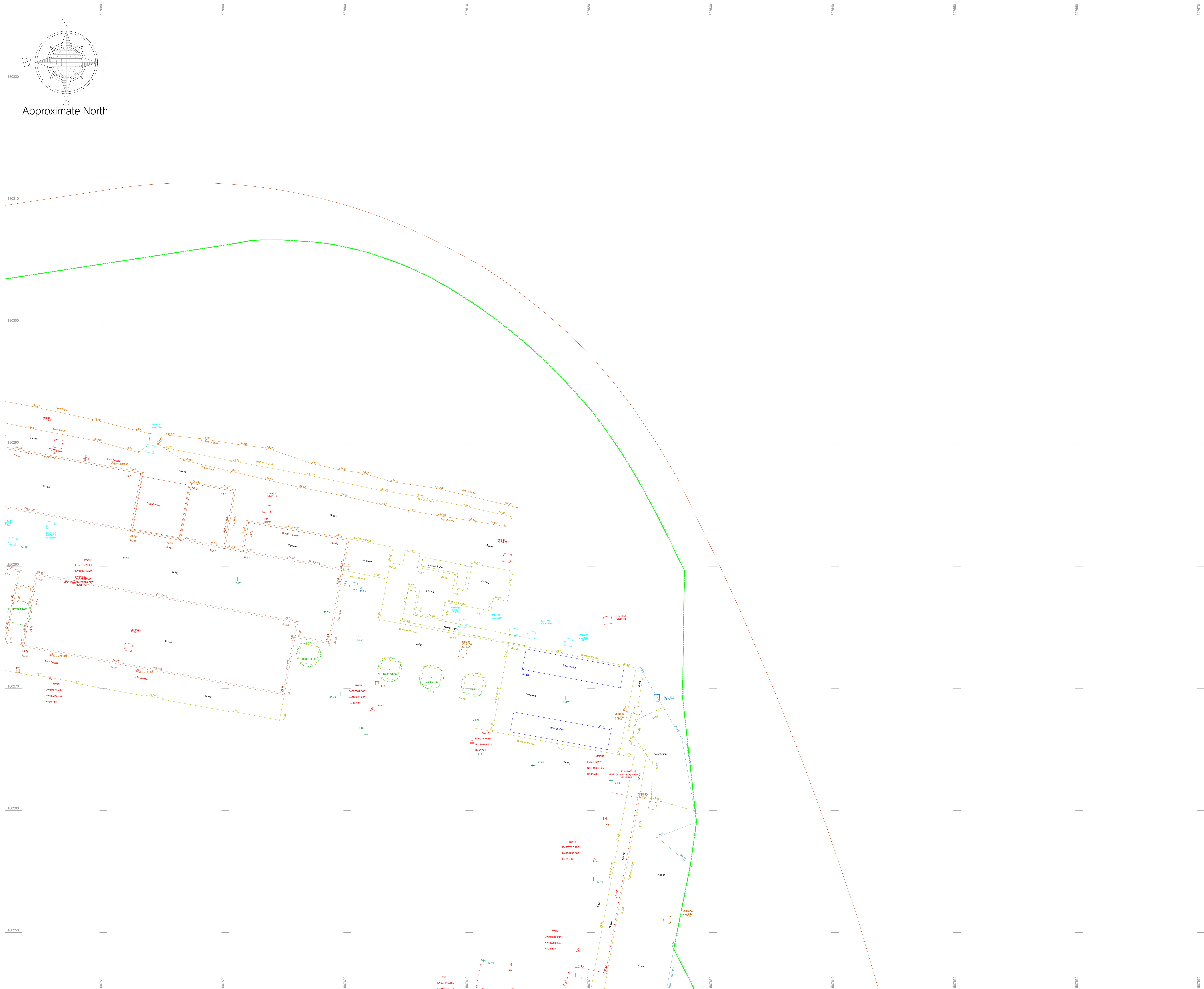


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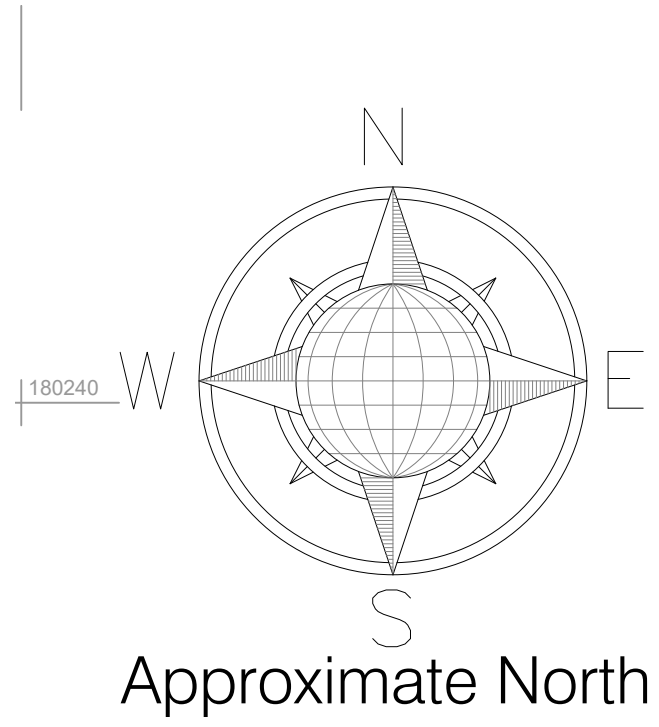


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— Column	— Parking Meter (PM)	— Top of Wall Line
— Column Bottom Line	— Pipe Line	— Track
— Column Top Line	— Platform Train/Tram	— Traffic Ctl Box (TCB)
— Concrete Base/Slab	— Pond	— Tree Drip Line
— Contour Major	— Post-box	— Tree Line
— Contour Minor	— Rail	— Trial Pit
— Cycle Lane	— Ramp	— Vegetation Line
— Ditch	— Red Line Dashed	— Vent
— Door	— Red Line Solid	— Verge Line
— Duct	— Red Line Double	— Wall Line
— Electric Box (EBOX)	— River Edge	— Window
— Fence	— Road Edge	— Window Glazing
— Fixture	— Road Edge	— White Line Dashed
— Flowerbed	— Road Scar Line	— White Line Double
— Footpath	— Road Text	— White Line Solid
— Grating	— Roof	— Yellow Line Dashed
— Grid Line	— Sanitary	— Yellow Line Solid

Topographic Point Features		
AV Air Valve	IC Inspection Cover	RS Road Sign
APEX Apex Building	IC - CATV	RE Rodding Eye
BL Bed Level	IC - Comms	SA Sector Antenna
BB Bellisha Beacon	IC - Electric	SIGN Sign (General)
B Bollard	IC - Round	SOF Soffit Level
BOLT Bolt	IC - Telecom	SH Spot Height
BH Borehole	IC - Traffic	SC Stop Cook
BUSH Bush	Invert Level	TP Telegraph Pole
CCTV Camera Pole	L Lamp Post	T12.24 Top of Fence Level
CE Ceiling Elevation	MH Manhole	T12.24 Top of Tree Level
D Dipole	MH - Foul	T12.24 Top of Wall Level
DR Earth Rod	MH - Round	TL Traffic Light
EAVE Eave	MH - Surface Water	Tree (TX,XX,XX,XX)
EP Electrical Pole	Marker Post	Tree (Trunk Radius(m))
FI Fire Hydrant	MW Microwave Dish	Tree Coniferous
F Floor Level	POLE Pole	Tree Deciduous
GM Gas Meter	POST Post	Tree Trunk
GV Gas Valve		Valve General
G Gate		WL Water Level
GULY Gully		WM Water Meter
GULY Round		WV Water Valve

Special Features		
ID E=XXXX.XXX	ID E=XXXX.XXX	ID E=XXXX.XXX
N=YYYY.YYY Survey Station	N=YYYY.YYY Scan Target	N=YYYY.YYY
H=ZZZ.ZZZ	H=ZZZ.ZZZ	H=ZZZ.ZZZ

Fence Types		
BW Barbed Wire	CL Chain Link	OB Open Boarded
CB Close Boarded	H Heras	PW Post and Wire
CI Corrugated Iron	IR Iron Railings	PR Post and Rail

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The diagram shows a grid of plots. The top row contains plots 1 and 2. The second row contains plot 3 (highlighted in green) and plot 4. Below these are three rows of three plots each: row 3 has plots 5, 6, and 7; row 4 has plots 8, 9, and 10; and row 5 has plots 11, 12, and 13. A north arrow is positioned to the left of the grid, pointing upwards.

Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	BP - 22/05/2025	BP - 28/05/2025	TB - 28/05/2025
B	Second Issue	BP - 22/05/2025	BP - 01/06/2025	TM - 25/06/2025



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Email: info@murphygs.com

London Manchester Birmingham Glasgow Belfast Cork Kildare

Client	Red Engineering Design Ltd.
Project	Stockley Park, Uxbridge
Site Address	Stockley Road, Hayes Uxbridge, London UB11 1FE
Description	Underground Utility Survey(PAS128)
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MGS63239-UT-RevB-03



LEGEND	
Graphic Line Features	
Hand Rail	Service
Light	Sign Light
Hearing	Slope Bottom
Kerb Bottom	Slope Top
Kerb Top	Slope Top
Kerb Top	Speed Bump
Land Drain	Street Lighting
Land Drain	Street Structure
Lift	Step Line
Open Change	Step Line
Opening - Slab	Tank
Overhead Cable	Telephone Box (TB)
Overhead Cables	Ticket Machine(VM)
Parapet	Toilet
Parking Meter (PM)	Top of Fence Line
Parking Meter (PM)	Top of Wall Line
Platform	Top of Wall Line
Platform Train/Tram	Traffic Circle(CB/TCB)
Plinth	Tree Dip Line
Pond	White Line Solid
Post-box	Tree Pit
Ramp	Vegetation Line
Red Line Solid	Verge Line
Red Line Dashed	Verge Line
Red Line Dashed	Window
River Edge	Window Glazing
River Edge	Window Solid
Road Scar Line	White Line Double
Road Scar Line	White Line Solid
Roof	Yellow Line Dashed
Roof	Yellow Line Solid
Sanitary	Yellow Line Double
	Yellow Line Solid

Organic Product Features			
IC	Inspection Cover	RS	Roof Sign
IC ₂₄		RE	Rodding Eye
IC	IC - CATV	SA	Sector Antenna
IC ₂₄		SGN	Sign (General)
IC	IC - Comms	SOF	Soft Level
IC ₂₄		SP	Spot Height
ICR	IC - Electric	SC	Stop Clock
IC ₂₄		TP	Telegraph Pole
IC	IC - Telecom	T123.2	Top of Fine Fence
IC ₂₄		T123.2	Top of Tree Level
IC	IC - Traffic	T123.2	Top of Wall Level
IC ₂₄	Invert Level	T123.2	Traffic Light
IC ₂₄	Lamp Post		Tree (T-XS SX XX)
IM	Manhole		Tr (Track Radiation)
IM ₂₄			TS (Speed Radiation/m)
IM	IM - Foul		Tree Confusable
IM ₂₄			Tree Deciduous
IM	IM - Mound		Tree Trunk
IM ₂₄			Valve General
IM	IM - Surface Water		Water Level
IM ₂₄			Water Meter
IM	Marker Post		Water Valve
MP	Mop		
MP ₂₄	Mop - Down		
PP	Post		

Special Features	
Key Station	ID E=XXXX.XXX N=YYYY.YYY H=ZZZ.ZZZ Scan Target

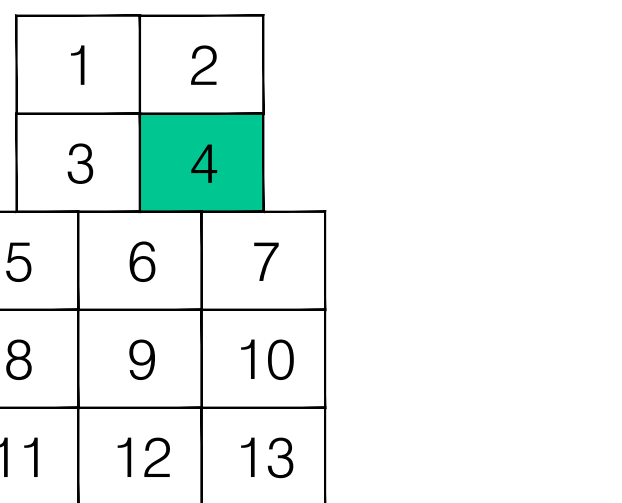
Fence Types			
C/L	Chain Link	O/B	Open Boarded
H	Heras	P/W	Post and Wire
I/R	Iron Railings	P/R	Post and Rail

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been used to capture the required data in the survey to the extent these features have been obstructed due to a lack of access, the Company shall not be liable for any survey information beyond that arising from the reliance on survey information used for purposes other than that stated in the survey information used for purposes other than that stated in the

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Location Plan



Revisions		
Surveyed by	Drawn by	Checked by
BP - 22/05/2025	BP - 29/05/2025	TB - 29/05/2025
BP - 22/05/2025	BK - 01/06/2025	TM - 25/06/2025

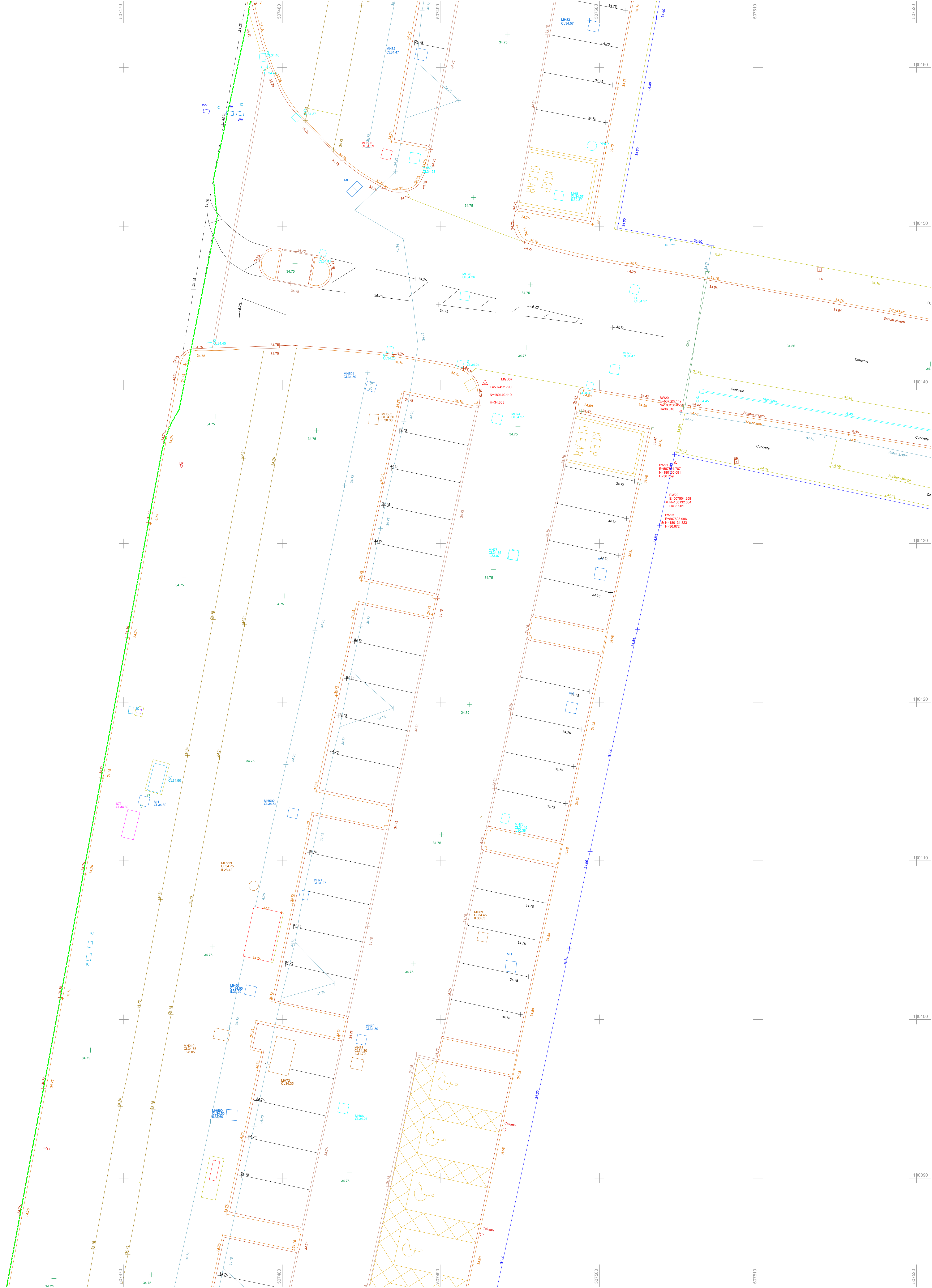
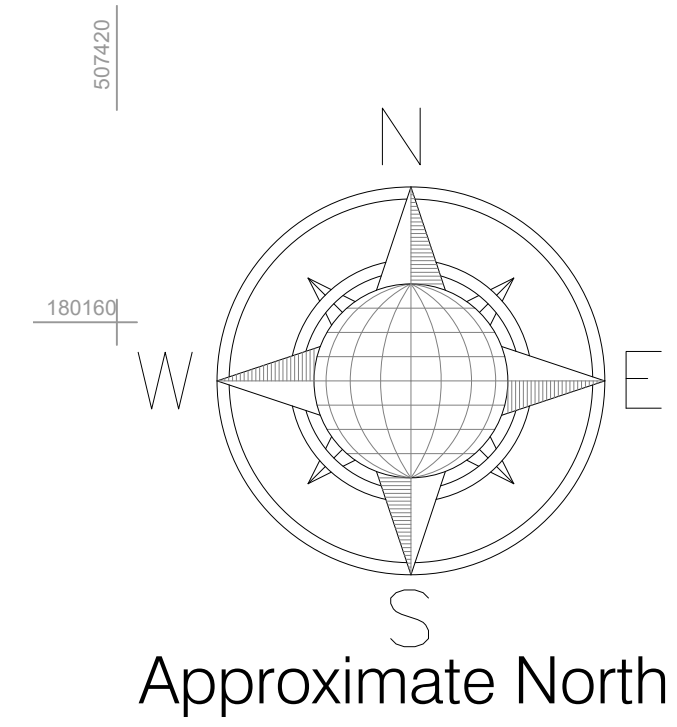


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Red Engineering Design Ltd.
Stockley Park, Uxbridge
Stockley Road, Hayes
Uxbridge, London
UB11 1FE
Underground Utility Survey(PAS128)
Localised OSGB36(15) - Scale Factor 1.0
GNS3 - Ordnance Datum Newlyn (ODN)
Band F
1:100@A0
MGS63239-UT-RevB-04

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LEGEND		
Topographic Linework Features		
Hand Rail	Hedge	Service
Barrier	Hoarding	Sky Light
Beam Line	Kerb Bottom	Slope Bottom
Bench	Kerb Top	Slope Top
Bin	Kerb Drop	Spot Drain
Bollard Illuminated	Kerb Top	Speed Bump
Bollard	Lake	Steel Guarding
Bridge	Land Drain	Steel Structure
Building Facade	Lift	Step Line
Building	Obstruction	Surface Change
Bus Stop Shelter	Opening - Slab	Tank
Cable Trough	Overhang	Telephone Box (TB)
Canopy	Overhead Cables	Ticket Machine (TVM)
Canoe	Part	Top of Fence Line
Centre Line	Partition	Top of Wall Line
Column	Parking Meter (PM)	Top of Tree Level
Column Bottom Line	Pipe Line	Top of Tree Level
Column Top Line	Platform Train/Tram	Tree Drip Line
Concrete Base/Slab	Pond	Tree Line
Contour Major	Post-box	Trail Pit
Contour Minor	Rail	Vegetation Line
Cycle Lane	Ramp	Vent
Ditch	Red Line Dashed	Verge Line
Door	Red Line Solid	Wall Line
Duct	Red Line Double	Window
Electric Box (EBOX)	River Edge	Window Glazing
Fence	Road Edge	White Line Dashed
Fixture	Road Edge	White Line Double
Flowerbed	Road Scar Line	White Line Solid
Footpath	Road Text	Yellow Line Dashed
Grating	Roof	Yellow Line Solid
Grid Line	Sanitary	

Topographic Point Features		
AV Air Valve	IC Inspection Cover	RS Road Sign
APEX Apex Building	IC - CATV	RT Rodding Eye
BL Bed Level	IC - Comms	SA Sector Antenna
BS Bellisha Beacon	IC - Electric	SIGN Sign (General)
BOLL Bollard	IC - Round	SOF Soffit Level
BOLT Bolt	IC - Telecom	SH Spot Height
BH Borehole	IC - Traffic	SC Stop Cook
BUSH Bush	Invert Level	SP Telegraph Pole
CCTV Camera Pole	Lamp Post	T12.24 Top of Fence Line
CE Ceiling Elevation	Manhole	T12.24 Top of Tree Level
DI Dipole	MH - Foul	T12.24 Top of Wall Level
DR Earth Rod	MH - Round	TL Traffic Light
EAVE Eave	MH - Surface Water	Tree (TX XX SX XX)
EP Electrical Pole	Marker Post	Tree Trunk
FI Fire Hydrant	MW Microwave Dish	Tree Deciduous
FL Floor Level	Pipe - Down	Tree General
GM Gas Meter	Post	Water Level
GW Gas Valve	Post	Water Meter
GU Gully	Post	Water Valve
GU Round	Post	

Special Features		
ID A E=XXXX.XXX	ID A E=XXXX.XXX	ID A E=XXXX.XXX
N=YYYY.YYY Survey Station	N=YYYY.YYY Scan Target	N=YYYY.YYY Scan Target
H=ZZZ.ZZZ	H=ZZZ.ZZZ	H=ZZZ.ZZZ
Fence Types		
BW Barbed Wire	CL Chain Link	OB Open Boarded
CB Close Boarded	H Heras	PW Post and Wire
CI Corrugated Iron	IR Iron Railings	PR Post and Rail

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Location Plan		
	1	2
	3	4
5	6	7
8	9	10
11	12	13

Revisions				
Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	BP - 22/05/2025	BP - 28/05/2025	TB - 29/05/2025
B	Second Issue	BP - 22/05/2025	BP - 01/06/2025	TB - 25/06/2025



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London Manchester Birmingham Glasgow Belfast Cork Kildare

Client	Red Engineering Design Ltd.
Project	Stockley Park, Uxbridge
Site Address	Stockley Road, Hayes Uxbridge, London UB11 1FE
Description	Underground Utility Survey (PAS128)
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MGS63239-UT-RevB-05

LEGEND		
Topographic Linework Features		
Air-Con Unit (ACU)	Hand Rail	Service
Barrier	Hand Rail Solid	Sky Light
Beam Line	Holding	Stops Bottom
Bench	Kerb Bottom	Stops Top
Bin	Kerb Drop	Stops Top
Bollard Illuminated	Kerb Top	Speed Bump
Bridge	Land Drain	Stops Hanging
Building Facade	Lift	Steel Structure
Bulb	Obstruction	Surface Line
Bus Stop Shelter	Opening - Slab	Tank
Cable	Overhead Cables	Telephone Box (TB)
Canyo	Parapet	Ticket Machine(TVM)
Celling	Parking Meter (PM)	Toilet
Ceramic Line	Paving Station	Top of Fence Top
Culvert Bottom Line	Platform Train/Tram	Top of Wall Line
Culvert Top Line	Plinth	Traffic Chit Box(TCB)
Concrete Base/Slab	Plumb	Tree Drop Line
Control Major	Post-box	White Line Solid
Contour Minor	Ramp	Triat Pit
Ditch	Red Line Dashed	Vegetation Line
Door	Red Line Solid	Wall Line
Electric Box (EBOX)	Red Line Double	Window
Electric Box	River Edge	Window Glazing
Feature	Road Edge	White Line Dashed
Footpath	Road Sear Line	White Line Solid
Grating	Road Text	Yellow Line Dashed
Grid Line	Roof	Yellow Line Double
	Sanitary	Yellow Line Solid

Topographic Point Features					
AV	Air Valve	IC	Inspection Cover	RS	Road Sign
AP/EX	Apex Building	IC-24	IC - CATV	RE	Rodding Eye
BD	Bed Level	IC-24	IC - Comms	SA	Seach Antenna
BB	Beltline Building	IC-24	IC - Electric	SIGN	Sign (General)
B	Bollard	ICR	IC - Telecom	SOFT	Soft Level
BOLT	Borehole	ICR-24	IC - Round	SL	Spot Height
12.24	Bush	IC-24	IC - Traffic	SP	Spot Height
12.24	CCP Camera Pole	IC-24	Invert Level	TP	Telephone Pole
CE	Ceiling Elevation	12.24	Lamp Post	T12.24	Top of Fence Level
24	Dipole	12.24	Manhole	T12.24	Top of Tree Level
ER	Earth Road	MH	MH - Low	TL	Traffic Light
EAVE	Eave	MH-24	MH - Round	TL	Tree (XX SKJ00)
EW	Electrical Pole	MH-24	MH - Surface Water	TR	Tree Trunk
FH	Fire Hydrant	MHS	Marker Post	TV	Valve General
FL	Floor Level	MW	Microwave Dish	WL	Water Level
12.24	Gas Meter	PIPE	Pipe - Down	WM	Water Meter
GM	Gas Valve	POLE	Post	WV	Water Valve
12.24	Gully	POST			
12.24	Gully Ground				

Special Features					
ID	E=XXXX.XXX N=YYYYY.YYY H=ZZZ.ZZZ	Survey Station	ID	E=XXXX.XXX N=YYYYY.YYY H=ZZZ.ZZZ	Scan Target
Fence Types					
B/W	Barbed Wire	C/L	Chain Link	O/B	Open Boarded
C/B	Closed Boarded	H	Heras	P/W	Post and Wire
C/I	Corrugated Iron	I/R	Iron Railings	P/R	Post and Rail

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Location Plan

The map shows a grid of 13 numbered plots arranged in four rows. The top row contains plots 1 and 2. The second row contains plots 3 and 4. The third row contains plots 5, 6, and 7 (highlighted in green). The bottom row contains plots 8, 9, and 10. Below this, there is a row of three more plots labeled 11, 12, and 13. A compass rose is located in the top left corner of the map area.

1	2	
3	4	
5	6	7
8	9	10
11	12	13

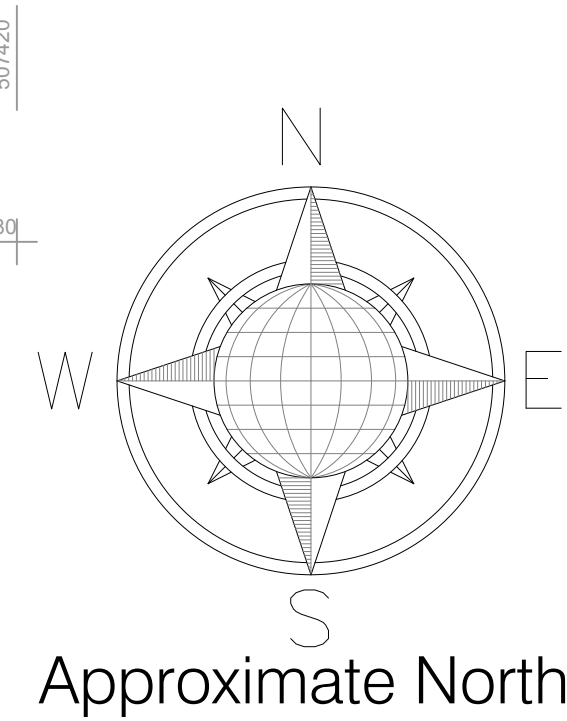


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Client	Red Engineering Design Ltd.
Project	Stockley Park, Uxbridge
Site Address	Stockley Road, Hayes Uxbridge, London UB11 1FE
Description	Underground Utility Survey(PAS128)
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MGS63239-UT-RevB-07



LEGEND		
Topographic Linkwork Features		
Air-Con Unit (ACU)	Hand Rail	Service
Banner	Hedging	Sky Light
Beam Line	Hoarding	Slope Bottom
Bench	Kerb Bottom	Slope Top
Bin	Kerb Drop	Slope Top
Bollard Illuminated	Kerb Top	Speed Bump
Bridge	Land Drain	Street Casing
Building Facade	Light Obstruction	Step Line
Bulb	Lighting Change	Surfacing Change
Bus-Stop Shelter	Opening - Slab	Tank
Canopy	Overhead Cables	Tickle Machine(TVM)
Celling	Parapet	Toilet
Central Line	Parking Partition	Top of Fence Line
Culvert Bottom Line	Parking Meter (PM)	Top of Wall Line
Courtyard Top Line	Platform Train/Tram	Traffic Light Cxt(CoB) Trench
Concrete Base/Slab	Pit	Tire Drip Line
Footpath Major	Plinth	Top of Road
Footpath Minor	Phone	White Line Solid
Grating	Post-box	Trial Pit
Gully	Rail	Vegetation Line
Ditch	Ramp	Wall
Door	Red Line Dashed	Wall Line
Duct	Red Line Solid	Window
Electric Box (EBOX)	Red Line Double	Window Glazing
Excavation	River Edge	Window Line Dashed
Feature	Road Edge	White Line Dashed
Flowerbed	Road Scar Line	White Line Solid
Footing	Road Solid	Yellow Line Dashed
Grating	Roof	Yellow Line Double
Grid Line	Sanitary	Yellow Line Solid

Topographic Point Features					
AV	Air Valve	IC	Inspection Cover	RS	Road Sign
AP/EX	Apex Building	KZ	IC - CATV	RE	Rodding Eye
BD	Bed Level	KCC	IC - Comms	SA	Signal Antenna
BBS	Beltisha Beacon	KZ	IC - Electric	SG	Sign (General)
B	Bolt	ICR	IC - Round	SOF	Soft Level
BOLT	Bolt	ICR	IC - Telecom	SP	Spot Height
12.24	Bonhole	KTC	IC - Traffic	SC	Stop Cover
12.24	Bush	IC	Invert Level	TP	Telephone Pole
CCP	CCP Camera Pole	LP	Lamp Post	T12.24	Top of Fence Level
CE	Ceiling Elevation	ML	Manhole	T12.24	Top of Tree Level
12.24	Dipole	MHF	MH - Foul	TL	Traffic Light
ER	Erod	MH	MH - Round	Tr	Track (TX,XX,SX,XX)
EAVE	Eave	MHS	MH - Surface Water	T	Trunk (Radius)
12.24	Electrical Pole	MHS	MH - Surface Water	Tr	Trunk (Radius)
FL	Fire Hydrant	MHS	MH - Surface Water	Tr	Trunk (Radius)
12.24	Floor Level	MHS	MH - Surface Water	Tr	Trunk (Radius)
GM	Gas Meter	MP	Marker Post	T	Trunk Tree
12.24	Gas Valve	MP	Marker Post	V	Valve
12.24	Gully	DP	Pipe - Down	WL	Water Level
12.24	Gully Ground	POLE	Pole	WL	Water Level
12.24		POST	Post	WL	Water Valve

Special Features					
ID	 E=XXXX.XXX N=YYYY.YYY H=ZZZ.ZZZ	Survey Station	ID	 E=XXXX.XXX N=YYYY.YYY H=ZZZ.ZZZ	Scan Target
Fence Types					
B/W	Barbed Wire	C/L	Chain Link	O/B	Open Boarded
C/B	Cold Boarded	H	Heras	P/W	Post and Wire
C/I	Corrugated Iron	I/R	Iron Railings	P/R	Post and Rail

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Location Plan

			1	2				
			3	4				
			5	6	7			
			8	9	10			
			11	12	13			

Revisions				
Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	BP - 22/05/2025	BP - 29/05/2025	TB - 29/05/2025
B	Second Issue	BP - 22/05/2025	BK - 01/06/2025	TM - 25/06/2025



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London Manchester Birmingham Glasgow Belfast Cork Kildare

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Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MG56239-UT-RevB-08

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[illegible]

B/W	Barbed Wire	C/L	Chain Link	O/B	Open Boarded
C/B	Close Boarded	H	Heras	P/W	Post and Wire
C/I	Corrugated Iron	I/R	Iron Railings	P/R	Post and Rail

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A 3x3 grid of numbers with a compass rose to the left. The grid contains the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13. The number 9 is highlighted in green.

Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	BP - 22/05/2025	BP - 20/05/2025	TB - 20/05/2025
B	Second Issue	BP - 22/05/2025	BK - 01/06/2025	TM - 25/06/2025



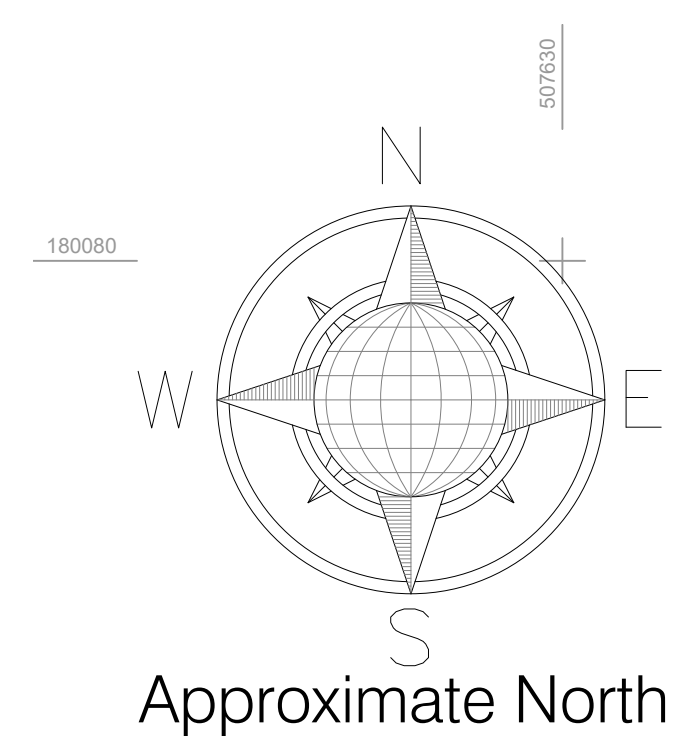
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London Manchester Birmingham Glasgow Belfast Cork Kildare

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Description	Underground Utility Survey(PAS128)
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MGS63239-UT-RevB-09

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LEGEND		
Topographic Linework Features		
Air-Con Unit (ACU)	Hand Rail	Service
Arch	Handrail	Side Light
Beam Line	Holding	Slope Bottom
Bench	Kerb Bottom	Slope Top
Block Drop	Kerb Top	Stair
Bolted Illuminated Lintel	Kerb Top	Speed Bump
Brick	Lintel	Stair Change
Bridge	Land Drain	Steel Structure
Building Facade	Lift	Step Line
Building	Obstruction	Staircase Change
Bus Stop Shelter	Opening - Slab	Tank
Canopy	Overhead Cables	Table Machine/TVM
Ceiling Line	Parapet	Toilet
Chimney	Parapet	Top of Fence Line
Column	Parking Meter (PM)	Top of Wall Line
Column Bottom Line	Platform	Top of Wall Line
Column Top Line	Platform Train/Tram	Traffic Crib/Cox/TB
Concrete Base/Slab	Platform	Tree Dig Line
Concrete Major	Ramp	White Line Solid
Contour Minor	Post-box	Cycle Path
Corridor	Post-box	Tree Line
Ditch	Ramp	Vegetation Line
Door	Red Line Dashed	Wall
Door	Red Line Solid	Verge Line
Electric Box (EBOX)	Red Line Double	Window
Electric Box (EBOX)	River Edge	Window Glazing
Future	Road Edge	White Line Dashed
Flowerbed	Road Scar Line	White Line Dashed
Footpath	Road Trest	White Line Solid
Grafting	Roof	Yellow Line Dashed
Grid Line	Sanitary	Yellow Line Dashed
		Yellow Line Solid

Topographic Point Features					
AV	Air Valve	IC	Inspection Cover	RS	Road Sign
APEX	Apex Building	IC-24	IC - CATV	RE	Rodding Eye
SA	24	IC	IC - Comm	SA	Sector Antenna
12,24	Bed Level	ICC	IC - Electric	SIGN	Sign (General)
12,24	Belisha Beacon	ICR	IC - Round	SOFT	Soft Level
12,24	Bolt	ICR	IC - Telecom	SP	Spot Height
BOLT	Bolt	ICR	IC - Telecom	ST	Stop Cook
12,24	Borehole	ICIC	IC - Traffic	TP	Telephone Pole
BUSH	Bush	IC-24	Invert Level	T12,24	Top of Fence Level
12,24	CCTV Camera Pole	IC-24	Lamp Post	T12,24	Top of Tree Level
12,24	Ceiling Elevation	IC-24	Manhole	TL	Traffic Light
12,24	Dipole	MFH	MH - Foul	Tr	Trunk (TX,XX,SX,XX)
12,24	Earth Rod	MFH	MH - Foul	T	Trunk Radius(m)
12,24	LEAVE	MFH	MH - Foul	S	Sp-Spread Radius(m)
12,24	Electrical Pole	MH	MH - Round	T	Tree Coniferous
12,24	Fire Hydrant	MHS	MH - Surface Water	T	Tree Deciduous
12,24	FL	MH	MH - Surface Water	T	Tree Trunk
12,24	Floor Level	MHS	MH - Surface Water	V	Valve General
12,24	Gas Meter	MW	Microwave Dish	WL	Water Level
12,24	Gas Valve	QD	Pipe - Down	W	Water Meter
12,24	Gate	POST	Post	W	Water Valve
12,24	Gully	POST	Post		
12,24	Gully Round	POST	Post		

Special Features					
E=XXXX.XXX N=YYY.YYY H=ZZZ.ZZZ		Survey Station	ID		E=XXXX.XXX N=YYY.YYY H=ZZZ.ZZZ
ID		Survey Station	ID		Scan Target
Fence Types					
B/W	Barbed Wire	C/L	Chain Link	O/B	Open Boarded
C/B	Close Boarded	H	Heras	P/W	Post and Wire
C/I	Corrugated Iron	I/R	Iron Railings	P/R	Post and Rail

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Location Plan

The diagram shows a grid of numbered boxes. Box 10 is highlighted in green. A compass rose is in the top left corner.

1	2	
3	4	
5	6	7
8	9	10
11	12	13

Revisions				
Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	BP - 22/05/2025	BP - 29/05/2025	TB - 29/05/2025
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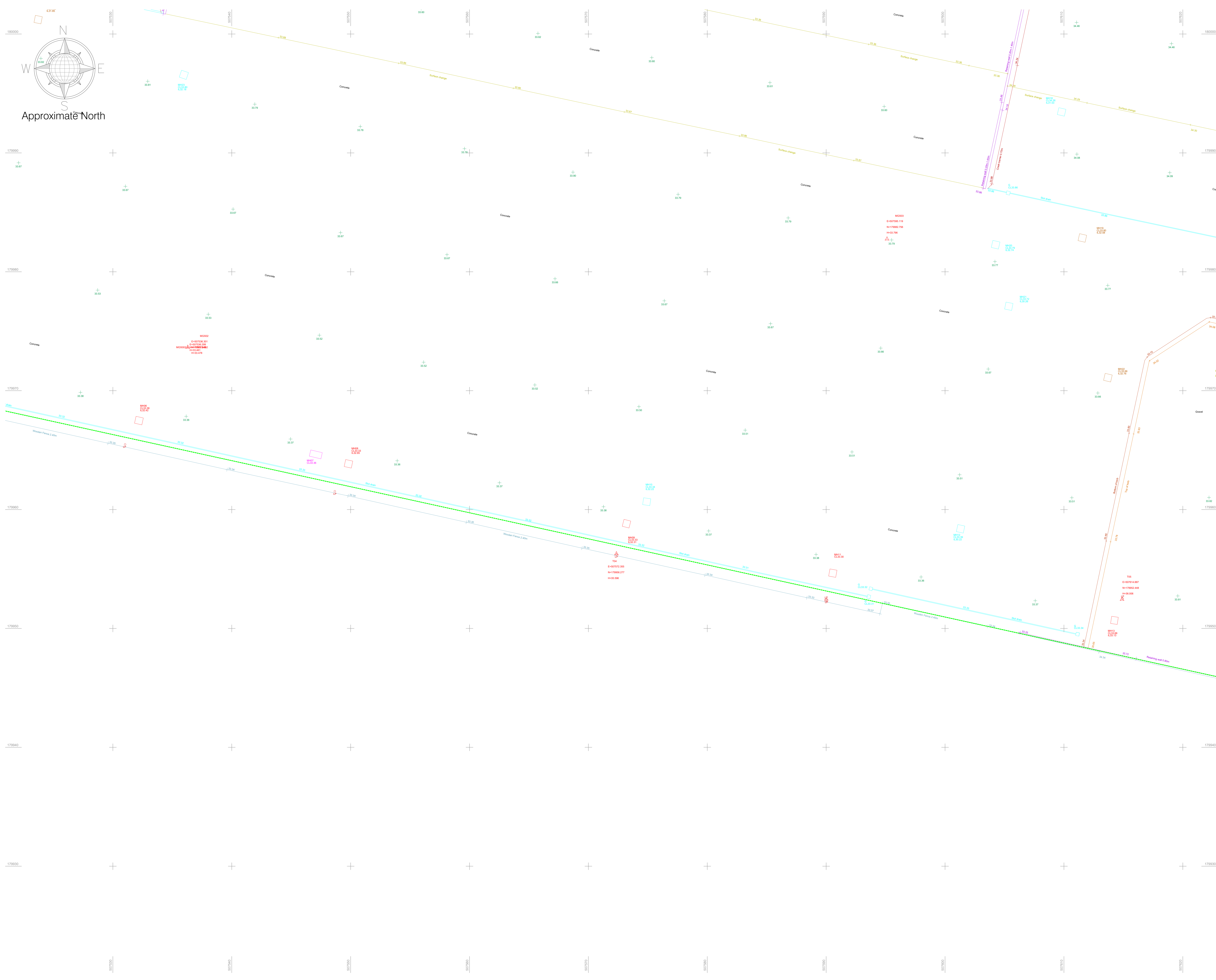
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RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MGS63239-UT-RevB-10

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LEGEND		
Topographic Linework Features		
— Air-Con Unit (ACU)	— Hand Rail	— Service
— Barrier	— Hedge	— Sky Light
— Beam Line	— Hoarding	— Slope Bottom
— Bench	— Kerb Bottom	— Slope Top
— Bin	— Kerb Drop	— Slot Drain
— Bollard Illuminated	— Kerb Top	— Speed Bump
— Bollard	— Lake	— Steel Cladding
— Building Facade	— Land Drain	— Steel Structure
— Building	— Lift	— Step Line
— Bus Stop Shelter	— Obstruction	— Surface Change
— Cable Trough	— Opening - Slab	— Tank
— Canopy	— Overhang	— Telephone Box (TB)
— Ceiling Line	— Overhead Cables	— Ticket Machine (TVM)
— Centre Line	— Partition	— Top of Fence Line
— Column	— Paving Meter (PM)	— Top of Wall Line
— Column Bottom Line	— Platform Train/Tram	— Track
— Column Top Line	— Traffic Cui Box (TCB)	— Tree Drip Line
— Concrete Base/Slab	— Tree Line	— Tree Line
— Contour Major	— Post-box	— Trial Pit
— Contour Minor	— Rail	— Vent
— Cycle Lane	— Ramp	— Verge Line
— Ditch	— Red Line Dashed	— Wall Line
— Door	— Red Line Solid	— Window
— Duct	— Red Line Double	— Window Glazing
— Electric Box (EBOX)	— Road Edge	— White Line Dashed
— Fence	— Road Road	— White Line Double
— Fixture	— Road Scar Line	— White Line Solid
— Flowerbed	— Road Text	— Yellow Line Dashed
— Footpath	— Roof	— Yellow Line Double
— Grating	— Roof	— Yellow Line Solid
— Grid Line	— Sanitary	

Topographic Point Features		
AV Air Valve	IC Inspection Cover	RS Road Sign
APX Apex Building	IC - CATV	RD Rodding Eye
BL Bed Level	IC - Comms	SA Sector Antenna
BS Bellisha Beacon	IC - Electric	SIGN Sign (General)
B Bolt	IC - Round	SOF Soffit Level
BT Borehole	IC - Telecom	SH Spot Height
B Bush	IC - Traffic	SC Stop Cook
CCTV Camera Pole	IL Invert Level	TP Telegraph Pole
C Ceiling Elevation	L Lamp Post	T12.24 Top of Fence Line
D Dipole	MH Manhole	T12.24 Top of Tree Level
DR Earth Rod	MH - Foul	TL Traffic Light
EAVE Eave	MH - Round	Tree (TX,XX,SX,XX)
EP Electrical Pole	MH - Surface Water	Tree (Trunk Radius(m))
F Fire Hydrant	MK Marker Post	Tree Deciduous
F Floor Level	MW Microwave Dish	Tree Trunk
G Gas Meter	W Water Level	Valve General
GV Gas Valve	WM Water Meter	Water Valve
G Gully	WM Water Meter	
G Gully Round	WM Water Valve	

Special Features		
ID A E-XXXX-XXX	ID E-XXXX-XXX	Scan Target
N-YYYY-YYY Survey Station	N-YYYY-YYY	
HZZZ.ZZZ	HZZZ.ZZZ	

Fence Types		
BW Barbed Wire	CL Chain Link	OB Open Boarded
CB Close Boarded	H Heras	PW Post and Wire
CI Corrugated Iron	IR Iron Railings	PR Post and Rail

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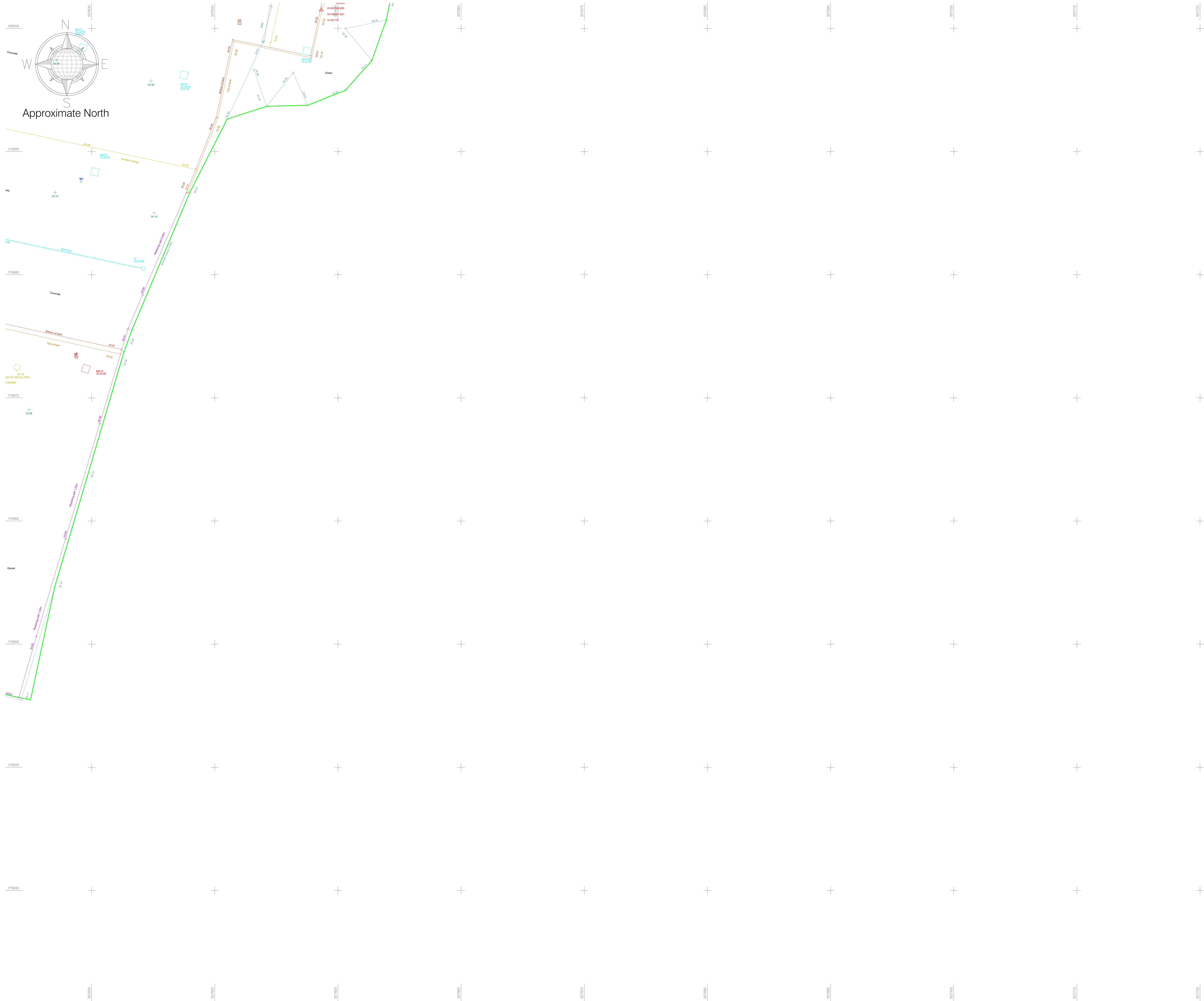


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RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MGS63239-UT-RevB-12



LEGEND		
Topographic Linework Features		
— Air-Con Unit (ACU)	— Hand Rail	— Service
— Barrier	— Hedge	— Sky Light
— Beam Line	— Hoarding	— Slope Bottom
— Bench	— Kerb Bottom	— Slope Top
— Bin	— Kerb Drop	— Slot Drain
— Bollard Illuminated	— Kerb Top	— Speed Bump
— Bollard	— Lake	— Steel Casing
— Bridge	— Land Drain	— Steel Structure
— Building Facade	— Lift	— Step Line
— Building	— Obstruction	— Surface Change
— Bus Stop Shelter	— Opening - Slab	— Tank
— Cable Trough	— Overhang	— Telephone Box (TB)
— Canopy	— Overhead Cables	— Ticket Machine (TVM)
— Ceiling Line	— Partition	— Toilet
— Centre Line	— Parking Meter (PM)	— Top of Fence Line
— Column	— Pipe Line	— Top of Wall Line
— Column Bottom Line	— Platform Train/Tram	— Track
— Column Top Line	— Tree Drip Line	— Traffic Ctl Box (TCB)
— Concrete Base/Slab	— Pond	— Tree Line
— Contour Major	— Post-box	— Tree Pit
— Contour Minor	— Rail	— Vegetation Line
— Cycle Lane	— Ramp	— Vent
— Ditch	— Red Line Dashed	— Verge Line
— Door	— Red Line Solid	— Wall Line
— Duct	— Red Line Double	— Window
— Electric Box (EBOX)	— River Edge	— Window Glazing
— Fence	— Road Edge	— White Line Dashed
— Fixture	— Road Scarp Line	— White Line Double
— Flowerbed	— Road Text	— White Line Solid
— Footpath	— Roof	— Yellow Line Dashed
— Grating	— Sanitary	— Yellow Line Solid
— Grid Line		

Topographic Point Features		
AV Air Valve	IC Inspection Cover	RS Road Sign
APEX Apex Building	IC - CATV	RD Rodding Eye
BL Bed Level	IC - Comms	SA Sector Antenna
BB Bellisha Beacon	IC - Electric	SIGN Sign (General)
B Bollard	IC - Round	SOF Soffit Level
BOLT Bolt	IC - Telecom	SH Spot Height
BH Borehole	IC - Traffic	SC Stop Cook
B Bush	I Invert Level	TP Telegraph Pole
CCTV Camera Pole	L Lamp Post	T12.24 Top of Fence Level
C Ceiling Elevation	M Manhole	T12.24 Top of Tree Level
D Dipole	MH Manhole	T12.24 Top of Wall Level
DR Earth Rod	MH - Foul	T Traffic Light
EAVE Eave	MH - Round	T Tree (TX,XX,XX,XX)
EP Electrical Pole	MH - Surface Water	T-Spread Radius(m)
F Fire Hydrant	MK Marker Post	T-Tree Coniferous
F Floor Level	MW Microwave Dish	T-Tree Deciduous
GM Gas Meter	POLE Pole	T-Tree Trunk
G Gas Valve	POST Post	V Valve General
G Gully		WL Water Level
G Gully Round		WM Water Meter
		WV Water Valve

Special Features		
ID A E=XXXX XXX	ID B E=XXXX XXX	ID C E=XXXX XXX
N=YYYY YYYY	N=YYYY YYYY	N=YYYY YYYY
H=ZZZ ZZZ	H=ZZZ ZZZ	H=ZZZ ZZZ

Fence Types		
B/W Barbed Wire	C/L Chain Link	O/B Open Boarded
C/B Close Boarded	H Heras	P/W Post and Wire
C/I Corrugated Iron	I/R Iron Railings	P/R Post and Rail

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1	2	
3	4	
5	6	7
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RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MGS63239-UT-RevB-13



LEGEND		
Utility Survey Point Features		
AV Air Valve	IC Gully Round	MH - Round
BB Belisha Beacon	IC	MH - Surface Water
CP CCTV Camera Pole	IC - Comms	MK Marker Post
CR Cable Riser	IC - Electric	12.24 Pipe Riser
DP Down Pipe	IC - Round	RE Recessed Light
DPG Down Pipe To Ground	IC - Telecom	RE Rodding Eye
EP Electrical Pole	IC - TCSU/TFL	SC Stop Cock
ER Earth Rod	IC - CATV	TL Traffic Light
FR Fire Hydrant	LP Lamp Post	TP Telegraph Pole
GM Gas Meter	MH	V Valve General
GV Gas Valve	MH - District Heat	WM Water Meter
G Gully	MH - Foul	WV Water Valve

Utility Survey Linework Features		
BT British Telecom	EHV Electrical - Extra High Voltage	
CATV Cable TV	HV Electrical - High Voltage	
CCTV Closed Circuit TV	LV Electrical - Low Voltage	
COMMS Communications	TFL Electrical - TFL	
FOL Fibre Optic Line	SL Street Lighting	
FOLC Fibre Optic Line - CofC	TCSU Traffic Control System Unit	
FOLE Fibre Optic Line - Energis	Gas	
FOLF Fibre Optic Line - Fibernet	Gas Service	
FOLL Fibre Optic Line - Level 3	Gas Low Pressure	
FOLM Fibre Optic Line - Mercury	Gas Intermediate Pressure	
FOLN Fibre Optic Line - MFS	Gas Medium Pressure	
FOLT Fibre Optic Line - Tanet	Gas High Pressure	
FOLV Fibre Optic Line - Virgin	GPR - Unknown	
FOLW Fibre Optic Line - Vodafone	ED Empty Duct	
FOLX Fibre Optic Line - Verizon	GPR Anomaly	
FOLY Fibre Optic Line - WCOM	UA UA Passive Sweep	
TS Telecom Service	UCL Unknown Cable	
Drainage	GPR Slab	
CW Combined Water	GPR Survey Area	
FW Foul Water	GPR buried structure	
SW Surface Water	GPR Reinforced Slab	
RM Rising Main	GPR Interface layer (change in material)	
Water	Other	
FRW Fire Water	DH District Heat	
WM Water Main	FU Fuel Pipe	
WS Water Service	XX Decommissioned/Abandoned	
Electrical	Manhole Chamber	
E Electrical Service	Manhole ID	
EE Electrical Earth	PEO Pot End	
P Electrical Pilot Cable	Scope of Works	

PAS128 Quality Levels	
(Consult document PAS128-2014.pdf for full details)	
XX - A - Quality Level A	XX - B3 - Quality Level B3
XX - B1 - Quality Level B1	XX - B3P - Quality Level B3P
XX - B1P - Quality Level B1P	XX - B4 - Quality Level B4
XX - B2 - Quality Level B2	XX - C - Quality Level C
XX - B2P - Quality Level B2P	XX - D - Quality Level D

Special Survey Features	
E-XXXX-XXX ID A NYYYY-YYY Survey Station HZZZ ZZZ	ES-XXXX-XXX ID NYYYY-YYY Scan Target HZZZ ZZZ

Utility Survey Abbreviations	
AB Abandoned	CSER Confined Space Entry Required
AR Assumed Route	MH Manhole
BI Illuminated Bollard	NVO Not Visible Outlet
BLD Blocked	OE Overhead Electric
CPD Capped	OT Overhead Telecom
CL Cover Level	SOF Soffit Level
CPD Capped	TFR Taken From Records
CUT Disconnected Utility	TYM Ticket Vending Machine
EOCCTV End of CCTV Survey	UTO Unable to Open
EOG End of GPR Signal	UTS Unable to Survey
EOT End of Trace	UTT Unable to Trace
EOS End of Survey	UKN Unknown
IC Inspection Cover	WL Water Level
IL Invert Level	XXS Service Depth

Utility Material Abbreviations	
AC Asbestos Cement	CO Concrete
BC Brick Chamber	DI Ductile Iro
CI Cast Iron	PE Polyethylene
Level Measured For	Level Measured For Drainage
Ducts/Pipes At Pits Is To Top of The Service	At Pits Is To Invert Level Of The Service

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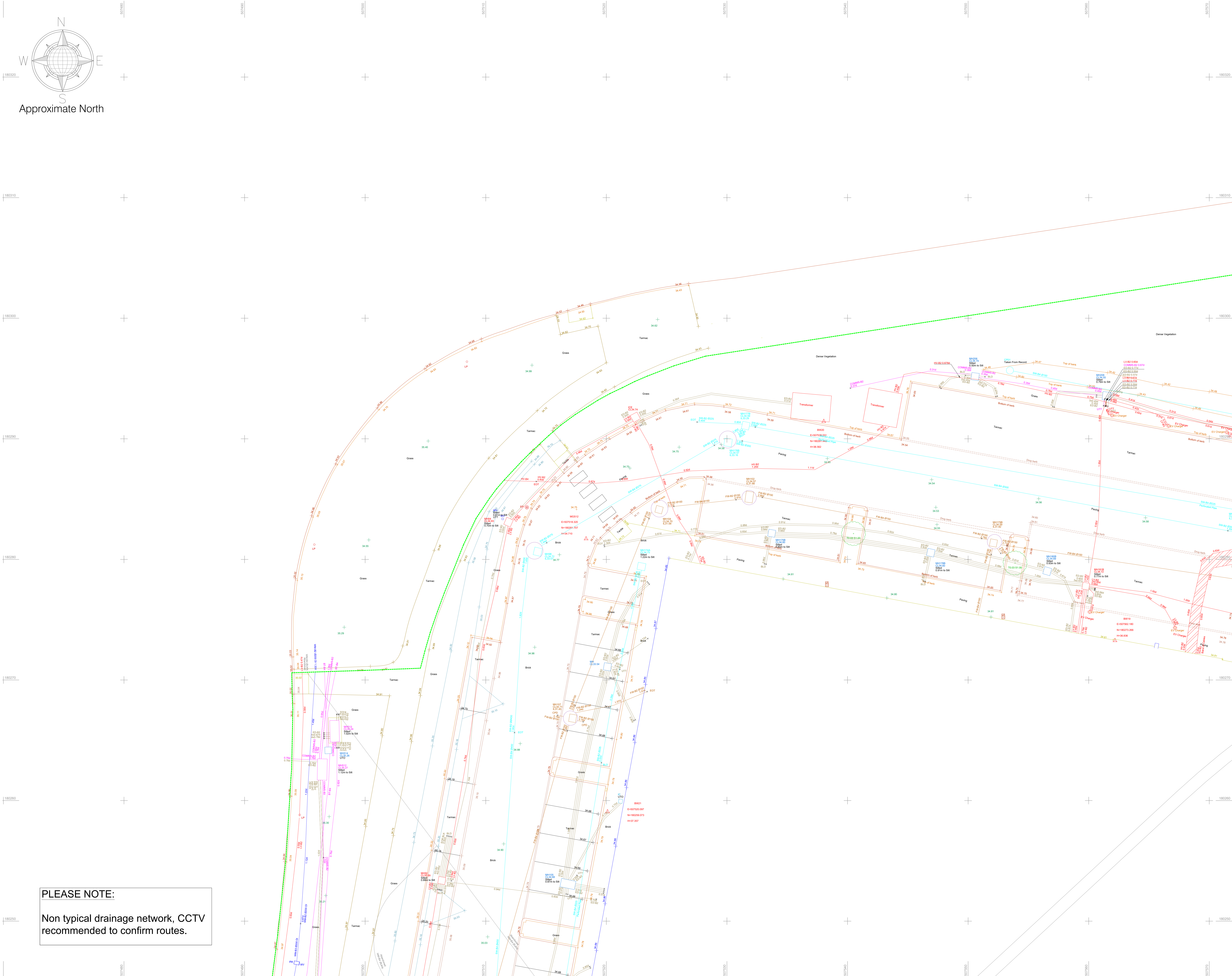
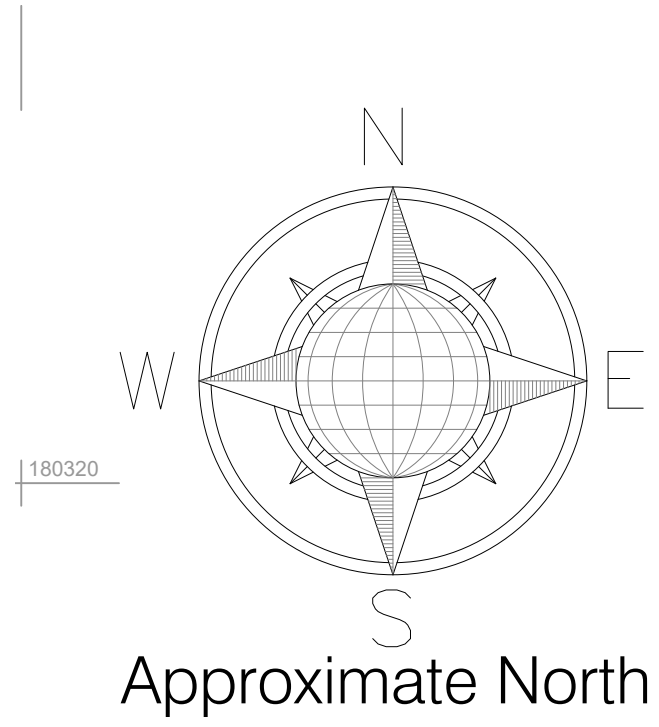
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Drawing Scale	NOT TO SCALE
Drawing Number	MGS63239-UT-RevB-01



PLEASE NOTE:

Non typical drainage network, CCTV recommended to confirm routes.

LEGEND		
Utility Survey Point Features		
AV Air Valve	IC Gully Round	MH - Round
BB Belisha Beacon	IC	MH - Surface Water
CP CCTV Camera Pole	IC - Comms	MP Marker Post
CR Cable Riser	IC - Electric	12.24 Pipe Riser
DP Down Pipe	IC - Round	RE Recessed Light
DPO Down Pipe To Ground	IC - Telecom	RE Recessed Eye
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FOLF Fibre Optic Line - Fibernet	Gas Service	
FOLL Fibre Optic Line - Level 3	GLP Gas Low Pressure	
FOLM Fibre Optic Line - Mercury	GIP Gas Intermediate Pressure	
FOLN Fibre Optic Line - MFS	GMP Gas Medium Pressure	
FOLT Fibre Optic Line - Tanet	GHP Gas High Pressure	
FOLV Fibre Optic Line - Virgin	GPR Gas + Unknown	
FOLVF Fibre Optic Line - Vodafone	ED Empty Duct	
FOLVN Fibre Optic Line - Verizon	GPR Anomaly	
FOLVW Fibre Optic Line - WCOM	UA Unknown Asset	
TS Telecom Service	UA Passive Sweep	
Drainage	UCL Unknown Cable	
CW Combined Water	GPR Slab	
FW Foul Water	GPR Survey Area	
SW Surface Water	GPR buried structure	
RM Rising Main	GPR Reinforced Slab	
Water	GPR interface layer (change in material)	
FRW Fire Water	Other	
WM Water Main	DH District Heat	
WS Water Service	FU Fuel Pipe	
Electrical	XX Decommissioned/Abandoned	
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XX - B2P - Quality Level B2P	XX - D - Quality Level D	

Special Survey Features		
E-XXXX-XXX	ES-XXXX-XXX	
ID N-YYYY-YYY Survey Station	ID N-YYYY-YYY Scan Target	
H-ZZZ-ZZZ	H-ZZZ-ZZZ	

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CL Cover Level	SOF Soffit Level	
CPD Capped	TFR Taken From Rafters	
CUT Disconnected Utility	TVM Ticket Vending Machine	
EOCCTV End of CCTV Survey	UTO Unable to Open	
EOC End of GPR Signal	UTS Unable to Survey	
EOT End of Trace	UTT Unable to Trace	
EOS End of Survey	UXS Unknown	
IC Inspection Cover	WL Water Level	
IL Invert Level	XSS Service Depth	

Utility Material Abbreviations		
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BC Brick Chamber	DI Ductile Iro	ST Steel
CI Cast Iron	PE Polyethylene	WTR Water
Level Measured For	Level Measured For	
Ducts/Pipes At Pits Is To	At Pits Is To Invert Level	
Top of The Service	Of The Service	

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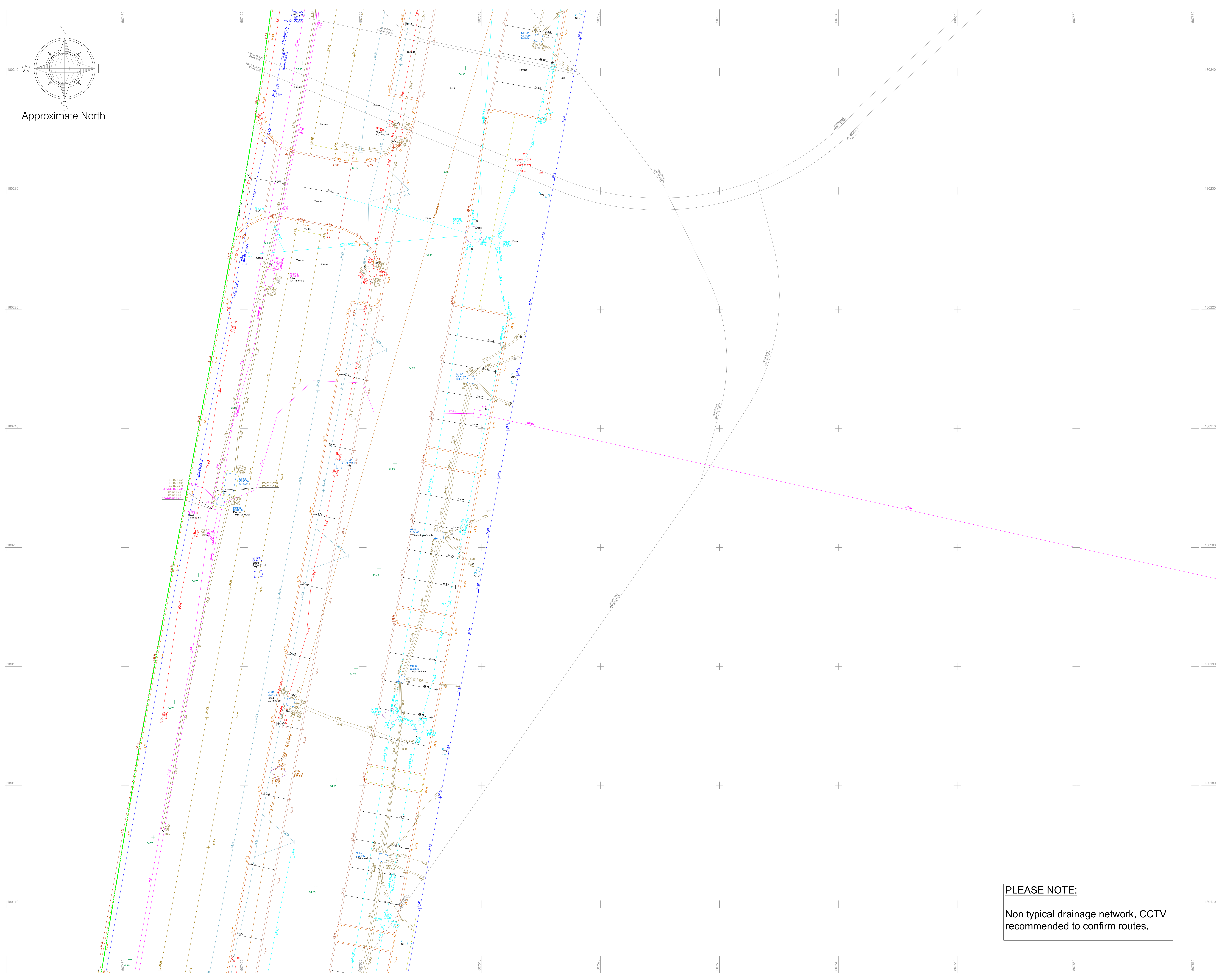
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Utility Survey Linework Features		
BT British Telecom	EHV Electrical - Extra High Voltage	
CATV Cable TV	HV Electrical - High Voltage	
CCTV Closed Circuit TV	LV Electrical - Low Voltage	
COMMS Communications	TFL Electrical - TFL	
FOL Fibre Optic Line	SL Street Lighting	
FOLC Fibre Optic Line - Colt	TCSU Traffic Control System Unit	
FOLN Fibre Optic Line - Energis		
FOLP Fibre Optic Line - Fibernet		
FOLM Fibre Optic Line - Mercury		
FOLV Fibre Optic Line - MFS		
FOLV Fibre Optic Line - Virgin		
FOLV Fibre Optic Line - Vodafone		
FOLV Fibre Optic Line - Verizon		
FOLV Fibre Optic Line - WCOM		
TS Telecom Service		
Drainage		
CW Combined Water		
FW Foul Water		
SW Surface Water		
RM Rising Main		
Water		
FRW Fire Water		
WM Water Main		
WS Water Service		
Electrical		
E Electrical Service		
EE Electrical Earth		
P Electrical Pilot Cable		
Other		
DH District Heat		
FU Fuel Pipe		
XX Decommissioned/Abandoned		
Manhole Chamber		
Manhole ID		
Pot End		
Scope of Works		

PAS128 Quality Levels	
(Consult document PAS128-2014.pdf for full details)	
XX - A - Quality Level A	XX - B3 - Quality Level B3
XX - B1 - Quality Level B1	XX - B3P - Quality Level B3P
XX - B1P - Quality Level B1P	XX - B4 - Quality Level B4
XX - B2 - Quality Level B2	XX - C - Quality Level C
XX - B2P - Quality Level B2P	XX - D - Quality Level D

Special Survey Features	
E-XXXX-XXX ID A NYYYY-YYY Survey Station	ES-XXXX-XXX ID NYYYY-YYY Scan Target
HZZZ ZZZ	HZZZ ZZZ

Utility Survey Abbreviations	
AB Abandoned	CSER Confined Space Entry Required
AR Assumed Route	MH Manhole
BI Illuminated Bollard	NVO Not Visible Outlet
BLD Blocked	OE Overhead Electric
CPD Capped	OT Overhead Telecom
CL Cover Level	SOF Soffit Level
CPD Capped	TFR Taken From Records
CUT Disconnected Utility	TVM Ticket Vending Machine
EOCCTV End of CCTV Survey	UTO Unable to Open
EOG End of GPR Signal	UTS Unable to Survey
EOT End of Trace	UTT Unable to Trace
EOS End of Survey	UKN Unknown
IC Inspection Cover	WL Water Level
IL Invert Level	XXS Service Depth

Utility Material Abbreviations	
AC Asbestos Cement	CO Concrete
BC Brick Chamber	DI Ductile Iro
CI Cast Iron	PE Polyethylene
Level Measured For	Level Measured For
Ducts/Pipes At Pits Is To Top of The Service	At Pits Is To Invert Level Of The Service

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Location Plan	

Revisions			
Rev	Description	Surveyed by	Drawn by
A	First Issue	BP - 22/05/2025	BP - 28/05/2025
B	Second Issue	BP - 22/05/2025	BP - 01/06/2025



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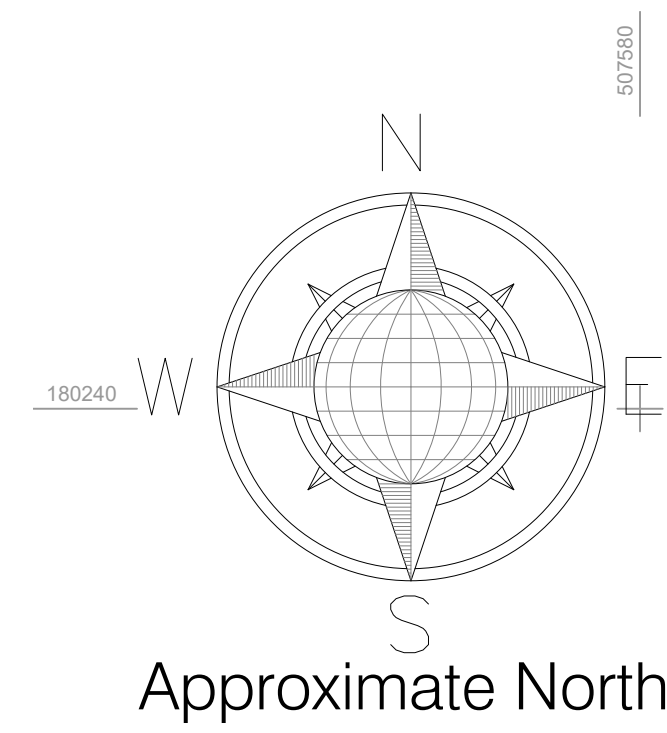
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WD18 8YX
Phone: (+44) 0203 598 3775
Email: info@murphygys.com

London Manchester Birmingham Glasgow Belfast Cork Kildare

Client	Red Engineering Design Ltd.
Project	Stockley Park, Uxbridge
Site Address	Stockley Park, Uxbridge Stockley Road, Hayes Uxbridge, London UB11 1FE
Description	Underground Utility Survey(PAS128)
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MGS63239-UT-RevB-03

PLEASE NOTE:

Non typical drainage network, CCTV recommended to confirm routes.



PLEASE NOTE:

Non typical drainage network, CCTV recommended to confirm routes.

LEGEND		
Utility Survey Point Features		
AV Air Valve	IC - Comm	MH - Round
BB Belisha Beacon	IC - Electric	MH - Surface Water
CC CCTV Camera Pole	IC - Round	MP Marker Post
CR Cable Riser	IC - Telecom	PR Pipe Riser
DP Down Pipe	IC - TCSU/TFL	RE Recessed Light
DPS Down Pipe To Ground	IC - CATV	RE Rodding Eye
EP Electrical Pole	LP Lamp Post	SC Stop Cock
ER Earth Rod	MH	TL Traffic Light
FR Fire Hydrant	MH - District Heat	TP Telegraph Pole
GM Gas Meter	MH - Foul	V Valve General
GV Gas Valve		WM Water Meter
G Gully		WV Water Valve

Utility Survey Linework Features		
BT British Telecom	EHV Electrical - Extra High Voltage	
CATV Cable TV	HV Electrical - High Voltage	
CCCTV Closed Circuit TV	LV Electrical - Low Voltage	
COMMS Communications	TFL Electrical - TFL	
FOL Fibre Optic Line	SL Street Lighting	
FOLC Fibre Optic Line - Cof	TCSU Traffic Control System Unit	
FOLE Fibre Optic Line - Energis		
FOLF Fibre Optic Line - Fibernet		
FOLL Fibre Optic Line - Level 3		
FOLM Fibre Optic Line - Mercury		
FOLN Fibre Optic Line - MFS		
FOLT Fibre Optic Line - Tanet		
FOLV Fibre Optic Line - Virgin		
FOLW Fibre Optic Line - Vodafone		
FOLX Fibre Optic Line - Verizon		
FOLY Fibre Optic Line - WCOM		
TS Telecom Service		
Drainage		
CW Combined Water		
FW Foul Water		
SW Surface Water		
RM Rising Main		
Water		
FRW Fire Water		
WM Water Main		
WS Water Service		
Electrical		
E Electrical Service		
EE Electrical Earth		
P Electrical Pilot Cable		
Other		
DH District Heat		
FU Fuel Pipe		
XX Decommissioned/Abandoned		
Manhole Chamber		
Manhole ID		
Pot End		
Scope of Works		

PAS128 Quality Levels		
(Consult document PAS128-2014.pdf for full details)		
XX - A - Quality Level A	XX - B3 - Quality Level B3	
XX - B1 - Quality Level B1	XX - B3P - Quality Level B3P	
XX - B1P - Quality Level B1P	XX - B4 - Quality Level B4	
XX - B2 - Quality Level B2	XX - C - Quality Level C	
XX - B2P - Quality Level B2P	XX - D - Quality Level D	

Special Survey Features		
E-XXXX-XXX	ES-XXXX-XXX	
ID N-YYYY-YYY Survey Station	ID N-YYYY-YYY Scan Target	
H-ZZZ-ZZZ	H-ZZZ-ZZZ	

Utility Survey Abbreviations		
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CPD Capped	TFR Taken From Records	
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EOS End of Survey	UKN Unknown	
IC Inspection Cover	WL Water Level	
IL Invert Level	XOS Service Depth	

Utility Material Abbreviations		
AC Asbestos Cement	CO Concrete	SI Spun Iron
BC Brick Chamber	DI Ductile Iro	ST Steel
CI Cast Iron	PE Polyethylene	WTR Water

Level Measured For Ducts/Pipes At Pits Is To Top of The Service	Level Measured For At Pits Is To Invert Level Of The Service
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Location Plan		

Revisions				
Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	BP - 22/05/2025	BP - 28/05/2025	TB - 29/05/2025
B	Second Issue	BP - 22/05/2025	BP - 01/06/2025	TM - 25/06/2025



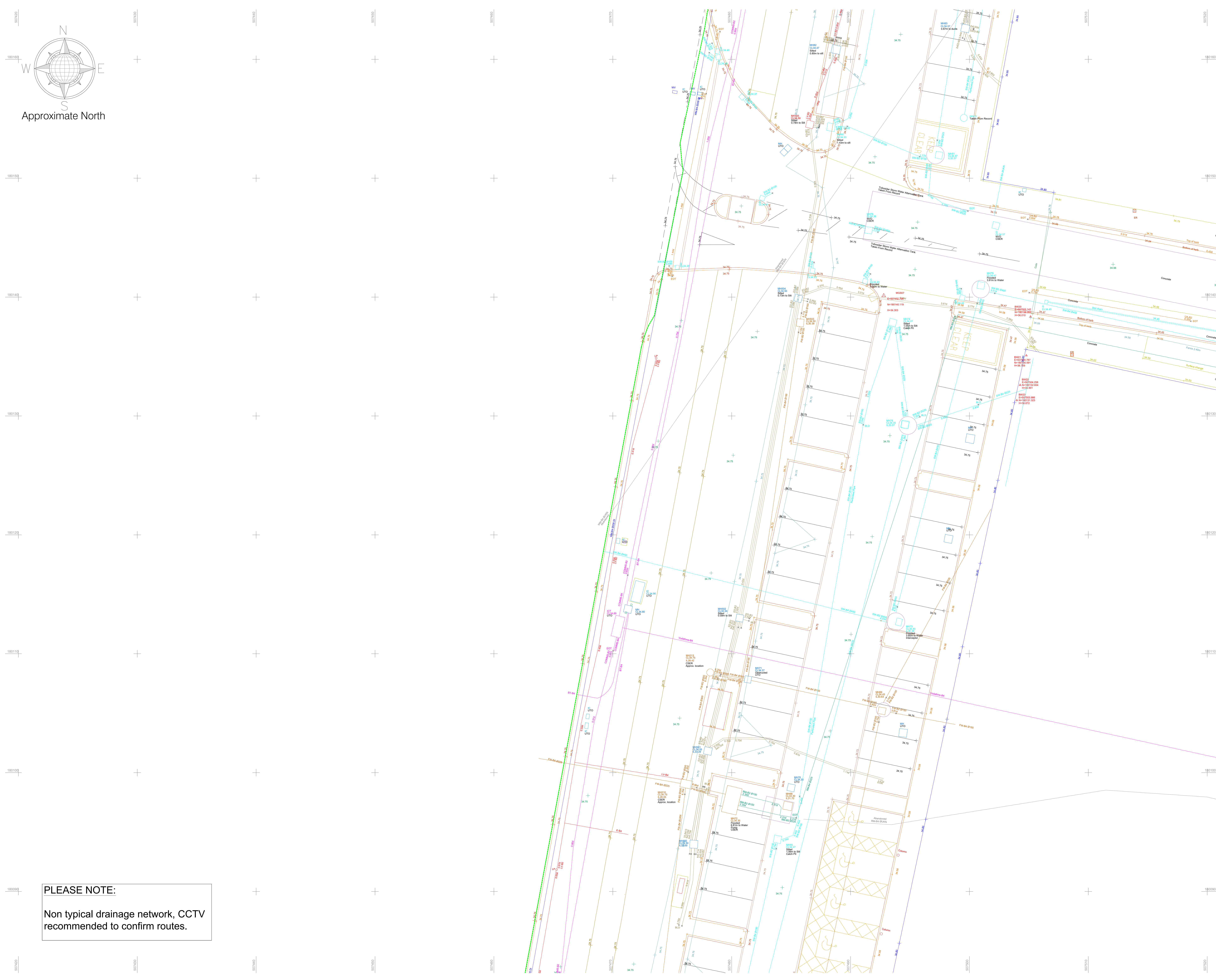
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Email: info@murphygsg.com

London Manchester Birmingham Glasgow Belfast Cork Kildare

Client	Red Engineering Design Ltd.
Project	Stockley Park, Uxbridge
Site Address	Stockley Road, Hayes Uxbridge, London UB11 1FE
Description	Underground Utility Survey(PAS128)
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MG563239-UT-RevB-04



LEGEND
Utility Survey Point Features

AV Air Valve

BB Bellisha Beacon

CP CCTV Camera Pole

CR Cable Riser

DP Down Pipe To Ground

EP Electrical Pole

ER Earth Rod

FR Fire Hydrant

GM Gas Meter

GV Gas Valve

G Gully

GR Gully Round

IC IC

IC-Comms IC - Comms

IC-Elec IC - Electric

IC-Round IC - Round

IC-Telecom IC - Telecom

IC-TCSU/TFL IC - TCSU/TFL

IC-CATV IC - CATV

LP Lamp Post

MH MH

MH-District Heat MH - District Heat

MH-Foul MH - Foul

MH-Round MH - Round

MH-Surface Water MH - Surface Water

Marker Post

Pipe Riser

Recessed Light

Recessed Eye

Stop Cock

Traffic Light

Telegraph Pole

Valve General

Water Meter

Water Valve

Utility Survey Linework Features

BT British Telecom

CATV Cable TV

CCTV Closed Circuit TV

COMMS Communications

FOL Fibre Optic Line

FOLC Fibre Optic Line - Cof

FOLE Fibre Optic Line - Energis

FOLL Fibre Optic Line - Level 3

FOLM Fibre Optic Line - Mercury

FOLN Fibre Optic Line - MFS

FOLT Fibre Optic Line - Tanet

FOLV Fibre Optic Line - Virgin

FOLV Fibre Optic Line - Vodafone

FOLV Fibre Optic Line - Verizon

FOLV Fibre Optic Line - WCOM

IS Telecom Service

EHV Electrical - Extra High Voltage

HV Electrical - High Voltage

LV Electrical - Low Voltage

TFL Electrical - TFL

SL Street Lighting

TCSU Traffic Control System Unit

Gas

Gas Service

Gas Low Pressure

Gas Intermediate Pressure

Gas Medium Pressure

Gas High Pressure

GPR - Unknown

GPR Anomaly

Empty Duct

GPR Anomaly

Unknown Asset

UA Passive Sweep

Unknown Cable

GPR Slab

GPR Survey Area

GPR buried structure

GPR Reinforced Slab

GPR interface layer (change in material)

Other

District Heat

Fuel Pipe

Decommissioned/Abandoned

Manhole Chamber

Manhole ID

Not End

Score of Works

PAS128 Quality Levels
(Consult document 'PAS128-2014.pdf' for full details)

XX-A- Quality Level A

XX-B1- Quality Level B1

XX-B1P- Quality Level B1P

XX-B2- Quality Level B2

XX-B2P- Quality Level B2P

XX-B3- Quality Level B3

XX-B3P- Quality Level B3P

XX-B4- Quality Level B4

XX-C- Quality Level C

XX-D- Quality Level D

Special Survey Features

E-XXXX-XXX

N-YYYY-YYY

H-ZZZ-ZZZ

E-XXXX-XXX

N-YYYY-YYY

H-ZZZ-ZZZ

Utility Survey Abbreviations

AB Abandoned

AR Assumed Route

BI Illuminated Bollard

BLD Blocked

CPD Capped

CL Cover Level

CPD Capped

CUT Disconnected Utility

EOCCTV End of CCTV Survey

EOC End of GPR Signal

EOT End of Trace

EOS End of Survey

IC Inspection Cover

IL Invert Level

CSER Confined Space Entry Required

NVO Not Visible Outlet

OE Overhead Electric

OT Overhead Telecom

SOF Soffit Level

TFR Taken From Records

TVM Ticket Vending Machine

UTO Unable to Open

UTS Unable to Survey

UTT Unable to Trace

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WL Water Level

XOS Service Depth

AC Asbestos Cement

BC Brick Chamber

CI Cast Iron

CO Concrete

DI Ductile Iro

PE Polyethylene

SI Spun Iron

ST Steel

WTR Water

Level Measured For Ducts/Pipes At Pits Is To Top of The Service

Level Measured For Drains At Pits Is To Invert Level Of The Service

0.80d

0.80d

Utility Material Abbreviations

Level Measured For Ducts/Pipes At Pits Is To Top of The Service

Level Measured For Drains At Pits Is To Invert Level Of The Service

0.80d

0.80d

PLEASE NOTE:

Non typical drainage network, CCTV recommended to confirm routes.

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Location Plan

Revisions

Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	BP - 22/05/2025	BP - 28/05/2025	TB - 29/05/2025
B	Second Issue	BP - 22/05/2025	BP - 01/06/2025	TM - 25/06/2025

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Email: info@murphygs.com

London Manchester Birmingham Glasgow Belfast Cork Kildare

Client

Project

Site Address

Description

Survey Grid

Survey Datum

RICS Band

Drawing Scale

Drawing Number

Red Engineering Design Ltd.
Stockley Park, Uxbridge
Stockley Road, Hayes
Uxbridge, London
UB11 1FE

Underground Utility Survey(PAS128)
Localised OSGB36(15) - Scale Factor 1.0
GNSS - Ordnance Datum Newlyn (ODN)
Band F
1:100@A0
MGS63239-UT-RevB-05

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LEGEND		
Utility Survey Point Features		
AV Air Valve	IC Gully Round	MH - Round
BB Belisha Beacon	IC IC	MH - Surface Water
CP CCTV Camera Pole	IC IC - Comm	MK Marker Post
CR Cable Riser	IC IC - Electric	12.24 Pipe Riser
DP Down Pipe	IC IC - Round	RE Recessed Light
DPG Down Pipe To Ground	IC IC - Telecom	RE Rodding Eye
EP Electrical Pole	IC IC - TCSU/TFL	SC Stop Cock
ER Earth Rod	IC IC - CATV	TL Traffic Light
FR Fire Hydrant	LP Lamp Post	TP Telegraph Pole
GM Gas Meter	MH MH	V Valve General
GV Gas Valve	MH MH - District Heat	WM Water Meter
G Gully	MH MH - Foul	WV Water Valve

Utility Survey Linework Features		
BT British Telecom	EHV Electrical - Extra High Voltage	
CATV Cable TV	HV Electrical - High Voltage	
CCTV Closed Circuit TV	LV Electrical - Low Voltage	
COMMS Communications	TFL Electrical - TFL	
FOL Fibre Optic Line	SL Street Lighting	
FOLC Fibre Optic Line - Colt	TCSU Traffic Control System Unit	
FOLE Fibre Optic Line - Energis		
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Other		
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FU Fuel Pipe		
XX Decommissioned/Abandoned		
Manhole Chamber		
Manhole ID		
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Scope of Works		

PAS128 Quality Levels		
(Consult document PAS128-2014.pdf for full details)		
XX - A - Quality Level A	XX - B3 - Quality Level B3	
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XX - B1P - Quality Level B1P	XX - B4 - Quality Level B4	
XX - B2 - Quality Level B2	XX - C - Quality Level C	
XX - B2P - Quality Level B2P	XX - D - Quality Level D	

Special Survey Features		
E-XXXX-XXX	ES-XXXX-XXX	
ID N-YYYY-YYY Survey Station	ID N-YYYY-YYY Scan Target	
H-ZZZ-ZZZ	H-ZZZ-ZZZ	

Utility Survey Abbreviations		
AB Abandoned	CSER Confined Space Entry Required	
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BLD Blocked	OE Overhead Electric	
CPD Capped	OT Overhead Telecom	
CL Cover Level	SOF Soffit Level	
CPD Capped	TFR Taken From Records	
CUT Disconnected Utility	TVM Ticket Vending Machine	
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EOT End of Trace	UTT Unable to Trace	
EOS End of Survey	UKN Unknown	
IC Inspection Cover	WL Water Level	
IL Invert Level	XXS Service Depth	

Utility Material Abbreviations		
AC Asbestos Cement	CO Concrete	SI Spun Iron
BC Brick Chamber	DI Ductile Iro	ST Steel
CI Cast Iron	PE Polyethylene	WTR Water
Level Measured For	Level Measured For	
Ducts/Pipes At Pits Is To	At Pits Is To	
Top of The Service	Of The Service	

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Location Plan		

Revisions		
Rev	Description	Surveyed by Drawn by Checked by
A	First Issue	BP - 22/05/2025 BP - 28/05/2025 TB - 28/05/2025
B	Second Issue	BP - 22/05/2025 BK - 01/06/2025 TM - 25/06/2025

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Client	Red Engineering Design Ltd.
Project	Stockley Park, Uxbridge
Site Address	Stockley Road, Hayes Uxbridge, London UB11 1FE
Description	Underground Utility Survey(PAS128)
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MGS63239-UT-RevB-07

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PLEASE NOTE:

Non typical drainage network, CCTV recommended to confirm routes.

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Location Plan



1	2
3	4

5	6	7
8	9	10

11	12	13
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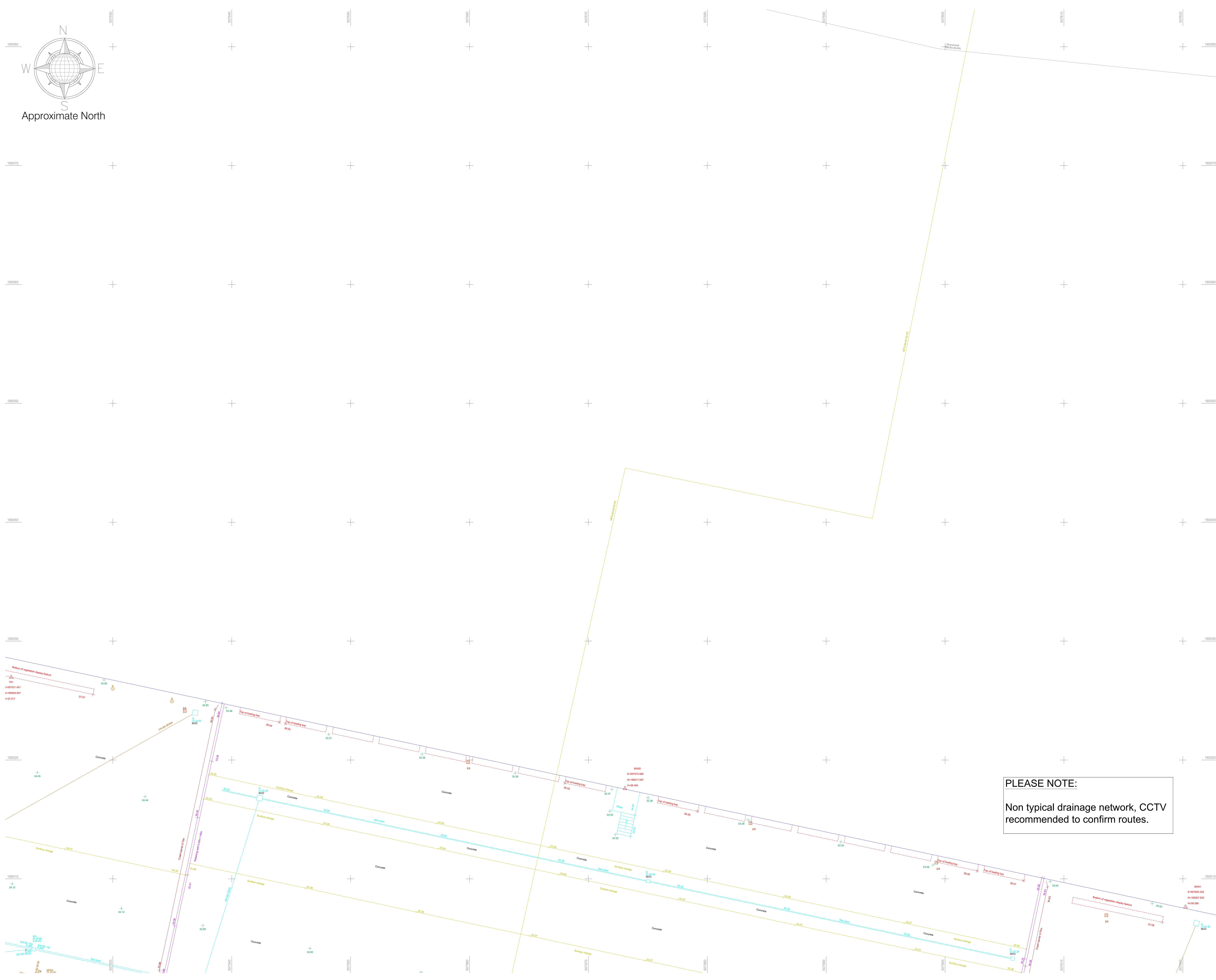
Revisions

Rev	Description	Reviewed by	Drawn by	Checked by
A	First Issue	BP - 22/05/2025	BP - 22/05/2025	TB - 25/05/2025
B	Second Issue	BP - 22/05/2025	BP - 21/06/2025	TB - 25/06/2025



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LEGEND		
Utility Survey Point Features		
AV Air Valve	IC Gully Round	MH - Round
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CP CCTV Camera Pole	IC - Comms	Marker Post
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Utility Survey Linework Features		
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FOLC Fibre Optic Line - Fibernet	G Gas Service	
FOLC Fibre Optic Line - Level 3	GLP Gas Low Pressure	
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FOLM Fibre Optic Line - MFS	GMP Gas Medium Pressure	
FOLT Fibre Optic Line - Tanet	GHP Gas High Pressure	
FOLV Fibre Optic Line - Virgin	GPR Gas Unknown	
FOLV Fibre Optic Line - Vodafone	ED Empty Duct	
FOLVN Fibre Optic Line - Verizon	GPR Anomaly	
FOLV Fibre Optic Line - WCOM	UA Unknown Asset	
IS Telecom Service	UA Passive Sweep	
Drainage	UCL Unknown Cable	
CW Combined Water	GPR Slab	
FW Foul Water	GPR Survey Area	
SW Surface Water	GPR buried structure	
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WS Water Service	FU Fuel Pipe	
Electrical	XX Decommissioned/Abandoned	
E Electrical Service	Manhole Chamber	
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Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	BP - 22/05/2025	BP - 28/05/2025	TB - 29/05/2025
B	Second Issue	BP - 22/05/2025	BP - 01/06/2025	TM - 25/06/2025



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London Manchester Birmingham Glasgow Belfast Cork Kildare

Client	Red Engineering Design Ltd.
Project	Stockley Park, Uxbridge
Site Address	Stockley Road, Hayes Uxbridge, London UB11 1FE
Description	Underground Utility Survey(PAS128)
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:100@A0
Drawing Number	MGS63239-UT-RevB-09

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Approximate North

PLEASE NOTE:

Non typical drainage network, CCTV recommended to confirm routes.

LEGEND		
Utility Survey Point Features		
AV Air Valve	IC Inspection Cover	MH - Round
BB Belisha Beacon	IC - Comm	MH - Surface Water
CC CCTV Camera Pole	IC - Electric	MP Marker Post
CR Cable Riser	IC - Round	PR Pipe Riser
DP Down Pipe	IC - Telecom	RE Recessed Light
DPG Down Pipe To Ground	IC - TCSU/TFL	RE Rodding Eye
EP Electrical Pole	IC - CATV	SC Stop Cock
ER Earth Rod	LP Lamp Post	TL Traffic Light
FR Fire Hydrant	MH	TP Telegraph Pole
GM Gas Meter	MH - District Heat	V Valve General
GV Gas Valve	MH - Foul	WM Water Meter
G Gully		WV Water Valve

Utility Survey Linework Features		
BT British Telecom	EHV Electrical - Extra High Voltage	
CATV Cable TV	HV Electrical - High Voltage	
CCTV Closed Circuit TV	LV Electrical - Low Voltage	
COMMS Communications	TFL Electrical - TFL	
FOL Fibre Optic Line	SL Street Lighting	
FOLC Fibre Optic Line - Colt	TCSU Traffic Control System Unit	
FOLE Fibre Optic Line - Energis	Gas	
FOLF Fibre Optic Line - Fibernet	Gas Service	
FOLL Fibre Optic Line - Level 3	Gas Low Pressure	
FOLM Fibre Optic Line - Mercury	Gas Intermediate Pressure	
FOLMC Fibre Optic Line - MFC	Gas Medium Pressure	
FOLMT Fibre Optic Line - Tanet	Gas High Pressure	
FOLV Fibre Optic Line - Virgin	GPR - Unknown	
FOLVF Fibre Optic Line - Vodafone	ED Empty Duct	
FOLVN Fibre Optic Line - Verizon	GPR Anomaly	
FOLVW Fibre Optic Line - WCOM	UA Unknown Asset	
TS Telecom Service	UA Passive Sweep	
	UCL Unknown Cable	
	GWR GPR Slab	
	GPR Survey Area	
	GPR buried structure	
	GPR Reinforced Slab	
	GPR Interface layer (change in material)	
	Other	
	DH District Heat	
	FU Fuel Pipe	
	XX Decommissioned/Abandoned	
	Manhole Chamber	
	Manhole ID	
	PEO Pot End	
	Scope of Works	

PAS128 Quality Levels		
(Consult document 'PAS128-2014.pdf' for full details)		
XX - A - Quality Level A	XX - B3 - Quality Level B3	
XX - B1 - Quality Level B1	XX - B3P - Quality Level B3P	
XX - B1P - Quality Level B1P	XX - B4 - Quality Level B4	
XX - B2 - Quality Level B2	XX - C - Quality Level C	
XX - B2P - Quality Level B2P	XX - D - Quality Level D	

Special Survey Features		
E-XXXX-XXX	ES-XXXX-XXX	
ID A NYYYYYYY Survey Station	ID NYYYYYYY Scan Target	
HZZZ ZZZ	HZZZ ZZZ	

Utility Survey Abbreviations		
AB Abandoned	CSER Confined Space Entry Required	
AR Assumed Route	MH Manhole	
BI Illuminated Bollard	NVO Not Visible Outlet	
BLD Blocked	OE Overhead Electric	
CPD Capped	OT Overhead Telecom	
CL Cover Level	SOF Soffit Level	
CPD Capped	TFR Taken From Rafters	
CUT Disconnected Utility	TVM Ticket Vending Machine	
EOCCTV End of CCTV Survey	UTO Unable to Open	
EOG End of GPR Signal	UTS Unable to Survey	
EOT End of Trace	UTT Unable to Trace	
EOS End of Survey	UKN Unknown	
IC Inspection Cover	WL Water Level	
IL Invert Level	XXS Service Depth	

Utility Material Abbreviations		
AC Asbestos Cement	CO Concrete	SI Spun Iron
BC Brick Chamber	DI Ductile Iro	ST Steel
CI Cast Iron	PE Polyethylene	WTR Water

Level Measured For	Level Measured For
Ducts/Pipes At Pits Is To Top of The Service	At Pits Is To Invert Level of The Service

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Location Plan		
	1	2
	3	4
5	6	7
8	9	10
11	12	13

Revisions				
Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	BP - 22/05/2025	BP - 28/05/2025	TB - 29/05/2025
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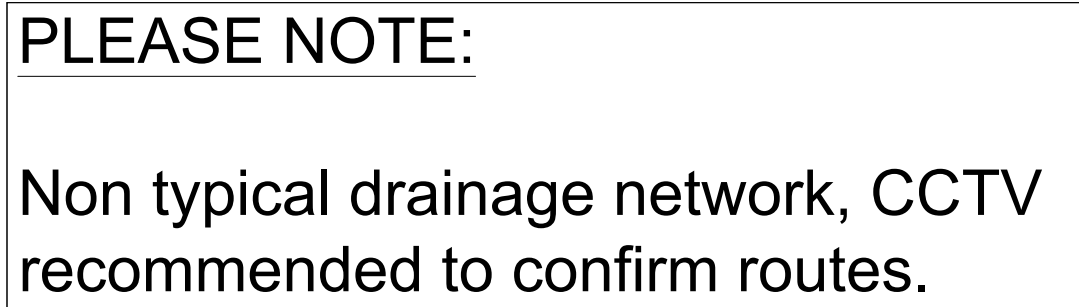


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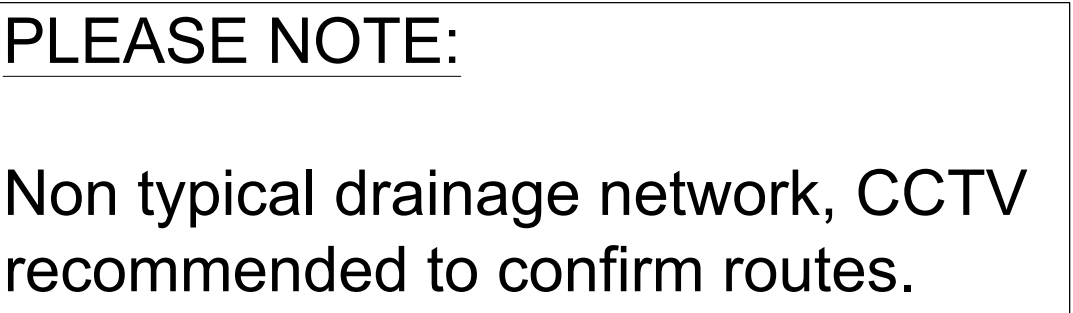
London Manchester Birmingham Glasgow Belfast Cork Kildare

Client	Red Engineering Design Ltd.
Project	Stockley Park, Uxbridge
Site Address	Stockley Road, Hayes Uxbridge, London UB11 1FE
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Drawing Scale	1:100@A0
Drawing Number	MGS63239-UT-RevB-10

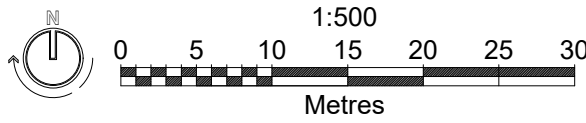


London	Manchester	Birmingham	Glasgow	Belfast	Cork	Kildare
Client	Red Engineering Design Ltd.					
Project	Stockley Park, Uxbridge					
Site Address	Stockley Road, Hayes Uxbridge, London UB11 1PE					
Description	Underground Utility Survey(PAS128)					
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0					
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)					
RICS Band	Band F					
Drawing Scale	1:100@A0					
Drawing Number	MGS63239-UT-RevB-12					

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Appendix B – Proposed Development Plans



- LEGEND**
- SITE BOUNDARY
 - EXISTING INFRASTRUCTURE TO BE RETAINED & MAKE GOOD UPON CONSTRUCTION
 - PAVING TYPE 1: PERMEABLE CONCRETE BLOCK PAVING TO MATCH WITH THE ADJACENT EXISTING PAVING TYPE
 - PAVING TYPE 2: CONCRETE BLOCK PAVING TO MATCH CURRENT AMENITY AREAS
 - PAVING TYPE 3: ASPHALT TO ENGINEER'S SPECIFICATIONS
 - PAVING TYPE 4: EXISTING GRASSCRETE TO BE RETAINED & ENHANCED
 - EXISTING TREES TO BE RETAINED
 - EXISTING GREEN / BLUE INFRASTRUCTURE TO BE RETAINED
 - PROPOSED TREES
 - PROPOSED PLEACHED TREES
 - EXISTING GREEN WALLS TO BE RETAINED & MANAGED POSITIVELY
 - PROPOSED GREEN WALLS
 - EXISTING EXTENSIVE GREEN ROOFS TO BE ENHANCED WITH BIODIVERSE PLANTING SPECIES
 - GAPS IN EXISTING HEDGEROWS TO BE PLANTED
 - PROPOSED ORNAMENTAL HEDGEROW PLANTING
 - EXISTING GREEN INFRASTRUCTURE TO BE ENHANCED WITH NATIVE PLANTING SPECIES
 - EXISTING GREEN INFRASTRUCTURE TO BE ENHANCED WITH WILDFLOWER / MEADOW PLANTING SPECIES
 - EXISTING BLUE INFRASTRUCTURE TO BE ENHANCED WITH WET TOLERANT SPECIES FOR SUDS
 - PROPOSED HERBACEOUS PLANTS / BULBS / LONG GRASSES
 - PROPOSED WILDFLOWER / MEADOW PLANTING SPECIES
 - FURNITURE TYPE 1: TIMBER SEAT
 - FURNITURE TYPE 2: CYCLE STANDS
- BOUNDARY TYPES**
- BOUNDARY TYPE 1: MAINTENANCE GATE TO MATCH THE ADJACENT FENCING TYPOLOGY
 - EXISTING TIMBER POST & RAIL FENCE
 - EXISTING HIGH TIMBER ACOUSTIC FENCE
 - SR1 1.2M FENCE TO ARCHITECT'S DETAILS & SPECIFICATIONS
 - SR2 2.4M FENCE TO ARCHITECT'S DETAILS & SPECIFICATIONS
 - SR2 3.0M FENCE TO ARCHITECT'S DETAILS & SPECIFICATIONS
- NOTE: EXISTING & PROPOSED GREEN INFRASTRUCTURE TO BE MANAGED & MAINTAINED AS PER THE LANDSCAPE ARCHITECT'S, ARBORIST'S & ECOLOGISTS RECOMMENDATIONS & GUIDELINES & THE LANDSCAPE MAINTENANCE & MANAGEMENT PLAN

P02	26.08.25	DK	MINOR UPDATES
P01	21.08.25	DK	UPDATES TO MATCH ARCHITECTS LAYOUT
Rev	Date	By	Notes

RED Engineering Design Ltd
NDA DC PLON01

LANDSCAPE GENERAL ARRANGEMENTS PLAN

DRAFT

PLON01-MFA-SW-XX-DR-L-03700
DK
AUGUST 2025
Scale
1:500@A1
Checked
DK/PCD

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Appendix C – London Boroughs Drainage Proforma

The London Sustainable Drainage Proforma

Introduction

This proforma is intended to accompany a drainage strategy prepared for a planning application where required by national or local planning policy. It should be used to summarise the key outputs from the strategy to allow assessing officers at the Lead Local Flood Authority (LLFA) to quickly assess compliance with sustainable drainage (SuDS) planning

The proforma is divided into 4 sections, which are intended to be used as follows:

1. Site and project information - Provide summary details of the development, site and drainage
2. Proposed discharge arrangement – Summarise site ground conditions to determine potential for infiltration. Select a surface water discharge method (or mix of methods) following the hierarchical approach set out in the London Plan.
3. Drainage strategy – Prioritise SuDS measures that manage runoff as close to source as possible and contribute to the four main pillars of SuDS; amenity, biodiversity, water quality and water quantity.
4. Supporting information – Provide cross references to the page or section of the drainage strategy report where the detailed information to support each element can be found. This may be more than one reference for each

Policy

Drainage strategies for developments in the London Borough of Hillingdon need to comply with the following policies on SuDS:

1. [London Borough of Hillingdon Local Plan policies EM 6 and DMEI 10](#)
2. [London Plan policy 5.13](#) and draft [New London Plan policy SI13](#)
3. [The National Planning Policy Framework \(NPPF\)](#)

Technical Guidance

- Post-development surface water discharge rate should be limited to greenfield runoff rates. Proposals for higher discharge rates should be agreed with the LLFA ahead of submission of the Planning Application. Clear evidence should be provided with the Planning Application to show why greenfield rates cannot be achieved.
- Greenfield runoff rate is the runoff rate from a site in its natural state, prior to any development. This should be calculated using one of the runoff estimation methods set out in Table 24.1 of CIRIA C753 The SuDS Manual.
- Attenuation storage volumes required to reduce post-development discharge rates to greenfield rates should be calculated using one of the runoff estimation methods set out in Table 24.1 of CIRIA C753 The SuDS Manual.
- 'CC' refers to climate change allowance from the current Environment Agency guidance.
- An operation and maintenance strategy for proposed SuDS measures should be submitted with the Planning Application and include the details set out in section 32.2 of CIRIA C753 The SuDS Manual. The manual should be site-specific and not directly reproduce parts of The SuDS Manual.
- Other useful sources of guidance are:
 - [o London Borough of Hillingdon sustainable drainage requirements](#)
 - [o The London Plan Sustainable Design and Construction SPG](#)
 - [o DEFRA non-statutory technical standards for sustainable drainage](#)
 - [o Environment Agency climate change guidance](#)
 - [o CIRIA C753 The SuDS Manual](#)

1. Project & Site Details	Project / Site Name (including sub-catchment / stage / phase where appropriate)	Prologis (POLN01)	
	Address & post code	Stockley Park, Iron Bridge Rd N, West Drayton, Uxbridge UB7 8HX.	
	OS Grid ref. (Easting, Northing)	E 507562	
		N 180125	
	LPA reference (if applicable)		
	Brief description of proposed work	Redevelopment of existing logistics buildings to upgrade for use as a data centre	
	Total site Area	6.3ha	m ²
	Total existing impervious area	5.1ha	m ²
	Total proposed impervious area	5.1ha	m ²
	Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)?	No	
	Existing drainage connection type and location	Grand Union Canal via Thames Water sewer	
	Designer Name	Richard Pearson	
Designer Position	Senior Civil Engineer		
Designer Company	Pinnacle Consulting Engineers		

2. Proposed Discharge Arrangements	2a. Infiltration Feasibility		
	Superficial geology classification	Lynch Hill Gravel Member	
	Bedrock geology classification	London Clay	
	Site infiltration rate	m/s	
	Depth to groundwater level	0.49m (minimum) m below ground level	
	Is infiltration feasible?	No	
	2b. Drainage Hierarchy		
		Feasible (Y/N)	Proposed (Y/N)
	1 store rainwater for later use		
	2 use infiltration techniques, such as porous surfaces in non-clay areas		
	3 attenuate rainwater in ponds or open water features for gradual release		
	4 attenuate rainwater by storing in tanks or sealed water features for gradual release	Yes	Yes
	5 discharge rainwater direct to a watercourse	Yes	Yes
	6 discharge rainwater to a surface water sewer/drain		
	7 discharge rainwater to the combined sewer.		
2c. Proposed Discharge Details			
Proposed discharge location	Grand Union Canal via Thames Water sewer		
Has the owner/regulator of the discharge location been consulted?	n/a no change to existing connection or peak flow rate		

3a. Discharge Rates & Required Storage				
	Greenfield (GF) runoff rate (l/s)	Existing discharge rate (l/s)	Required storage for GF rate (m ³)	Proposed discharge rate (l/s)
Qbar	8.8	12.5l/s		12.5l/s
1 in 1	8.5			
1 in 30	22.9			
1 in 100	31.8			
1 in 100 + CC				
Climate change allowance used		40%		
3b. Principal Method of Flow Control		Hydrobrake		
3c. Proposed SuDS Measures				
	Catchment area (m ²)	Plan area (m ³)	Storage vol. (m ³)	
Rainwater harvesting	0		0	
Infiltration systems	0		0	
Green roofs	0	0	0	
Blue roofs	0	0	0	
Filter strips	0	0	0	
Filter drains	0	0	0	
Bioretention / tree pits	0	0	0	
Pervious pavements	0	0	0	
Swales	0	0	0	
Basins/ponds	0	0	0	
Attenuation tanks	0		5,200	0
Total	0	0	0	0

4a. Discharge & Drainage Strategy	Page/section of drainage report
Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results	Table 6-1
Drainage hierarchy (2b)	Table 6-1
Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location	Section 6
Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations	Section 6 Appendix D Appendix E
Proposed SuDS measures & specifications (3b)	Appendix E
4b. Other Supporting Details	Page/section of drainage report
Detailed Development Layout	Appendix B
Detailed drainage design drawings, including exceedance flow routes	Appendix E
Detailed landscaping plans	Appendix B
Maintenance strategy	Section 7
Demonstration of how the proposed SuDS measures improve:	
a) water quality of the runoff?	Section 6.4
b) biodiversity?	
c) amenity?	

Appendix D – Drainage Calculations

Pinnacle Consulting Engineers Limited		Page 1
Pinnacle House 3 Meridian Way Norwich NR7 0TA	PLON01	
Date 11/09/2025 File PLON01.MDX	Designed by A Prais Checked by R Pearson	
XP Solutions	Network 2019.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model	
Return Period (years)	30
FEH Rainfall Version	1999
Site Location GB 507550 179950 TQ 07550 79950	
C (1km)	-0.026
D1 (1km)	0.324
D2 (1km)	0.296
D3 (1km)	0.235
E (1km)	0.307
F (1km)	2.559
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	8.761	0.020	438.1	0.037	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	37.474	0.275	136.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	42.985	0.245	175.4	0.124	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	18.997	0.145	131.0	0.082	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.004	54.730	0.180	304.1	0.019	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.24	33.645	0.037	0.0	0.0	0.0	0.62	24.6	5.0
1.001	50.00	5.79	33.625	0.037	0.0	0.0	0.0	1.12	44.5	5.0
1.002	50.00	6.40	33.350	0.161	0.0	0.0	0.0	1.18	83.7	21.8
1.003	50.00	6.60	33.105	0.243	0.0	0.0	0.0	1.58	174.7	32.9
1.004	50.00	7.39	32.960	0.262	0.0	0.0	0.0	1.16	184.6	35.5

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XP Solutions	Network 2019.1	

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
3.007	38.693	0.230	168.2	1.915	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
3.007	50.00	8.11	30.350	2.764	0.0	0.0	0.0	1.01	40.0«	374.3

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.037	0.037	0.037
1.001	-	-	100	0.000	0.000	0.000
1.002	User	-	100	0.124	0.124	0.124
1.003	User	-	100	0.082	0.082	0.082
1.004	User	-	100	0.019	0.019	0.019
1.005	User	-	100	0.063	0.063	0.063
1.006	User	-	100	0.091	0.091	0.091
1.007	User	-	100	0.067	0.067	0.067
1.008	-	-	100	0.000	0.000	0.000
1.009	User	-	100	1.466	1.466	1.466
2.000	-	-	100	0.000	0.000	0.000
2.001	User	-	100	0.116	0.116	0.116
2.002	User	-	100	0.234	0.234	0.234
1.010	-	-	100	0.000	0.000	0.000
1.011	-	-	100	0.000	0.000	0.000
1.012	-	-	100	0.000	0.000	0.000
1.013	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.000	0.000	0.000
3.001	User	-	100	0.124	0.124	0.124
3.002	User	-	100	0.059	0.059	0.059
3.003	-	-	100	0.000	0.000	0.000
3.004	User	-	100	0.133	0.133	0.133
3.005	User	-	100	0.042	0.042	0.042
	User	-	100	0.080	0.080	0.122
	User	-	100	0.054	0.054	0.176
3.006	User	-	100	0.357	0.357	0.357
3.007	User	-	100	1.616	1.616	1.616
	User	-	100	0.218	0.218	1.834
	User	-	100	0.081	0.081	1.915
				Total	Total	Total
				5.063	5.063	5.063

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Online Controls for Storm

Hydro-Brake® Optimum Manhole: Tank 01b, DS/PN: 1.010, Volume (m³): 96.6

Unit Reference MD-SHE-0084-5500-3590-5500
Design Head (m) 3.590
Design Flow (l/s) 5.5
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 84
Invert Level (m) 30.700
Minimum Outlet Pipe Diameter (mm) 100
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	3.590	5.5
Flush-Flo™	0.365	3.3
Kick-Flo®	0.748	2.7
Mean Flow over Head Range	-	4.0

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.5	1.200	3.3	3.000	5.1	7.000	7.5
0.200	3.1	1.400	3.5	3.500	5.4	7.500	7.8
0.300	3.3	1.600	3.8	4.000	5.8	8.000	8.0
0.400	3.3	1.800	4.0	4.500	6.1	8.500	8.3
0.500	3.3	2.000	4.2	5.000	6.4	9.000	8.5
0.600	3.1	2.200	4.4	5.500	6.7	9.500	8.7
0.800	2.7	2.400	4.6	6.000	7.0		
1.000	3.0	2.600	4.7	6.500	7.3		

Hydro-Brake® Optimum Manhole: SWMH 6.1, DS/PN: 3.007, Volume (m³): 114.8

Unit Reference MD-SHE-0102-7000-2650-7000
Design Head (m) 2.650
Design Flow (l/s) 7.0
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 102
Invert Level (m) 30.350
Minimum Outlet Pipe Diameter (mm) 150
Suggested Manhole Diameter (mm) 1200

Pinnacle Consulting Engineers Limited			Page 6																																																																								
Pinnacle House 3 Meridian Way Norwich NR7 0TA	PLON01																																																																										
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<u>Hydro-Brake® Optimum Manhole: SWMH 6.1, DS/PN: 3.007, Volume (m³): 114.8</u>																																																																											
<table><tr><td>Control Points</td><td>Head (m)</td><td>Flow (l/s)</td></tr><tr><td>Design Point (Calculated)</td><td>2.650</td><td>7.0</td></tr><tr><td>Flush-Flo™</td><td>0.445</td><td>5.3</td></tr><tr><td>Kick-Flo®</td><td>0.907</td><td>4.2</td></tr><tr><td>Mean Flow over Head Range</td><td>-</td><td>5.3</td></tr></table>				Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	2.650	7.0	Flush-Flo™	0.445	5.3	Kick-Flo®	0.907	4.2	Mean Flow over Head Range	-	5.3																																																									
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Mean Flow over Head Range	-	5.3																																																																									
The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated																																																																											
<table><tr><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td></tr><tr><td>0.100</td><td>3.4</td><td>1.200</td><td>4.8</td><td>3.000</td><td>7.4</td><td>7.000</td><td>11.1</td></tr><tr><td>0.200</td><td>4.8</td><td>1.400</td><td>5.2</td><td>3.500</td><td>8.0</td><td>7.500</td><td>11.4</td></tr><tr><td>0.300</td><td>5.2</td><td>1.600</td><td>5.5</td><td>4.000</td><td>8.5</td><td>8.000</td><td>11.8</td></tr><tr><td>0.400</td><td>5.3</td><td>1.800</td><td>5.8</td><td>4.500</td><td>9.0</td><td>8.500</td><td>12.1</td></tr><tr><td>0.500</td><td>5.3</td><td>2.000</td><td>6.1</td><td>5.000</td><td>9.4</td><td>9.000</td><td>12.5</td></tr><tr><td>0.600</td><td>5.2</td><td>2.200</td><td>6.4</td><td>5.500</td><td>9.9</td><td>9.500</td><td>12.8</td></tr><tr><td>0.800</td><td>4.8</td><td>2.400</td><td>6.7</td><td>6.000</td><td>10.3</td><td></td><td></td></tr><tr><td>1.000</td><td>4.4</td><td>2.600</td><td>6.9</td><td>6.500</td><td>10.7</td><td></td><td></td></tr></table>				Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	3.4	1.200	4.8	3.000	7.4	7.000	11.1	0.200	4.8	1.400	5.2	3.500	8.0	7.500	11.4	0.300	5.2	1.600	5.5	4.000	8.5	8.000	11.8	0.400	5.3	1.800	5.8	4.500	9.0	8.500	12.1	0.500	5.3	2.000	6.1	5.000	9.4	9.000	12.5	0.600	5.2	2.200	6.4	5.500	9.9	9.500	12.8	0.800	4.8	2.400	6.7	6.000	10.3			1.000	4.4	2.600	6.9	6.500	10.7		
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)																																																																				
0.100	3.4	1.200	4.8	3.000	7.4	7.000	11.1																																																																				
0.200	4.8	1.400	5.2	3.500	8.0	7.500	11.4																																																																				
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0.500	5.3	2.000	6.1	5.000	9.4	9.000	12.5																																																																				
0.600	5.2	2.200	6.4	5.500	9.9	9.500	12.8																																																																				
0.800	4.8	2.400	6.7	6.000	10.3																																																																						
1.000	4.4	2.600	6.9	6.500	10.7																																																																						
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Storage Structures for Storm

Cellular Storage Manhole: Tank 01b, DS/PN: 1.010

Invert Level (m) 30.700 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	900.0	0.0	2.501	0.0	0.0
2.500	900.0	0.0			

Cellular Storage Manhole: SWMH 6.1, DS/PN: 3.007

Invert Level (m) 30.350 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	2000.0	0.0	1.510	0.0	0.0
1.500	2000.0	0.0			

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	MH187	33.735	-0.135	0.000	0.33		5.4	OK	2
1.001	MH188	33.679	-0.171	0.000	0.13		5.4	OK	
1.002	MH182B	33.455	-0.195	0.000	0.26		20.4	OK	2
1.003	MH176B	33.221	-0.259	0.000	0.21		30.2	OK	
1.004	MH98	33.094	-0.316	0.000	0.19		31.6	OK	
1.005	MH101	32.910	-0.320	0.000	0.18		38.0	OK	
1.006	MH91	32.719	-0.371	0.000	0.18		46.4	OK	
1.007	MH81	32.615	-0.345	0.000	0.25		52.7	OK	
1.008	SWMH	11.0 32.536	-0.539	0.000	0.09		51.0	OK	
1.009	Tank 01a	31.973	-1.027	0.000	0.05		212.0	OK	
2.000	SWMH	7.0 32.930	-0.300	0.000	0.00		0.0	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
2.001	SWMH 7.2	15 Winter	1	+0%	100/480 Winter			
2.002	SWMH 7.3	15 Winter	1	+0%	100/1440 Winter			
1.010	Tank 01b	1440 Winter	1	+0%	1/120 Summer			
1.011	SWMH 12.0	360 Summer	1	+0%				
1.012	MH177A	1440 Winter	1	+0%				
1.013	MH178A	360 Summer	1	+0%				
3.000	MH76	60 Winter	1	+0%	100/15 Summer			
3.001	MH62	15 Winter	1	+0%	100/15 Summer			
3.002	MH58	15 Winter	1	+0%	100/15 Summer			
3.003	MH55	15 Winter	1	+0%	100/15 Summer			
3.004	MH50	15 Winter	1	+0%	100/15 Summer			
3.005	SWMH 4.0	15 Winter	1	+0%	100/15 Summer			
3.006	Tank 02a	15 Winter	1	+0%				
3.007	SWMH 6.1	1440 Winter	1	+0%	1/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
2.001	SWMH 7.2	32.536	-0.349	0.000	0.11		14.5	OK	
2.002	SWMH 7.3	32.508	-1.102	0.000	0.02		44.1	OK	
1.010	Tank 01b	31.261	0.261	0.000	0.05		3.3	SURCHARGED	
1.011	SWMH 12.0	30.693	-0.267	0.000	0.03		3.3	OK	
1.012	MH177A	30.372	-0.398	0.000	0.03		3.3	OK	
1.013	MH178A	30.326	-0.394	0.000	0.03		3.3	OK	
3.000	MH76	32.975	-0.375	0.000	0.00		0.0	OK	
3.001	MH62	32.669	-0.351	0.000	0.10		15.4	OK	
3.002	MH58	32.600	-0.340	0.000	0.14		22.3	OK	
3.003	MH55	32.481	-0.334	0.000	0.15		22.5	OK	
3.004	MH50	32.442	-0.323	0.000	0.17		37.6	OK	
3.005	SWMH 4.0	32.338	-0.347	0.000	0.25		57.9	OK	
3.006	Tank 02a	32.217	-1.083	0.000	0.02		100.0	OK	
3.007	SWMH 6.1	30.644	0.069	0.000	0.14		5.2	SURCHARGED	

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

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	MH187	33.870	0.000	0.000	1.00		16.6	OK	2
1.001	MH188	33.723	-0.127	0.000	0.39		16.6	OK	
1.002	MH182B	33.599	-0.051	0.000	0.96		75.4	OK	2
1.003	MH176B	33.360	-0.120	0.000	0.78		113.7	OK	
1.004	MH98	33.247	-0.163	0.000	0.70		117.8	OK	
1.005	MH101	33.055	-0.175	0.000	0.67		140.2	OK	
1.006	MH91	32.910	-0.180	0.000	0.66		167.3	OK	
1.007	MH81	32.827	-0.133	0.000	0.90		187.0	OK	
1.008	SWMH	11.0 32.661	-0.414	0.000	0.30		178.4	OK	
1.009	Tank 01a	32.132	-0.868	0.000	0.17		711.9	OK	
2.000	SWMH	7.0 32.930	-0.300	0.000	0.00		0.0	OK	

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
2.001	SWMH 7.2	15 Summer	30	+0%	100/480 Winter			
2.002	SWMH 7.3	15 Winter	30	+0%	100/1440 Winter			
1.010	Tank 01b	1440 Winter	30	+0%	1/120 Summer			
1.011	SWMH 12.0	1440 Winter	30	+0%				
1.012	MH177A	1440 Winter	30	+0%				
1.013	MH178A	1440 Winter	30	+0%				
3.000	MH76	60 Winter	30	+0%	100/15 Summer			
3.001	MH62	15 Winter	30	+0%	100/15 Summer			
3.002	MH58	15 Winter	30	+0%	100/15 Summer			
3.003	MH55	15 Winter	30	+0%	100/15 Summer			
3.004	MH50	15 Winter	30	+0%	100/15 Summer			
3.005	SWMH 4.0	15 Winter	30	+0%	100/15 Summer			
3.006	Tank 02a	15 Winter	30	+0%				
3.007	SWMH 6.1	1440 Winter	30	+0%	1/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
2.001	SWMH 7.2	32.650	-0.235	0.000	0.46		58.8	OK	
2.002	SWMH 7.3	32.616	-0.994	0.000	0.07		176.9	OK	
1.010	Tank 01b	32.104	1.104	0.000	0.06		3.6	SURCHARGED	
1.011	SWMH 12.0	30.694	-0.266	0.000	0.03		3.6	OK	
1.012	MH177A	30.373	-0.397	0.000	0.03		3.6	OK	
1.013	MH178A	30.327	-0.393	0.000	0.04		3.6	OK	
3.000	MH76	32.975	-0.375	0.000	0.00		0.0	OK	
3.001	MH62	32.789	-0.231	0.000	0.39		60.2	OK	
3.002	MH58	32.736	-0.204	0.000	0.52		85.8	OK	
3.003	MH55	32.656	-0.159	0.000	0.60		90.2	OK	
3.004	MH50	32.631	-0.134	0.000	0.65		141.4	OK	
3.005	SWMH 4.0	32.565	-0.120	0.000	0.93		218.7	OK	
3.006	Tank 02a	32.327	-0.973	0.000	0.08		381.9	OK	
3.007	SWMH 6.1	31.097	0.522	0.000	0.14		5.3	SURCHARGED	

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

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Storage Structures 2
 Number of Online Controls 2 Number of Time/Area Diagrams 0
 Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH
 FEH Rainfall Version 1999
 Site Location GB 507550 179950 TQ 07550 79950
 C (1km) -0.026
 D1 (1km) 0.324
 D2 (1km) 0.296
 D3 (1km) 0.235
 E (1km) 0.307
 F (1km) 2.559
 Cv (Summer) 0.750
 Cv (Winter) 0.840

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

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow
1.000	MH187	15 Winter	100	+40%	100/15 Summer	100/15 Summer	
1.001	MH188	15 Winter	100	+40%	100/15 Summer		
1.002	MH182B	15 Winter	100	+40%	100/15 Summer	100/15 Summer	
1.003	MH176B	15 Winter	100	+40%	100/15 Summer		
1.004	MH98	1440 Winter	100	+40%	100/15 Summer		
1.005	MH101	1440 Winter	100	+40%	100/15 Summer		
1.006	MH91	1440 Winter	100	+40%	100/15 Summer		
1.007	MH81	1440 Winter	100	+40%	100/15 Summer		
1.008	SWMH 11.0	1440 Winter	100	+40%	100/960 Winter		
1.009	Tank 01a	1440 Winter	100	+40%	100/960 Winter		
2.000	SWMH 7.0	1440 Winter	100	+40%	100/1440 Winter		

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

PN	US/MH Name	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Pipe Flow / Cap. (l/s)	Overflow Flow (l/s)	Status
1.000	MH187		34.628	0.758	4.943	3.33	55.3	FLOOD
1.001	MH188		34.620	0.770	0.000	1.28	54.0	FLOOD RISK
1.002	MH182B		34.606	0.956	2.067	1.54	120.4	FLOOD
1.003	MH176B		34.180	0.700	0.000	1.31	190.4	SURCHARGED
1.004	MH98		34.073	0.663	0.000	0.05	9.0	SURCHARGED
1.005	MH101		34.073	0.843	0.000	0.05	11.1	SURCHARGED
1.006	MH91		34.073	0.983	0.000	0.06	14.3	SURCHARGED
1.007	MH81		34.073	1.113	0.000	0.08	16.6	SURCHARGED
1.008	SWMH 11.0		34.073	0.998	0.000	0.03	16.6	SURCHARGED
1.009	Tank 01a		34.073	1.073	0.000	0.02	63.3	SURCHARGED
2.000	SWMH 7.0		34.073	0.843	0.000	0.00	0.1	FLOOD RISK

PN	US/MH Name	Level Exceeded
1.000	MH187	2
1.001	MH188	
1.002	MH182B	2
1.003	MH176B	
1.004	MH98	
1.005	MH101	
1.006	MH91	
1.007	MH81	
1.008	SWMH 11.0	
1.009	Tank 01a	
2.000	SWMH 7.0	

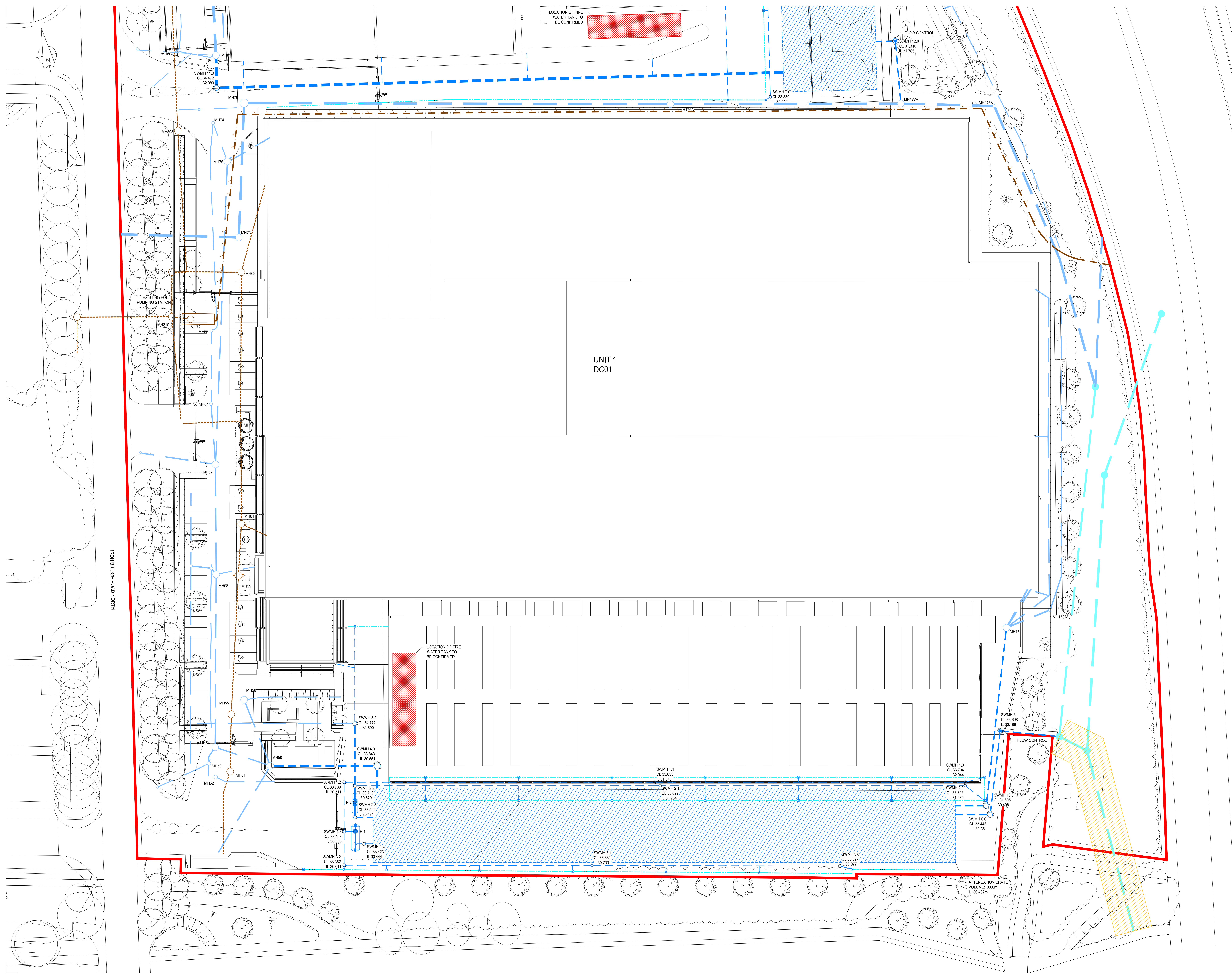
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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
2.001	SWMH 7.2	1440 Winter	100	+40%	100/480 Winter			
2.002	SWMH 7.3	1440 Winter	100	+40%	100/1440 Winter			
1.010	Tank 01b	1440 Winter	100	+40%	1/120 Summer			
1.011	SWMH 12.0	1440 Winter	100	+40%				
1.012	MH177A	1440 Winter	100	+40%				
1.013	MH178A	1440 Winter	100	+40%				
3.000	MH76	15 Winter	100	+40%	100/15 Summer			
3.001	MH62	15 Winter	100	+40%	100/15 Summer			
3.002	MH58	15 Winter	100	+40%	100/15 Summer			
3.003	MH55	15 Winter	100	+40%	100/15 Summer			
3.004	MH50	15 Winter	100	+40%	100/15 Summer			
3.005	SWMH 4.0	15 Winter	100	+40%	100/15 Summer			
3.006	Tank 02a	15 Winter	100	+40%				
3.007	SWMH 6.1	1440 Winter	100	+40%	1/360 Winter			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
2.001	SWMH 7.2	34.073	1.188	0.000	0.03		4.0	FLOOD RISK	
2.002	SWMH 7.3	34.073	0.463	0.000	0.00		12.0	FLOOD RISK	
1.010	Tank 01b	34.073	3.073	0.000	0.09		5.3	FLOOD RISK	
1.011	SWMH 12.0	30.701	-0.259	0.000	0.05		5.3	OK	
1.012	MH177A	30.384	-0.386	0.000	0.04		5.3	OK	
1.013	MH178A	30.338	-0.382	0.000	0.05		5.3	OK	
3.000	MH76	33.542	0.192	0.000	0.02		3.4	SURCHARGED	
3.001	MH62	33.548	0.528	0.000	0.74		114.7	SURCHARGED	
3.002	MH58	33.499	0.559	0.000	1.02		168.6	SURCHARGED	
3.003	MH55	33.357	0.542	0.000	1.13		169.7	SURCHARGED	
3.004	MH50	33.253	0.488	0.000	1.33		286.9	SURCHARGED	
3.005	SWMH 4.0	32.973	0.288	0.000	1.92		450.0	SURCHARGED	
3.006	Tank 02a	32.428	-0.872	0.000	0.16		789.8	OK	
3.007	SWMH 6.1	31.822	1.247	0.000	0.14		5.3	SURCHARGED	

Appendix E – Proposed Drainage Layouts



- GENERAL NOTES
- DO NOT SCALE THIS DRAWING. WORK ONLY TO FIGURED DIMENSIONS.
 - FOR ALL RELEVANT NOTES, REFER TO STRUCTURAL AND CIVIL ENGINEERING PERFORMANCE SPECIFICATION.
 - ANY DISCREPANCIES ARE TO BE REPORTED TO PINNACLE CONSULTING ENGINEERS IMMEDIATELY.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS, ARCHITECTS AND SUB-CONTRACTORS DRAWINGS AND DETAILS.
 - THIS DRAWING IS TO BE PRINTED IN COLOUR.
 - THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS EXPRESSLY STATED.
 - EXISTING SITE AND LEVEL INFORMATION TAKEN FROM MURPHY GEOSPATIAL TOPOGRAPHICAL SURVEY DRAWING MGS63239-UT-RwC-01 DATED 09/07/25.
 - THIS DRAWING USES THE GREAT BRITAIN COORDINATE SYSTEM 'OSGB1936.NationalGrid'.
 - THIS DRAWING HAS BEEN PREPARED USING THE PROPOSED SITE LAYOUT FROM CWO DRAWING PLON01-CWO-SW-ZZ-M3-A-00009 RECEIVED 03/10/25.

LEGEND

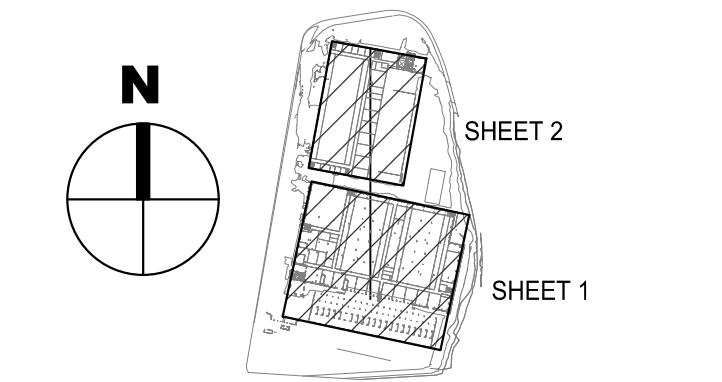
- PROPOSED SITE BOUNDARY
- PROPOSED SURFACE WATER SEWER
- EXISTING SURFACE WATER SEWER
- EXISTING PUBLIC SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- EXISTING FOUL RISING MAIN
- PROPOSED PETROL INTERCEPTOR
- PROPOSED DRAINAGE CHANNEL
- PROPOSED SUMP
- PROPOSED ATTENUATION GRATE
- PROPOSED FIRE WATER TANK
- EXISTING FOUL PUMPING STATION

SCALE 1:250
0 2.5 5 7.5 10 12.5m
DIMENSIONS IN METRES

P02	15.10.25	FOR INFORMATION	RP
P01	29.07.25	STAGE 2 ISSUE	RP
Rev	Date	Description	Issued By

Project Stage

STAGE 2



Client:



Project:
PLON01
Iron Bridge Road North, UB11 1BT

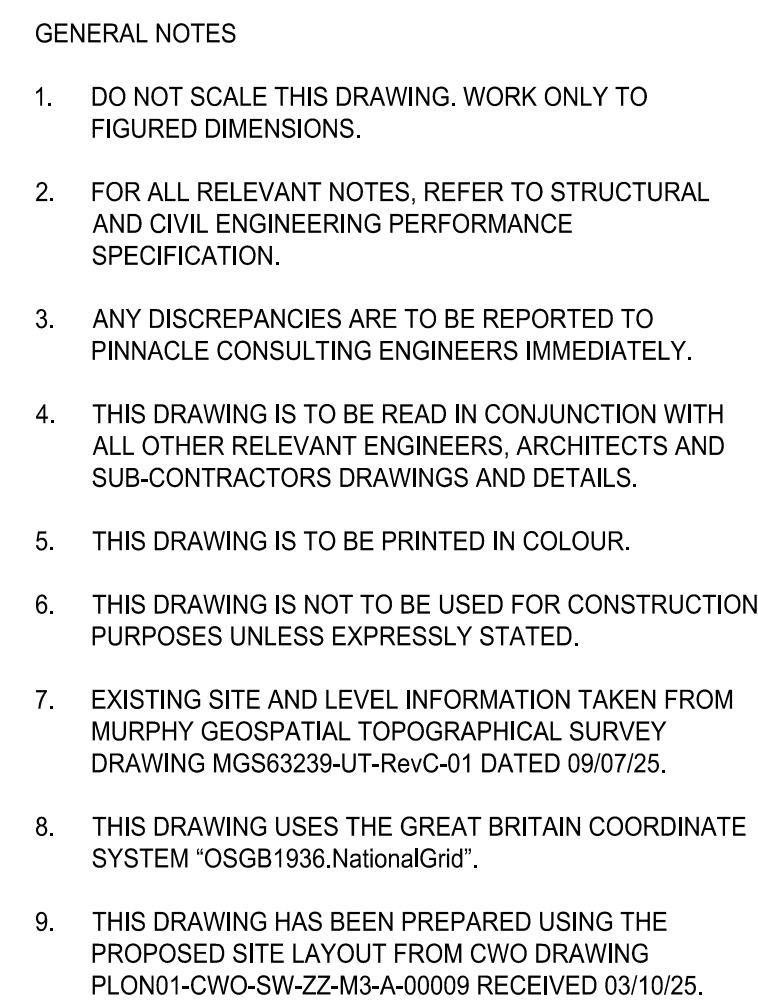
Drawing Title:
PLON01 - SITEWIDE - CONCEPT DRAINAGE
SCHEME LAYOUT SHEET 1

Owner	Checked	Paper Size	Scale	Date
WM	RP	A0	1:250	29.07.2025
Project No	Drawing No	Revision		
PLON01	32301	P02		

File Name
PLON01-PIN-SW-XX-DR-C-32301
Purpose Code
S4 - Issue for Stage Approval
Acceptance Code



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-  PROPOSED SITE BOUNDARY
-  PROPOSED SURFACE WATER SEWER
-  EXISTING SURFACE WATER SEWER
-  EXISTING PUBLIC SURFACE WATER SEWER
-  EXISTING FOUL WATER SEWER
-  EXISTING FOUL RISING MAIN
-  PROPOSED PETROL INTERCEPTOR
-  PROPOSED DRAINAGE CHANNEL
-  PROPOSED SUMP
-  PROPOSED ATTENUATION CRATE
-  PROPOSED FIRE WATER TANK
-  EXISTING FUEL PUMPING STATION

SCALE 1:250

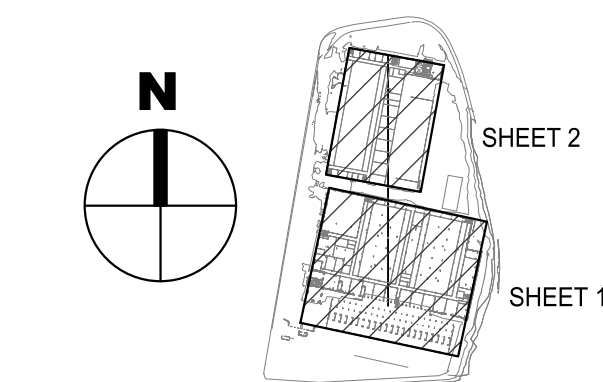
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DIMENSIONS IN METRES

P02	15.10.25	FOR INFORMATION	RP
P01	29.07.25	STAGE 2 ISSUE	RP
Rev	Date	Description	Issued By

Project Stage

STAGE 2



Client:



Project:
PLON01
Iron Bridge Road North, UB11 1BT

Drawing Title: _____

Drawn WM	Checked RP	Paper Size A0	Scale 1:250	Date 29.07.2025
Project No. PLON01		Drawing No. 32302		Revision P02

PLON01-PIN-SW-XX-DR-C-32302

Purpose Code

Acceptance Code

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