



# New Lidl Store, Gorseinon, Swansea

## Drainage Strategy

January 2021

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## Introduction

Waterco has been instructed to prepare a Drainage Strategy in respect of a proposed new Lidl store at the former Poundstretcher, Gorseinon Road, Gorseinon, Swansea, SA4 9GE.

Swansea Council as a Lead Local Flood Authority (LLFA) and Sustainable Drainage Approval Body (SAB) is a statutory consultee for major planning applications in relation to surface water drainage, requiring that all planning applications are accompanied by a Sustainable Drainage Strategy. The aim of the Sustainable Drainage Strategy is to identify water management measures, including Sustainable Drainage Systems (SuDS), to provide surface water runoff reduction and treatment.

This report has been prepared in accordance with the Welsh Government 'Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems' (2018) – herein referred to as 'the Statutory Standards for SuDS'.

This report has been prepared in consultation with Dŵr Cymru Welsh Water (DCWW).

## Existing Conditions

The site covers an area of approximately 0.9973 hectares (ha) and is located at National Grid Reference (NGR) 260732, 198476. A location plan and an aerial image are included in Appendix A.

Online mapping (including Google Maps / Google Streetview imagery, accessed December 2020) shows that the site comprises an existing retail unit (Poundstretcher) with associated access, delivery yard, car parking and landscaping. The site is bordered by Gorseinon Road to the north, commercial buildings to the east and south, and an existing Lidl store to the west. Access to the site is provided from Gorseinon Road to the north.

## Local Topography

A 'Topographical Survey & Buried Utilities Survey' has been undertaken by EDI Surveys Ltd in August 2020. The topographical survey shows that the site slopes from 52.91 metres Above Ordnance Datum (m AOD) in the south-east to 48.2m AOD in the north-west. The majority of the site is situated at or above 51m AOD with lower levels of 48m AOD - 49m AOD recorded at the toe of a grassed embankment which forms the northern and western boundaries of the site.

Topographic levels to m AOD have also been derived from a 1m resolution Natural Resources Wales (NRW) composite 'Light Detecting and Ranging' (LiDAR) Digital Terrain Model (DTM). The LiDAR data corroborates the topographical survey.

Topographical information is provided as Appendix B.

## Ground Conditions

The British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the site is underlain by superficial deposits of Devensian Till (diamicton). The superficial deposits are identified as being underlain by

the Grovesend Formation consisting of mudstone, siltstone and sandstone.

The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

Exploratory boreholes have been carried out on this site by Remada Ltd as part of a Phase 2 Ground Investigation which is currently ongoing. Copies of the draft borehole logs (completed October 2020) are included in Appendix C. The boreholes comprised 5No. window sample boreholes with 3No. cable percussive boreholes.

Made Ground was encountered across the site to depths between 0.85metres below ground level (m.bgl) to 4.5m.bgl. The Made Ground generally comprised sandy, silty clay with fragments of brick, coal, slag and clinker. The Made Ground was found to be underlain by clay at varying depths in a number of exploratory holes and peat (at 2.9m bgl) in a single location (WS3).

Water was recorded in the Made Ground but is unlikely to be true groundwater. Groundwater seepage was recorded in the superficial clay at 7.0m.bgl, a final water level was not provided on the preliminary logs.

According to NRW's Aquifer Designation data, obtained from the BGS GeoIndex online mapping [accessed December 2020], the Devensian Till is classified as a Secondary (undifferentiated) Aquifer. Secondary Undifferentiated Aquifers are assigned in 'cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type'.

The underlying Grovesend Formation is classified as a Secondary A Aquifer. Secondary A Aquifers are 'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers'.

The Cranfield University 'Soilscapes' map [accessed December 2020] indicates that the site is underlain by '*slowly permeable wet...soils with a peaty surface.*'

## Local Drainage

Public sewer records have been obtained from DCWW and are included in Appendix D. The DCWW sewer records show that there is 225mm public combined sewer located immediately north of the site in Gorseinon Road. Manhole SS60987502 on the 225mm public combined sewer, immediately north-east of the site access road, has a cover level of 52.331m AOD and an invert level of 50.281m AOD.

The Topographic Survey & Buried Utilities Survey (Appendix B) identifies that surface water from the site discharges to a 400mm surface water drain located within the grassed verge of Gorseinon Road (A4240) to the north of the site. The 400mm drain does not appear on DCWW mapping and is assumed to be in Council ownership. The 400mm drain flows west and appears to discharge into an unnamed watercourse located approximately 385m west of the site.

A manhole immediately north-west of the site access, where the existing connection is made to the 400mm

surface water drain, has an identified cover level of 51.06m AOD and an invert level of 49.51m AOD. A manhole located approximately 50m west of the site access on the 400mm surface water drain has an identified cover level of 48.74m AOD and an invert level of 47.11m AOD.

## Development Proposals

It is proposed to demolish the existing retail unit and build a new Lidl store with associated car parking and landscaping. Proposed development plans are included in Appendix E.

The proposed development will result in a decrease in hardstanding areas through the introduction of landscaped areas on the peripheries of the site. Hardstanding will comprise 7,780m<sup>2</sup> or 78% of the total site area. The remaining permeable, soft landscaped areas will occupy 2,193m<sup>2</sup> or 22% of the total site area. All measurements have been taken from a dwg. copy of the 'Site Layout' plan (drawing reference: 20132-3021-PL1).

## Policy Context

The Swansea Local Development Plan 2010-2025 (adopted February 2019) contains the following policy relating to drainage:

### RP 5: Avoidance of Flood Risk

*In order to avoid the risk of flooding, development will not be permitted:...*

- iii. Where it would lead to an increase in the risk of flooding on the site or elsewhere from fluvial, pluvial, coastal or increased water run-off from the site;...*
- vi. Where the proposal does not incorporate environmentally sympathetic flood risk mitigation measures, such as SuDS, unless it can be demonstrated that such measures are not feasible.*

## Consultation

A pre-application request was submitted to the SAB in November 2020. A response is currently awaited.

A pre-development enquiry was submitted to DCWW in November 2020. In their response (Appendix D), DCWW have stated:

*'...The development therefore requires approval of Sustainable Drainage Systems (SuDS) features, in accordance with the 'Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems'. As highlighted in these standards, the developer is required to explore and fully exhaust all surface water drainage options in accordance with a hierarchy*

*which states that discharge to a combined sewer shall only be made as a last resort. Disposal should be made through the hierarchical approach, preferring infiltration and, where infiltration is not possible, disposal to a surface water drainage body in liaison with the Land Drainage Authority and/or Natural Resources Wales.*

*Notwithstanding receipt of a suite of plans, including a 'Proposed Site Plan' (Drawing No. AD 051) which would appear to include areas of greenery, it is not clear how the development proposes to dispose of surface water flows. It is therefore recommended that the developer consult with the City & County of Swansea Council, as the determining SuDS Approval Body (SAB), in relation to their proposals for SuDS features. Please note, DCWW is a statutory consultee to the SAB application process and will provide comments to any SuDS proposals by response to SAB consultation albeit we would advise it is not permissible to dispose to the combined sewerage network which ultimately drains to Gowerton Wastewater Treatment Works (WwTW) for the reasons set out above...*

*We have considered the impact of foul flows generated by the proposed development and concluded that flows can be accommodated within the public sewerage system. We advise that the flows should be connected to the combined sewer at or downstream of manhole SS60987502 located at the frontage of the site along Gorseinon Road.'*

## Surface Water Management

The site is currently occupied by an existing retail unit (Poundstretcher) with associated delivery yard, access and car parking. Surface water runoff currently discharges to a 400mm surface water drain located within the grassed verge of Gorseinon Road (A4240) to the north of the site at an unrestricted rate.

The proposed development will reduce the total hardstanding on site when compared with the existing situation. Hardstanding will comprise 7,780m<sup>2</sup> in the form of the new store and car park.

## Discharge Method

Standard S1 of the Statutory Standards for SuDS sets out the following hierarchy of drainage options:

*Priority Level 1: Surface water runoff is collected for use;*

*Priority Level 2: Surface water runoff is infiltrated to ground;*

*Priority Level 3: Surface water runoff is discharged to a surface water body;*

*Priority Level 4: Surface water runoff is discharged to a surface water sewer, highway drain, or another drainage system;*

*Priority Level 5: Surface water runoff is discharged to a combined sewer.*

### Priority Level 1: Surface water runoff collected for use

In line with section G1.4 of the Statutory Standards for SuDS, rainwater harvesting is not proposed for this

site as:

1. There is no foreseeable need to harvest water at the site as DCWW water resources and drought management plans do not identify potential stresses on mains water supplies;
2. The use of rainwater harvesting is not a viable / cost-effective part of the solution for managing surface water runoff on the site, taking account of the potential water supply benefits of such a system.

With regards to point 2 above, section G1.6 of the Statutory Standards for SuDS states that; in most cases, rainwater harvesting alone will not be adequate to deal with the site drainage and provision will be required for an overflow to a Level 2 or lower priority runoff destination. As downstream provision of attenuation storage will be required to accommodate for rainwater harvesting system overflows, rainwater harvesting is not considered a cost-effective solution for managing surface water runoff.

#### Priority Level 2: Surface water runoff is infiltrated to ground

As described above, the site is underlain by superficial deposits of Devensian Till which is underlain by the Grovesend Formation. Initial ground investigations show that the site is underlain by potentially contaminated Made Ground, which included coal, clinker and slag fragment, to depths between 0.85m.bgl and 4.5m.bgl. The Made Ground was generally found to be underlain by clay.

It can be concluded that infiltration techniques will not be suitable for the discharge of surface water runoff due to the presence of potentially contaminated Made Ground and the relatively impermeable nature of the underlying superficial deposits.

#### Priority Level 3: Surface water runoff is discharged to a surface water body

The nearest watercourse is an unnamed watercourse which is located approximately 385m west of the site along Gorseinon Road. From a review of the Topographical Survey and Buried Utilities Survey (Appendix B), the existing site discharges to a 400mm surface water drain located within the grassed verge of Gorseinon Road. The 400mm surface water drain flows west and appears to discharge into the unnamed watercourse.

It is therefore proposed to discharge surface water to the 400mm surface water drain north of the site as per the existing situation. A manhole immediately north-west of the site access, where the existing connection is made to the 400mm surface water drain, has an identified cover level of 51.06m AOD and an invert level of 49.51m AOD. As such, a gravity connection can be achieved.

In relation to surface water discharge for previously developed sites, the Statutory Standards for SuDS states that '*betterment of at least 30% should be considered as a minimum requirement...*'. It is therefore proposed to discharge to the 400mm surface water drain at a limited discharge rate providing 30% betterment over the existing situation.

In order to establish the proposed limited discharge rate, the existing brownfield runoff rates have been estimated using the Modified Rational method ( $Q=ciA$ ), whereby:

- 'Q' is the peak discharge (l/s)
- 'c' is the runoff coefficient (2.78 – standard multiplier)
- 'i' is the rainfall intensity (31.04mm for the 1 in 2 year 6 hour duration event, derived from FEH data)
- 'A' is the impermeable drainage area (0.8398ha)

Based on the above the 1 in 2 year brownfield runoff rate for the existing 8,398m<sup>2</sup> impermeable area is 72.5 l/s.

A discharge rate of 50.7 l/s is proposed for this site to provide 30% betterment on existing discharge rates. The discharge rate should be agreed with the SAB (a SAB pre-application response is awaited).

### Attenuation Storage

In order to achieve a discharge rate of 50.7 l/s, attenuation storage will be required. An attenuation storage estimate has been provided using MicroDrainage and is included in Appendix F. An estimated storage volume of 207m<sup>3</sup> will be required to accommodate the 1 in 100 year plus 30% Climate Change (CC) event. The storage estimate is based on a discharge rate of 50.7 l/s, storage within a tank or pond structure, an impermeable drainage area of 7,780m<sup>2</sup>, a design head of 1m and hydro brake flow control.

### Sustainable Drainage Systems

Attenuation storage should be provided in the form of SuDS. The following SuDS should be included:

#### Porous / Permeable Paving

Permeable paving could be incorporated within car parking spaces. Storage would be provided within the lined sub-grade material prior to controlled release to the 400mm surface water drain. The amount of storage offered by permeable paving is subject to sub-grade depth and site gradient. Permeable paving is not considered suitable for internal access roads frequented by HGV's. Areas suitable for permeable paving are identified on the 'Proposed Site Finishes' plan in Appendix E.

Based on proposed site levels, with a gradual fall in the car park from east to west, the majority of sub-grade storage would be provided beneath the car parking spaces in the western extent of the car park. The sub-grade storage in the western extent of the car park would accommodate runoff from a contributing impermeable area of approximately 6,470m<sup>2</sup> (including the proposed store and western extent of the car park), or 83% of the total proposed impermeable area. Therefore, approximately 172m<sup>3</sup> of attenuation storage (83% of the total attenuation storage amount) would need to be provided within the permeable paving sub-grade in the western extent of the car park.

Based on an external paved area of approximately 1574m<sup>2</sup> (car park spaces in the western extent of the car park) and a void ratio of 30% (applicable to typical stone aggregate), a sub-grade depth of 0.4m would be required to accommodate 172m<sup>3</sup> of attenuation storage (sufficient to accommodate the 1 in 100 year plus 30% climate change event).

The remainder of the impermeable area on site (eastern extent of the car park), can drain to the sub-grade of the parking spaces in the eastern extent of the car park. The sub-grade storage in the eastern extent of

the car park would accommodate runoff from a contributing impermeable area of approximately 1,310m<sup>2</sup>, or 17% of the total proposed impermeable area. Therefore, approximately 35m<sup>3</sup> of attenuation storage (17% of the total attenuation storage amount) would need to be provided within the permeable paving sub-grade in the eastern extent of the car park. o

Based on an external paved area of approximately 1,310m<sup>2</sup> (parking spaces and road not frequented by HGV's in the eastern extent of the car park), and a void ratio of 30% (applicable for typical stone aggregate), a sub-grade depth of 0.1m would be required to accommodate 35m<sup>3</sup> of attenuation storage (sufficient to accommodate the 1 in 100 year plus 30% climate change event). However, a minimum 300mm sub-grade depth is recommended to provide suitable freeboard.

In total, the lined sub-grade of permeable paving can provide the full balance of attenuation storage required to accommodate the 1 in 100 year plus 30% CC event. The invert level of the receiving 400mm surface water drain is 49.51m AOD. Based on a minimum car park level of approximately 51m AOD, and a maximum sub-grade depth of 0.4m, a gravity connection can be achieved.

The areas of sub-grade storage beneath the car parking spaces will be linked by piped drains with a flow control device placed between the storage areas. This will ensure the sub-grade storage is maximised across the entire car park. The exact flow rate between storage areas will be determined at the detailed design stage.

### Rain Gardens & Tree Pits

In addition to providing attenuation storage, SuDS will be required to provide amenity and biodiversity value in line with Standard S4 – Amenity and Standard S5 – Biodiversity of the Statutory Standards for SuDS.

A rain garden is constructed at ground level, with a planted soil mix, gravel infill and an underdrain to collect filtrated water. Runoff rates are reduced through the filtration process and runoff volume reduced through uptake by plants. Tree pits also offer similar benefits.

Rain gardens and tree pits could be utilised, where practical, in landscaped areas peripheral to the car park. The raingardens and tree pits would have piped linkage to the permeable paving sub-grade. Rain gardens and tree pits are not considered suitable in the landscaped areas in the northern and western extents of the site which form grassed embankments (steep slopes at a lower elevation than the remainder of the site).

### Concept Surface Water Drainage Scheme

Surface water runoff will be discharged to the 400mm surface water drain north of the site as per the existing scenario. Discharge will be made at a restricted rate of 50.7 l/s, providing 30% betterment over the existing 1 in 2 year brownfield runoff rate. Surface water runoff up to the 1 in 100 year plus 30% climate change allowance event will be attenuated on site. A total attenuation volume of 207m<sup>3</sup> will be required to achieve the discharge rate and will be provided in the lined sub-grade of permeable paved car parking spaces and roads not frequented by HGV's. Tree pits and rain gardens could also be incorporated in the landscaped area in the eastern extent of the site. Attenuation could also be provided in the form of an attenuation tank, subject to approval from the SAB.

A Concept Drainage Sketch is included in Appendix G.

The proposed surface water drainage scheme will ensure no increase in runoff over the lifetime of the development and will create betterment over the existing drainage regime.

### Exceedance Event

Storage will be provided for the 1 in 100 year plus 30% CC event. Storm events in excess of the 1 in 100 year plus 30% CC event should be permitted to produce temporary shallow depth flooding within the car park. Finished floor levels will be set above surrounding ground levels ensuring exceedance flooding will not affect the building.

### Surface Water Treatment

The Statutory Standards for SuDS sets out the following guidance for surface water treatment:

#### ***S3 - Surface water quality management***

*Treatment for surface water runoff should be provided to prevent negative impacts on the receiving water quality and/or protect downstream drainage systems, including sewers.*

In accordance with the CIRIA C753 publication 'The SuDS Manual' (2015), commercial roofs have a 'low' pollution hazard level, with commercial yards and delivery areas, and non-residential car parking classified as having a 'medium' pollution hazard level. Table 1 shows the pollution hazard indices for each land use.

**Table 1 – Pollution Hazard Indices**

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Other roofs (typically commercial / industrial roofs)	Low	0.3	0.2	0.05
Commercial yard and delivery areas, non-residential car parking with frequent change	Medium	0.7	0.6	0.7

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 26.2

\* Indices values range from 0-1.

Runoff from roofs and the car park will be directed to permeable paving. Table 2 demonstrates that permeable paving provides sufficient treatment.

**Table 2 – SuDS Mitigation Indices**

Type of SuDS	Mitigation Indices		
	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Permeable Pavement	0.7	0.6	0.7

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 26.3

### Amenity

The Statutory Standards for SuDS provide the following guidance in relation to Standard S4 – Amenity:

*'The design of the surface water management system should maximise amenity benefits.'*

The proposed development could include rain gardens and tree pits within the landscaped area in the eastern extent of the site. Rain gardens and tree pits will maximise the amenity value of the proposed drainage system.

### Biodiversity

The Statutory Standards for SuDS provide the following guidance in relation to Standard S5 – Biodiversity:

*'The design of the surface water management system should maximise biodiversity benefits.'*

Rain gardens and tree pits will maximise the biodiversity value of the proposed drainage system.

## Construction, Operation and Maintenance

Standard S6 of the Statutory Standards for SuDS states:

### ***S6 – Design of drainage for Construction, Operation and Maintenance***

- 1) All elements of the surface water drainage system should be designed so that they can be constructed easily, safely, cost-effectively, in a timely manner, and with the aim of minimising the use of scarce resources and embedded carbon (energy).
- 2) All elements of the surface water drainage system should be designed to ensure maintenance and operation can be undertaken (by the relevant responsible body) easily, safely, cost-effectively, in a timely manner, and with the aim of minimising the use of scarce resources and embedded carbon (energy).
- 3) The surface water drainage system should be designed to ensure structural integrity of all elements under anticipated loading conditions over the design life of the development site, taking into account the requirement for reasonable levels of maintenance.

All drainage systems will be readily accessible for maintenance access.

The proposed drainage system will be privately owned and will not be adopted by the SAB. Maintenance of the drainage system will be the responsibility of the site owner.

Maintenance schedules for permeable paving and tree pits are included in Appendix H. Maintenance of the rain garden will entail vegetation management and reducing soil compaction i.e. through regular turning of the soil.

## Foul Drainage

Correspondence from DCWW (Appendix D) states that:

*'We have considered the impact of foul flows generated by the proposed development and concluded that flows can be accommodated within the public sewerage system. We advise that the flows should be connected to the combined sewer at or downstream of manhole SS60987502 located at the frontage of the site along Gorseinon Road.'*

Foul flows should be discharged to the 225mm public combined sewer in Gorseinon Road. Manhole SS60987502 has an invert level of 50.281m AOD and a gravity connection can be achieved.

## Conclusions

The proposed development is for a new Lidl store with associated car parking and landscaping.

The proposed development will reduce the impermeable drainage area when compared with the existing retail unit, through the introduction of landscaped areas.

In accordance with the Statutory Standards for SuDS, a minimum 30% betterment must be applied to runoff rates from brownfield sites. In order to achieve 30% betterment on existing runoff rates, flow control will be used, and attenuation provided on site to accommodate storm events up to and including the 1 in 100 year plus 30% climate change event.

All methods of surface water discharge have been assessed. Due to the presence of Made Ground, groundwater and the impermeable nature of underlying clay, infiltration techniques are not feasible. Surface water will be discharged to a 400mm surface water drain immediately north of the site as per the existing scenario. The 400mm surface water drain discharges to a watercourse 385m west of the site. Discharge will be made at a rate of 50.7 l/s providing 30% betterment over the existing 1 in 2 year brownfield runoff rate. A gravity connection can be achieved.

Attenuation storage will be required on site in order to restrict surface water discharge to 50.7 l/s. Attenuation can be provided within the lined sub-grade of permeable paved car parking spaces and roads not frequented by HGV's. Permeable paving will provide treatment to runoff.

The site owner will be responsible for the maintenance of the drainage system.

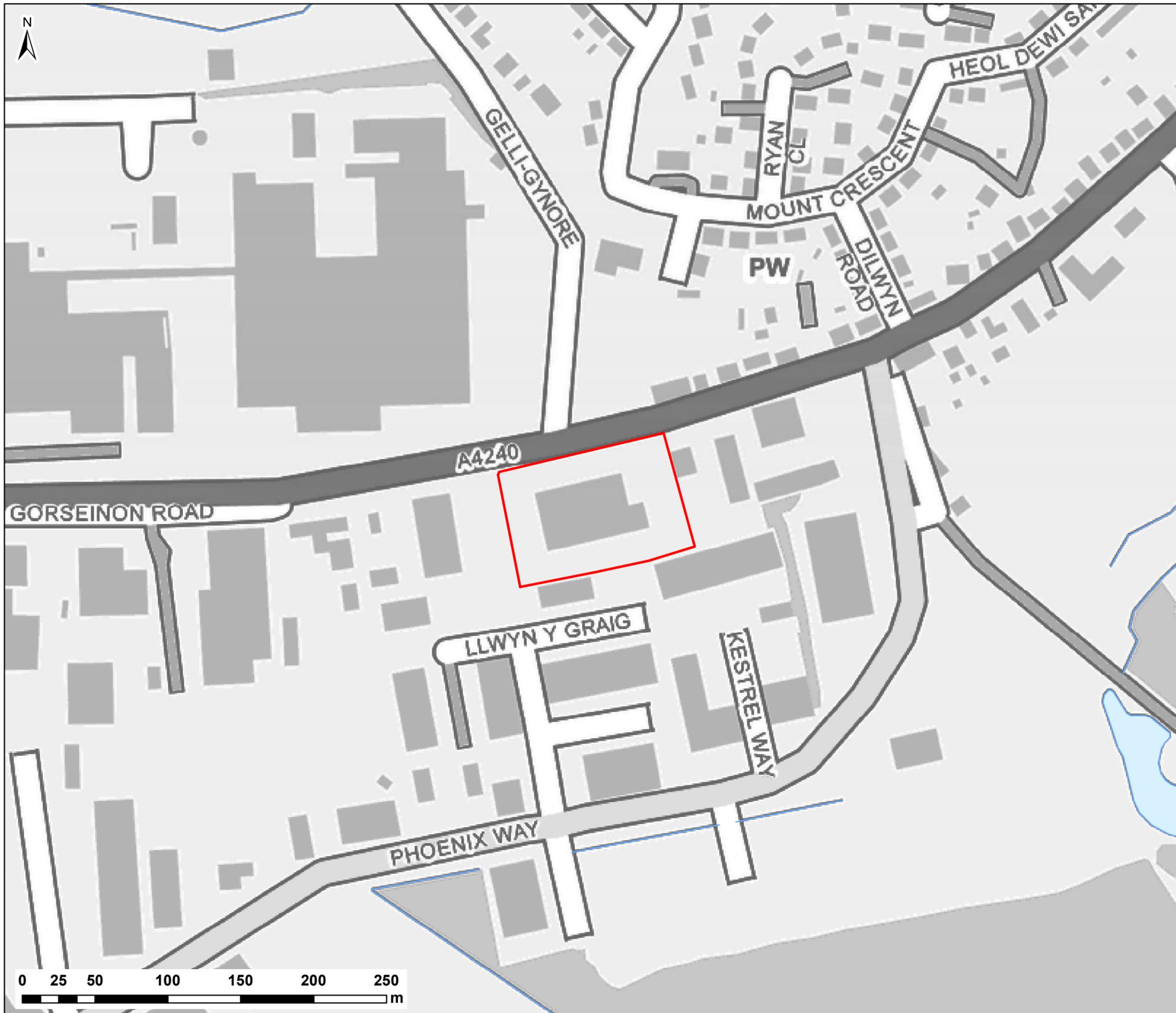
DCWW have confirmed that foul flows can discharge to the 225mm public combined sewer in Gorseinon Road to the north of the site. A gravity connection can be achieved.

A Concept Designer's Risk Assessment (cDRA) has been prepared to inform future designers of any identified hazards associated with the scheme. The cDRA has been included in Appendix I.

## Recommendations

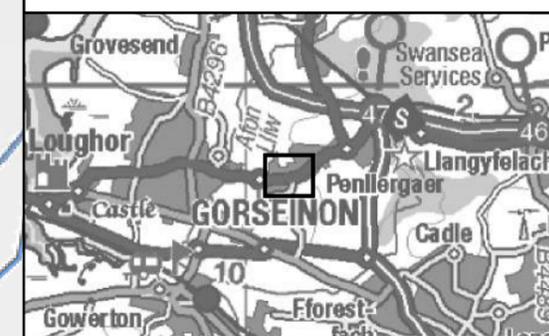
1. Update this Drainage Strategy upon receipt of the SAB pre-application response.
2. Verify the attenuation volumes included in this report when undertaking detailed drainage design.

## Appendix A Location Plan & Aerial Image



NOTES:  
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

- LEGEND**
- Site Boundary
  - Watercourses / Water Bodies



CLIENT:  
**LIDL GREAT BRITAIN LTD**



SCHEME:  
**NEW LIDL STORE,  
GORSEINON, SWANSEA**

PLOT TITLE:  
**LOCATION PLAN**

PLOT STATUS: <b>FINAL</b>		DATE: 11/11/2020	
DRAWN: VJ	CHECKED: AW	APPROVED: VG	PLOT SCALE @ A3: 1:2,500 (UNLESS STATED OTHERWISE)
PLOT NAME: 13551-Location_Plan			REV: -





NOTES:  
 1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

**LEGEND**

Site Boundary



CLIENT:  
**LIDL GREAT BRITAIN LTD**



SCHEME:  
**NEW LIDL STORE,  
 GORSEINON, SWANSEA**

PLOT TITLE:  
**AERIAL PLAN**

PLOT STATUS: **FINAL**      DATE: 11/11/2020

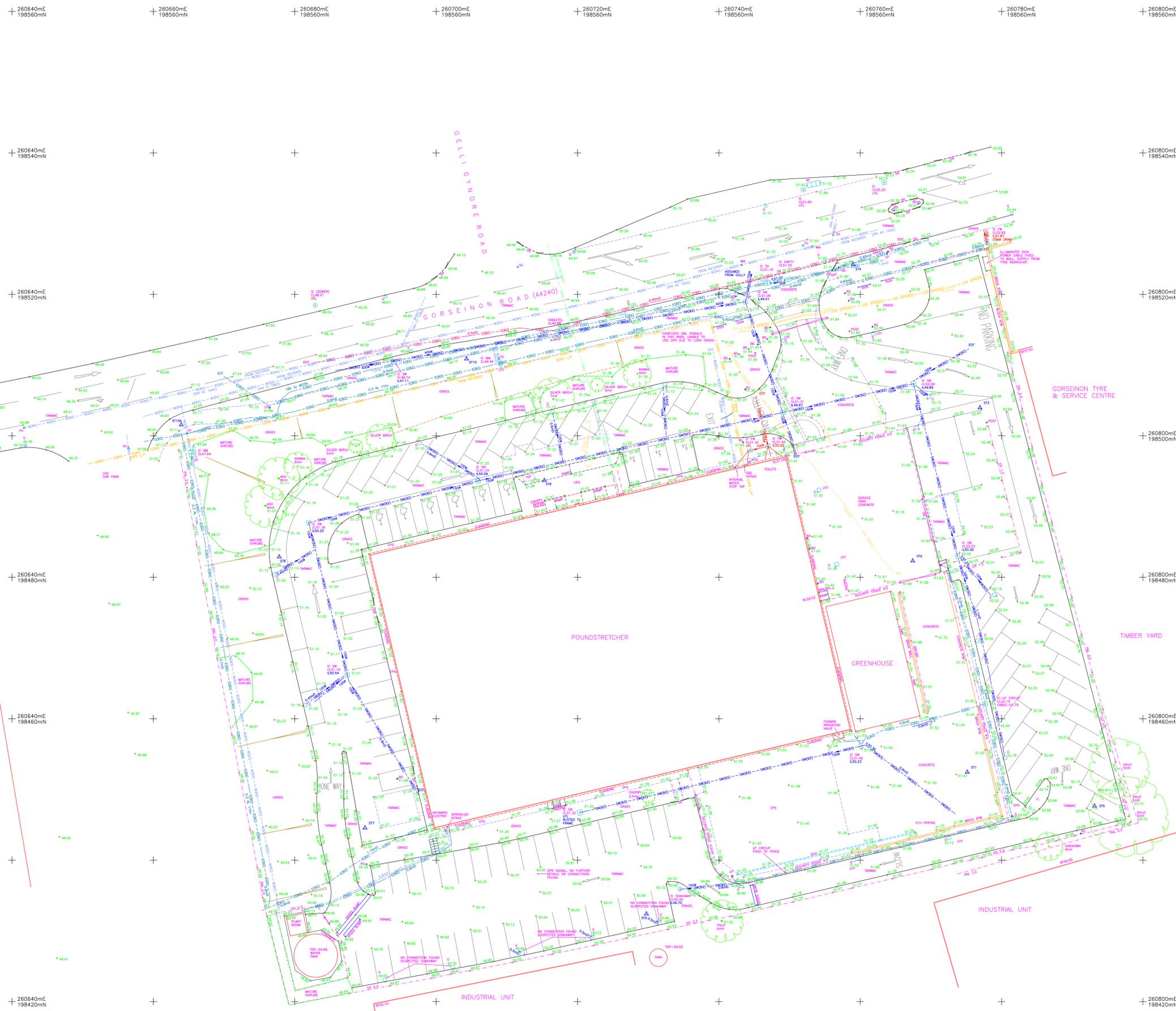
DRAWN: VJ	CHECKED: AW	APPROVED: VG	PLOT SCALE @ A3: 1:2,500 (UNLESS STATED OTHERWISE)
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PLOT NAME: 13551-Aerial\_Plan      REV: -



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

## Appendix B Topographical Data



+260640mE 198560mN  
 +260640mE 198560mN  
 +260640mE 198560mN  
 +260640mE 198480mN  
 +260640mE 198480mN  
 +260640mE 198420mN  
 +260640mE 198420mN

+260720mE 198560mN  
 +260740mE 198560mN  
 +260760mE 198560mN  
 +260780mE 198560mN  
 +260800mE 198560mN  
 +260800mE 198540mN  
 +260800mE 198520mN  
 +260800mE 198500mN  
 +260800mE 198480mN  
 +260800mE 198460mN  
 +260800mE 198420mN

Original Drawing Size: A0

GRD NORTH

NOTES:

The accuracy and content of this drawing are dependent on the original specification of the survey and the accuracy of the data used. It is the responsibility of the user to ensure that the data used is accurate and that the drawing is used for the purpose intended. The accuracy of the drawing is not guaranteed.

When underground services are shown, it is assumed that they have been located by the use of a suitable method and that the accuracy of the drawing is based on the data used. It is the responsibility of the user to ensure that the data used is accurate and that the drawing is used for the purpose intended. The accuracy of the drawing is not guaranteed.

It is the responsibility of the user to ensure that the drawing is used for the purpose intended. The accuracy of the drawing is not guaranteed.

Levels shown on plans are shown unless stated otherwise.

**LEGEND**

Symbol	Description	Symbol	Description
...	...	...	...

**Scale:**

1:1000

**Grid:**

Eastings: 260640mE to 260800mE  
 Northings: 198420mN to 198560mN

Station	Schedule	Level	Type
1	260720.10	52.48	WHS
2	260720.10	52.48	WHS
3	260720.10	52.48	WHS
4	260720.10	52.48	WHS
5	260720.10	52.48	WHS
6	260720.10	52.48	WHS
7	260720.10	52.48	WHS
8	260720.10	52.48	WHS
9	260720.10	52.48	WHS
10	260720.10	52.48	WHS

The services on this survey have been traced using a combination of Inductance (EDS) and DC Coupled Ground Penetrating Radar. Whilst every effort has been made to locate services without excavation, GPR works well in most soils which are relatively undisturbed but works less well in very wet or very dry soils and ground which has been generally disturbed or built on. It does work better with larger diameter cables and pipes - for example 150mm diameter pipes and 100mm diameter cables. It is not possible to detect small size connections to individual properties. The EDS/DC cannot distinguish between services if they are adjacent, cannot always distinguish small pipes from larger ones and can be swamped by radiation from buildings (when very close to them) or high voltage overhead lines. Inspection covers have been fitted where possible without damage to covers.

Job No.	Date	Revision	Author	Check
18927	18/02	A	...	...

**CLIENT**  
 Lid: Great Britain Ltd  
 Welford Industrial Estate, off Cowbridge Road  
 Biddenden  
 CF31 3PH

**PROJECT**  
 Topographic Survey & Buried Utilities Survey  
 Gorseinon Road  
 Former Poundstretcher Unit  
 Gorseinon  
 Swansea, SA4 9GE

**DATE**  
 18/02/2020

**EDI SURVEYS LTD**

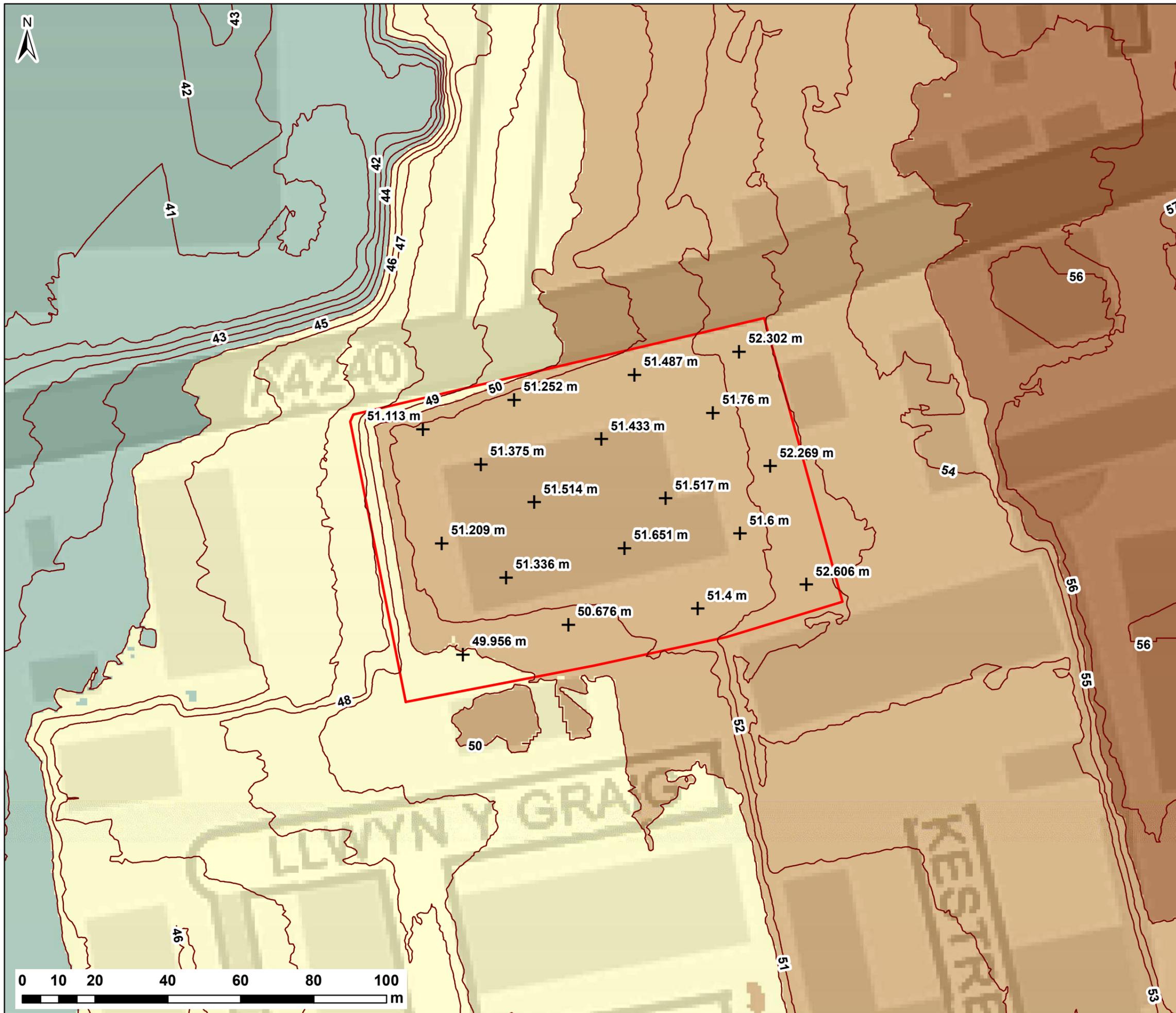
163-165 Ranelagh Road, Ipswich, Suffolk IP2 0AT  
 Telephone: 01473 21222 Fax: 01473 221860  
 Email: enquiries@edisurveys.co.uk

Our Services: Topographic Survey, Measured Building Survey, GPR, Groundwater, and Groundwater Investigation. We also offer a range of other services including utility surveys, drainage surveys, and ground investigation.

18927/T&S/01-01

This Survey has been carried out to PAS 128 Detection Method MDP (Inductance) at 2m intervals for both Electro Magnetic Location and Ground Penetrating Radar techniques.

The Quality levels achieved are indicated on service lines as B1, B2, B3 or B4.  
 B1 horizontal location accuracy ±100mm or ±10% of detected depth whichever is greater.  
 B2 vertical location accuracy ±10% of detected depth.  
 B3 horizontal location accuracy ±100mm or ±10% of detected depth whichever is greater.  
 B4 vertical location accuracy ±10% of detected depth.  
 B5 horizontal location accuracy ±100mm or ±10% of detected depth whichever is greater.  
 B6 vertical location accuracy ±10% of detected depth.  
 B7 horizontal location accuracy ±100mm or ±10% of detected depth whichever is greater.  
 B8 vertical location accuracy ±10% of detected depth.  
 B9 horizontal location accuracy ±100mm or ±10% of detected depth whichever is greater.  
 B10 vertical location accuracy ±10% of detected depth.



NOTES:  
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

**LEGEND**

- Site Boundary
  - + Site Levels
- Ground Elevation (m AOD)**
- <40
  - 40-45
  - 45-50
  - 50-55
  - >55



CLIENT:  
**LIDL GREAT BRITAIN LTD**

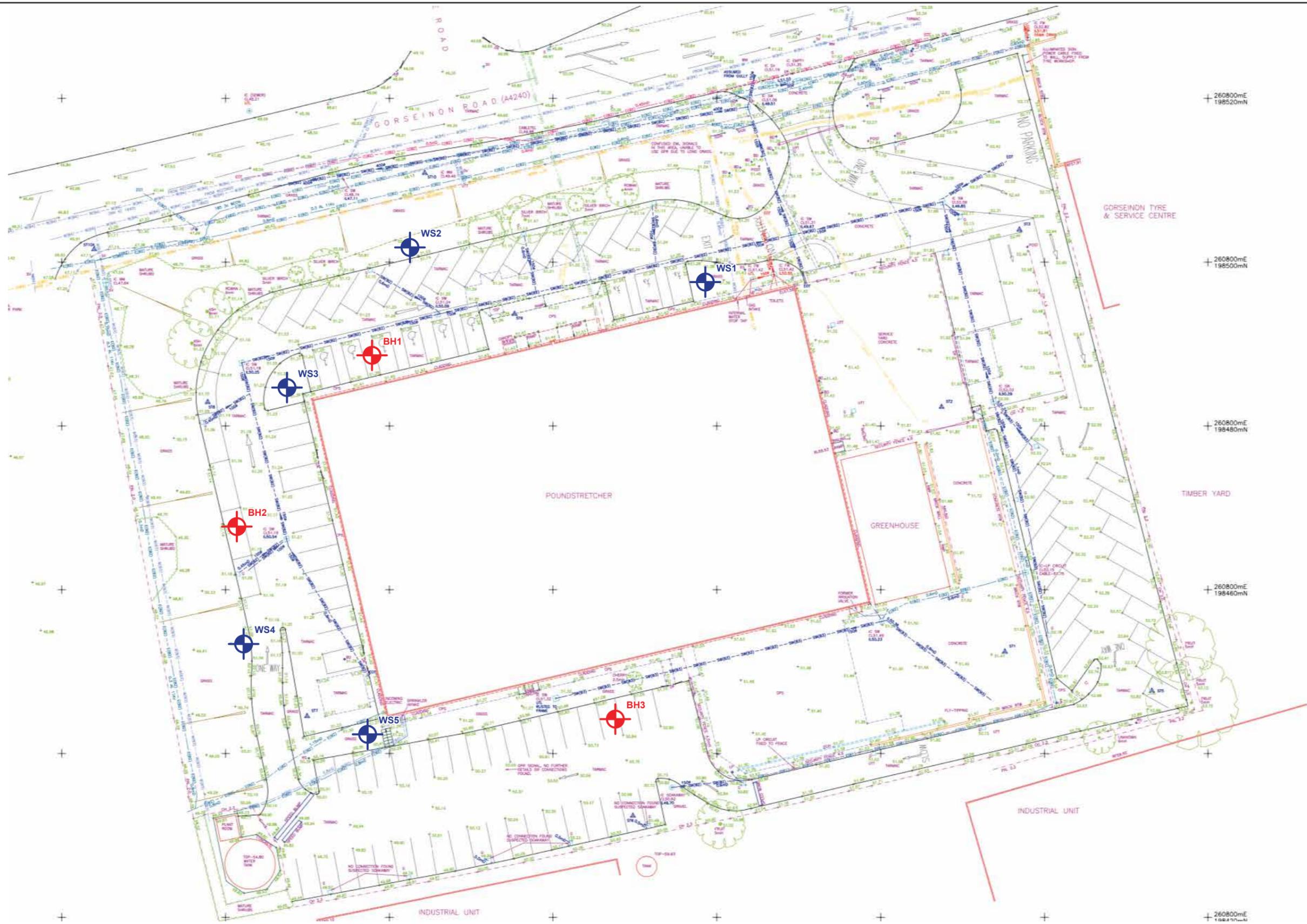


SCHEME:  
**NEW LIDL STORE,  
GORSEINON, SWANSEA**

PLOT TITLE:  
**LIDAR ELEVATIONS  
1m RESOLUTION**

PLOT STATUS: <b>FINAL</b>		DATE: 11/11/2020	
DRAWN: VJ	CHECKED: AW	APPROVED: VG	PLOT SCALE @ A3: 1:1,000 (UNLESS STATED OTHERWISE)
PLOT NAME: 13551-Lidar			REV: -

## Appendix C Borehole Logs



Legend

-  BH1 Cable Percussive Borehole
-  WS1 Window Sample

Notes  
 EDI Survey Ltd's Topographic Survey & Buried Utilities Survey drawing No. 18927/T&S/01-01 (issued in August 2020) reproduced as base plan for this Exploratory Hole Location Plan.

Project Title  
 Lidl Gorseinon (Relocation)

Drawing Title  
 Figure 2 - Exploratory Hole Location Plan

Client  
 Lidl Great Britain Ltd 

Scale	Drawn	Size
As shown	PD	A3
Date	Job No.	Drawing / Rev No.
23.10.20	795	01

**Remada**

# Percussion Drilling Log

Project Name: GORSEINON ROAD		Client: Lidl Great Britain Ltd		Date: 19/10/2020	
Location: Gorseinon, Swansea		Contractor: Remada Ltd		Co-ords: E260694.00 N198489.00	
Project No. : 795.02		Crew Name:		Drilling Equipment: Dando 2000 MK2	
Borehole Number BH1	Hole Type BH	Level 51.27m AoD	Logged By WP	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00 - 0.05 0.20 - 1.20	ES B		0.05 0.10	51.22 51.17	MADE GROUND: Asphalt. MADE GROUND: Grey mottled light grey sandy fine to coarse angular gravel predominantly of mudstone. Sand is fine to medium. MADE GROUND: Soft to firm dark grey mottled brown sandy gravelly clay. Sand is medium to coarse. Gravel is angular to subangular fine to coarse of sandstone and mudstone.	1	
	▼	1.20	SPT	N=8 (3,2/1,4,2,1)					
		2.00	SPT	N=6 (3,2/1,2,2,1)				2	
		3.00 - 3.45	U		2.70	48.57	Stiff dark brown mottled brown slightly gravelly silty sandy CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium of sandstone, limestone and quartz.	3	
		4.00 - 4.45 4.00	B SPT	N=28 (1,4/5,6,8,9)	4.00	47.27	Stiff brown mottled light grey slightly sandy gravelly CLAY with bands of dense light brown mottled brown medium SAND. Gravel is subangular to subrounded fine to coarse of sandstone and limestone.	4	
		5.00 - 5.45	U		5.00	46.27	Stiff dark grey slightly sandy slightly gravelly CLAY with low cobble content. Sand is medium. Gravel is subangular to subrounded fine to coarse of sandstone, limestone, quartz and occasional coal fragments.	5	
		6.00 - 6.45 6.00	B SPT	N=32 (6,5/7,8,8,9)				6	
		7.00 - 7.45	U					7	
		8.00 - 8.45 8.00	B SPT	N=45 (3,4/8,8,10,19)	8.00	43.27	Stiff dark grey slightly sandy gravelly CLAY with moderate cobble content. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of sandstone and mudstone. Cobbles are subrounded of sandstone.	8	
		8.80 - 9.00 9.00	B SPT	N=50 (8,10/50 for 295mm)	8.80 9.00	42.47 42.27	Stiff grey mottled light brown CLAY with mudstone lithorelicts.	9	
						End of Borehole at 9.000m	10		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

- Groundwater seepage encountered during boring below 1.2m bgl.
- Installation to 5.0m bgl; 2.0m plain pipe, 3.0m slotted pipe.



# Percussion Drilling Log

Project Name: GORSEINON ROAD		Client: Lidl Great Britain Ltd		Date: 19/10/2020 - 20/10/2020	
Location: Gorseinon, Swansea		Contractor: Remada Ltd		Co-ords: E260679.00 N198474.00	
Project No. : 795.02		Crew Name:		Drilling Equipment: Dando 2000 MK2	
Borehole Number BH2	Hole Type BH	Level 51.16m AoD	Logged By WP	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00 - 0.05	ES		0.05 0.10	51.11 51.06	MADE GROUND: Asphalt.		
							MADE GROUND: Grey mottled light grey sandy fine to coarse angular gravel consisting of mudstone. Sand is fine to medium.		
		1.20	SPT	N=11 (3,2/2,3,3,3)	1.20	49.96	MADE GROUND: Grey mottled dark brown slightly bouldery sandy medium to coarse angular gravel. Sand is fine. Boulders are subrounded of sandstone.	1	
		2.00 - 2.45	B				MADE GROUND: Firm becoming stiff dark grey mottled brown silty sandy gravelly clay. Sand is fine to coarse. Gravel is angular to rounded fine to coarse predominantly of mudstone and sandstone with rare clinker fragments.	2	
		2.00	SPT	N=11 (3,3/2,3,3,3)					
		3.00	SPT	N=4 (3,2/1,1,1,1)				3	
		4.00 - 4.45	U		3.90	47.26	Stiff brown sandy CLAY with moderate cobble content. Cobbles are angular to subangular of sandstone.	4	
		5.00 - 5.45	B				Stiff dark grey slightly sandy slightly gravelly CLAY with moderate cobble content. Gravel is subangular to subrounded fine to coarse of sandstone, limestone, quartz and occasional coal fragments.	5	
		5.00	SPT	N=34 (5,6/8,10,9,7)	5.00	46.16			
		6.00 - 6.45	U					6	
	7.00 - 7.45	B					7		
	7.00	SPT	N=15 (2,2/3,3,4,5)						
	8.00 - 8.45	U		8.00	43.16	Stiff dark grey slightly gravelly sandy CLAY with low cobble content. Sand is fine. Gravel is subangular to subrounded fine to coarse of mudstone and sandstone. Cobbles are subrounded to rounded of sandstone.	8		
	8.80 - 9.00	B		8.80	42.36		9		
	9.00	SPT	50 (8,12/50 for 200mm)	9.00	42.16	Stiff grey mottled light brown CLAY with mudstone lithorelicts.			
						End of Borehole at 9.000m	10		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

**Remarks**  
 1. Groundwater seepage encountered during boring below 7.2m bgl.  
 2. Installation to 5.0m bgl; 2.0m plain pipe, 3.0m slotted pipe.



# Percussion Drilling Log

Project Name: GORSEINON ROAD		Client: Lidl Great Britain Ltd		Date: 20/10/2020	
Location: Gorseinon, Swansea		Contractor: Remada Ltd		Co-ords: E260725.00 N198445.00	
Project No. : 795.02		Crew Name:		Drilling Equipment: Dando 2000 MK2	
Borehole Number BH3	Hole Type BH	Level 50.84m AoD	Logged By WP	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.05			0.05	50.79		MADE GROUND: Asphalt. MADE GROUND: Grey mottled light grey sandy fine to coarse angular gravel. Sand is fine to medium.		
		0.60 - 1.20	B		0.60	50.24			MADE GROUND: Soft grey mottled light grey slightly gravelly sandy clay with low cobble content. Gravel is angular to subangular fine to coarse of mudstone and sandstone. Cobbles are angular to subrounded of mudstone and sandstone.	1
		1.20	SPT	N=5 (1,1/1,1,1,2)	1.80	49.04			MADE GROUND: Stiff light grey slightly sandy gravelly clay with low cobble content. Gravel is angular to subrounded fine to coarse predominantly of mudstone and sandstone. Cobbles are subangular to subrounded of mudstone, sandstone and brick fragments.	2
		2.00 - 2.45	U		2.50 - 3.00	B				<u>Minor Coal fragments.</u>
		2.50 - 3.00	B		3.00	47.84		MADE GROUND: Firm grey mottled orangeish brown sandy gravelly clay with low cobble content. Sand is fine. Gravel is angular to subangular fine to medium of mudstone, sandstone and rare coal fragments. Cobbles are subangular of sandstone and brick fragments.		3
		3.00	SPT	N=50 (3,5/50 for 285mm)	4.00 - 4.45	B				
		4.00 - 4.45	SPT	N=50 (8,9/8,10,15,17)	4.50	SPT	50 (25 for 50mm/50 for 60mm)	46.34		End of Borehole at 4.500m
	4.50	SPT							6	
									7	
									8	
									9	
									10	

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

**Remarks**  
 1. Groundwater seepage encountered during boring below 2.7m bgl.  
 2. Installation to 4.5m bgl; 1.0m plain pipe, 3.5m slotted pipe.



# Percussion Drilling Log

Project Name: GORSEINON ROAD		Client: Lidl Great Britain Ltd		Date: 13/10/2020	
Location: Gorseinon, Swansea		Contractor: Remada Ltd		Co-ords: E260738.00 N198499.00	
Project No. : 795.02		Crew Name:		Drilling Equipment:	
Borehole Number WS1	Hole Type WS	Level 51.39m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15 - 0.35	ES		0.15	51.24		MADE GROUND: Grass over brown slightly gravelly silty clay topsoil with rare rootlets.	
								MADE GROUND: Firm brown becoming dark grey gravelly clay with low cobble content. Gravel is angular to subangular fine to coarse of mixed lithologies including rare coal and slag fragments. Cobbles are angular of brick.	
		0.85 - 1.00	D		0.85	50.54		Soft becoming firm brownish grey mottled yellowish brown silty CLAY with low cobble content. Cobbles are angular of sandstone and quartz.	
		0.90 0.95 1.00	SPT	HVP=56 HVP=58 N=5 (1,1/1,1,1,2)				Becoming dark grey between 1.1m and 1.3m bgl.	
		1.65		HVP=30					
		1.80		HVP=38					
		1.90		HVP=48					
		2.00	SPT	N=38 (6,6/6,10,10,12)					
		3.00	SPT	N=29 (5,5/6,8,7,8)				Becoming slightly gravelly below 3.0m bgl. Gravel is angular of coal fragments.	
		4.00	SPT	N=50 (16,19/50 for 230mm)	4.00	47.39		End of Borehole at 4.000m	

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

**Remarks**  
 1. Terminated upon refusal at 4.0m bgl.  
 2. Backfilled with arisings upon completion. Grass reinstated.



# Percussion Drilling Log

Project Name: GORSEINON ROAD		Client: Lidl Great Britain Ltd		Date: 13/10/2020	
Location: Gorseinon, Swansea		Contractor: Remada Ltd		Co-ords: E260700.00 N198502.00	
Project No. : 795.02		Crew Name:		Drilling Equipment:	
Borehole Number WS2	Hole Type WS	Level 51.23m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
Well		0.25			0.25	50.98	MADE GROUND	MADE GROUND: Grass over brown slightly gravelly sandy clay TOPSOIL. Gravel is angular to subangular fine to medium of quartz.	1	
		0.50		HVP=20				MADE GROUND: Firm brown gravelly clay with low cobble content. Gravel is angular to subangular fine to coarse of rare coal, quartz and shale fragments. Cobbles are angular of sandstone and quartz.		
		0.80		HVP=28			MADE GROUND	MADE GROUND: Firm dark grey mottled brown slightly sandy slightly gravelly silty clay. Gravel is angular to subangular fine to coarse of mixed lithologies including coal and quartz.		
		1.00	SPT	N=12 (3,2/3,3,3,3)	1.10	50.13				
		1.10 - 1.40	ES							
		1.50 - 2.00	ES				Soft becoming firm brown mottled bluish grey silty CLAY.			2
		2.00	SPT	N=3 (1,0/1,0,1,1)	2.10	49.13				
		2.50		HVP=25						
	2.60		HVP=32							
	2.70		HVP=38			End of Borehole at 3.000m		3		
	3.00	SPT	N=50 (12,11/50 for 235mm)	3.00	48.23					

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

**Remarks**  
 1. Terminated upon refusal at 3.0m bgl.  
 2. Backfilled with arisings upon completion. Grass reinstated.



# Percussion Drilling Log

Project Name: GORSEINON ROAD		Client: Lidl Great Britain Ltd		Date: 13/10/2020	
Location: Gorseinon, Swansea		Contractor: Remada Ltd		Co-ords: E260687.00 N198486.00	
Project No. : 795.02		Crew Name:		Drilling Equipment:	
Borehole Number WS3	Hole Type WS	Level 51.34m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40 - 0.60	ES		0.20	51.14		MADE GROUND: Grass over brown silty clay topsoil with occasional rootlets.	1
					0.80	50.54		MADE GROUND: Firm brown slightly sandy slightly gravelly silty clay with low cobble content. Gravel is angular to subangular fine to coarse of quartz and rare brick fragments. Cobbles are angular of quartz and brick fragments.	
		1.00	SPT	N=12 (3,2/3,3,3,3)	1.80	49.54		MADE GROUND: Firm brownish grey gravelly silty clay. Gravel is angular to subangular fine to coarse of quartz and rare brick fragments.	
					2.00			MADE GROUND: Firm dark grey mottled yellowish brown slightly gravelly silty clay with pockets of yellow fine sand. Gravel is angular of quartz and brick.	2
		1.80		HVP=34	2.40				
		2.00	SPT	N=13 (1,3/3,3,4,3)	2.50				
		2.40		HVP=38	2.60				
					2.50				3
		2.50		HVP=40	2.60				
		2.60		HVP=32	2.70				
			2.70				3		
2.90 - 3.00	ES		2.90	48.44		Wet brown fibrous PEAT with white rootlets.			
			3.00				3		
	SPT	N=1 (1,1/0,1,0,0)	3.40	47.94		Firm becoming stiff grey silty CLAY.			
			4.00				4		
	SPT	N=50 (9,9/50 for 235mm)	4.00	47.34		End of Borehole at 4.000m			

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

**Remarks**

- Groundwater encountered within SPT at 3m bgl.
- Terminated upon refusal at 4.0m bgl.
- Backfilled with arisings upon completion. Grass reinstated.





# Percussion Drilling Log

Project Name: GORSEINON ROAD		Client: Lidl Great Britain Ltd		Date: 13/10/2020	
Location: Gorseinon, Swansea		Contractor: Remada Ltd		Co-ords: E260697.00 N198443.00	
Project No. : 795.02		Crew Name:		Drilling Equipment:	
Borehole Number WS5	Hole Type WS	Level 51.30m AoD	Logged By PD	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
Well		0.15			0.15	51.15	Legend	MADE GROUND: Grass over brown slightly gravelly clay topsoil with rare rootlets. Gravel is angular to subangular fine to coarse of mixed lithologies including rare coal fragments.			
		0.80 - 0.90	ES		0.80	50.50		MADE GROUND: Firm brownish grey mottled grey silty gravelly clay. Gravel is angular to subangular fine to coarse of coal, quartz and clinker.			
		1.00	SPT	N=8 (2,1/2,2,2,2)	0.90	50.40		MADE GROUND: Dark grey mottled light grey ashy clayey angular to subrounded fine to coarse gravel of coal, clinker and slag.	1		
		1.50 - 1.70	D		1.20	50.10		MADE GROUND: Soft to firm brownish grey mottled grey silty gravelly clay. Gravel is angular to subangular fine to coarse of coal, quartz and clinker.			
		1.60		HVP=18				MADE GROUND: Firm dark grey slightly gravelly sandy clay. Gravel is angular fine to medium of coal, quartz and mudstone.			
	▼	2.00	SPT	N=0 (1,0/0,0,0,0)				Legend	Becoming wet and very soft between 2.0m and 2.5m bgl inclusive.	2	
		2.20		HVP=38							
		2.40		HVP=36							
		2.50 - 2.70	D								
	▼	3.00	SPT	N=22 (3,5/5,6,5,6)						3	
	3.60	SPT	N=50 (9,10/50 for 250mm)	3.60	47.70		End of Borehole at 3.600m	4			
								5			

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

**Remarks**

- Groundwater seepages encountered within SPTs at 2.0m and 3.0sm bgl.
- Terminated upon refusal at 3.6m bgl.
- Backfilled with arisings upon completion. Grass reinstated.



## Appendix D DCWW Sewer Plan & Correspondence

PPA0005304



**LEGEND (Representative of most common features)**

	Foul chamber		Outfall
	Surface water chamber		Lamphole
	Combined chamber		Storm Overflow
	Combined sewer overflow		Rising main
	Special purpose chamber		Gravity sewer
	Treatment works		Private sewer
	Pumping station		Private sewer subject to Sect. 104 adoption agreement
	RED - Combined		Private Sewer Transfer
	GREEN - Surface Water		Lateral Drain
	BROWN - Foul		Inspection Chamber
	Purple - Former S24 sewers (for indicative purposes only)		

**Notes:**

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation.

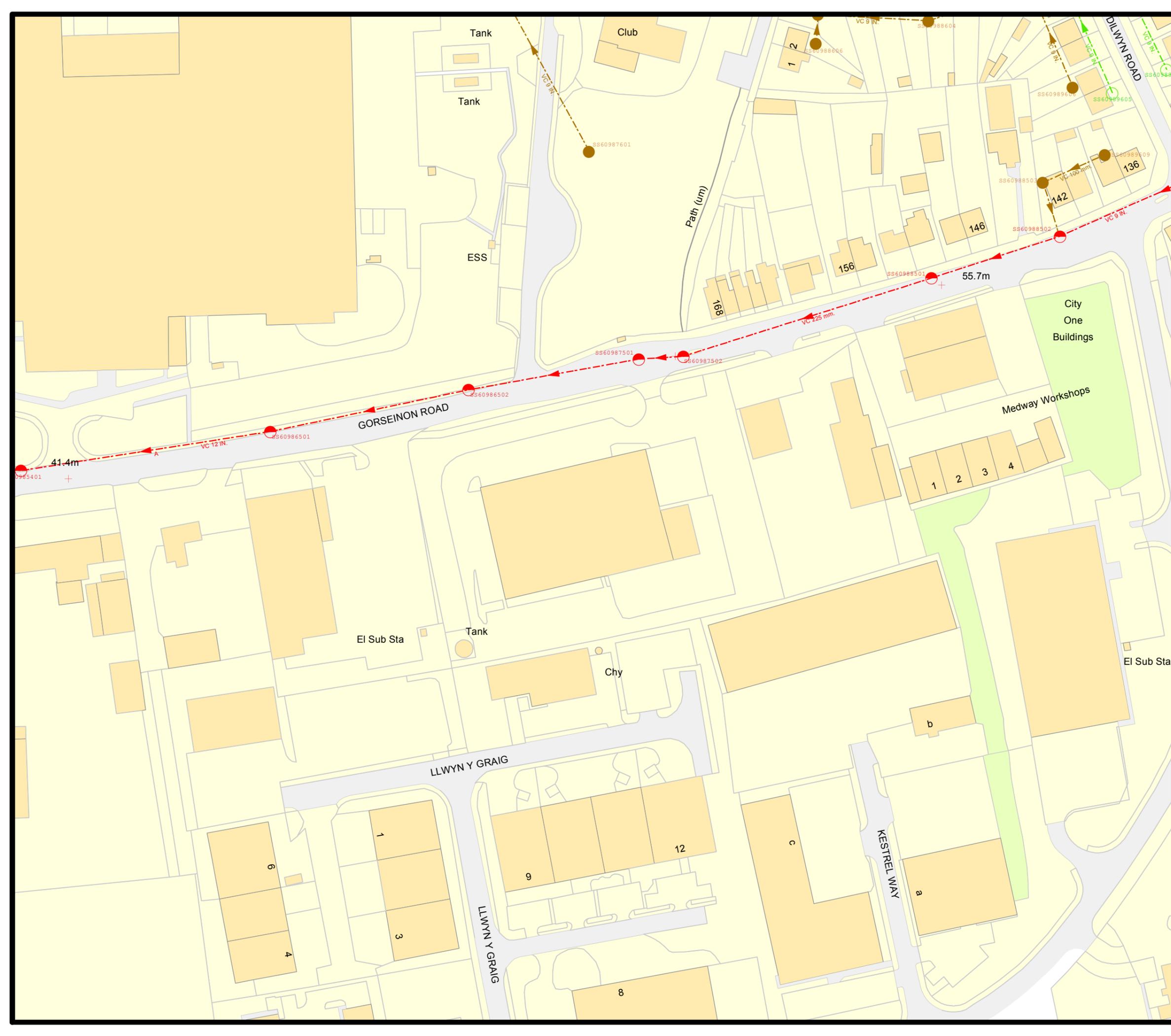
Dŵr Cymru Cyfyngedig (the Company) gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus. The onus of locating apparatus before carrying out any excavations rests entirely on you. The information which is supplied by the Company, is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 which is based upon the best information available and, in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or disposal main and any associated apparatus laid before 1 September 1989, or, if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

**EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.**

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Map Ref: 260730,198473  
Map scale: 1:1250  
Printed by: Gillian Williams  
Printed on: 24 Nov 2020



Jordan Jones  
Waterco Ltd  
Lon Parcwr Business Park  
Ruthin  
Denbighshire  
LL15 1NJ

**Date: 24/11/2020**  
**Our Ref: PPA0005304**

Dear Jordan

**Grid Ref: 260730 198473**  
**Site Address: Poundstretcher, Gorseinon Road, Swansea**  
**Development: Lidl Gorseinon, Swansea**

Firstly, we note that the pre-planning enquiry proposes to demolish the existing Poundstretcher retail unit along Gorseinon Road and build a new Lidl store which we acknowledge comprises of a potential windfall development site with no allocated status in the Local Development Plan (LDP). Accordingly, whilst it does not appear an assessment has been previously undertaken of the public sewerage system, we offer the following comments as part of our appraisal of this development.

Please note, notwithstanding the following assessment, we would advise there is also a mandatory requirement to undertake pre-application consultation with all 'Specialist Consultees', including Dwr Cymru Welsh Water as the statutory water and sewerage undertaker, in accordance with Schedule 4 of Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016. As a major development, amounting to more than 1000 sqm, you will be statutorily required to consult Welsh Water and a substantive response will be issued within 28 days from the date of the notice as per the requirements of Article 2E.

### **Public Sewerage Network**

The proposed development site is located in the immediate vicinity of a separate sewerage system, comprising combined, foul and surface water public sewers, which drains to Gowerton Wastewater Treatment Works (WwTW). This catchment discharges into national and international designated waters, comprising the Loughor Estuary which forms part of the Carmarthen Bay & Estuaries European Marine Site and is the collective name for three European 'Natura 2000' designated areas, namely Carmarthen Bay & Estuaries Special Area of Conservation, Carmarthen Bay Special Protection Area and Burry Inlet Special Protection Area.

A key fundamental issue associated with any proposed development(s) located on both the Carmarthenshire and Swansea side of the Estuary is the potential impact of any revised or additional water discharges, either foul or surface water, will have on the local drainage systems and ultimately the designated waters. Dwr Cymru Welsh Water is contributing towards improving the water quality in the Estuary by undertaking key infrastructure improvements at its Northumberland Avenue and Llanant Wastewater Treatment Works which are designed to improve arrangements for dealing with surface water, provide ultraviolet treatment and phosphate removal. Equally developers too, can also play a significant part in mitigation measures by incorporating sustainable drainage facilities within their proposals.

You are also advised that some public sewers and lateral drains may not be recorded on our maps of public sewers because they were originally privately owned and were transferred into public ownership by nature of the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011. The presence of such assets may affect the proposal. In order to assist you may contact Dwr Cymru Welsh Water on 0800 085 3968 to establish the location and status of the apparatus in and around your site. Please be mindful that under the Water Industry Act 1991 Dwr Cymru Welsh Water has rights of access to its apparatus at all times.

### **Surface Water Drainage**

As of 7th January 2019, this proposed development is subject to Schedule 3 of the Flood and Water Management Act 2010. The development therefore requires approval of Sustainable Drainage Systems (SuDS) features, in accordance with the 'Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems'. As highlighted in these standards, the developer is required to explore and fully exhaust all surface water drainage options in accordance with a hierarchy which states that discharge to a combined sewer shall only be made as a last resort. Disposal should be made through the hierarchical approach, preferring infiltration and, where infiltration is not possible, disposal to a surface water drainage body in liaison with the Land Drainage Authority and/or Natural Resources Wales.

Notwithstanding receipt of a suite of plans, including a 'Proposed Site Plan' (Drawing No. AD 051) which would appear to include areas of greenery, it is not clear how the development proposes to dispose of surface water flows. It is therefore recommended that the developer consult with the City & County of Swansea Council, as the determining SuDS Approval Body (SAB), in relation to their proposals for SuDS features. Please note, DCWW is a statutory consultee to the SAB application process and will provide comments to any SuDS proposals by response to SAB consultation albeit we would advise it is not permissible to dispose to the combined sewerage network which ultimately drains to Gowerton Wastewater Treatment Works (WwTW) for the reasons set out above.

In addition, please note that no highway or land drainage run-off will be permitted to discharge directly or indirectly into the public sewerage system. Please refer to further detailed advice relating to surface water management included in our attached Advice & Guidance note.



## **Foul Water Drainage – Sewerage Network**

We have considered the impact of foul flows generated by the proposed development and concluded that flows can be accommodated within the public sewerage system. We advise that the flows should be connected to the combined sewer at or downstream of manhole SS60987502 located at the frontage of the site along Gorseinon Road. However, with respect to the Memorandum of Understanding (MoU) requirements for the aforementioned designated waters, we remind that a strategy for surface water removal shall be implemented delivering sufficient compensation for foul flows.

Should a planning application be submitted for this development we will seek to control these points of communication via appropriate planning conditions and therefore recommend that any drainage layout or strategy submitted as part of your application takes this into account. In addition, for the purpose of any forthcoming planning application submission, we request that details are submitted for the proposed surface water removal strategy. However, should you wish for an alternative connection point to be considered please provide further information to us in the form of a drainage strategy, preferably in advance of a planning application being submitted.

You may need to apply to Dwr Cymru Welsh Water for any connection to the public sewer under Section 106 of the Water Industry Act 1991. However, if the connection to the public sewer network is either via a lateral drain (i.e. a drain which extends beyond the connecting property boundary) or via a new sewer (i.e. serves more than one property), it is now a mandatory requirement to first enter into a Section 104 Adoption Agreement (Water Industry Act 1991). The design of the sewers and lateral drains must also conform to the Welsh Ministers Standards for Foul Sewers and Lateral Drains, and conform with the publication "Sewers for Adoption"- 7th Edition. Further information can be obtained via the Developer Services pages of [www.dwrcymru.com](http://www.dwrcymru.com).

## **Foul Water Drainage – Sewage Treatment**

No problems are envisaged with the Wastewater Treatment Works for the treatment of domestic discharges from this site

## **Potable Water Supply**

A water supply can be made available to service this proposed development and recommended to utilise the existing connection point. Alternatively, the cost of providing new on-site watermains can be calculated upon the receipt of detailed site layout plans which should be sent to the above address.

I trust the above information is helpful and will assist you in forming water and drainage strategies that should accompany any future planning application. I also attach copies of our water and sewer extract plans for the area, and a copy of our Planning Guidance Note which provides further information on our approach to the planning process, making connections to our systems and ensuring any existing public assets or infrastructure located within new development sites are protected.



Please note that our response is based on the information provided in your enquiry and should the information change we reserve the right to make a new representation. Should you have any queries or wish to discuss any aspect of our response please do not hesitate to contact our dedicated team of planning officers, either on 0800 917 2652 or via email at [developer.services@dwrwymru.com](mailto:developer.services@dwrwymru.com)

Please quote our reference number in all communications and correspondence.

Yours faithfully,



**Owain George**  
**Planning Liaison Manager**  
**Developer Services**

**Enc. Water plan**  
**Sewer plan**  
**Pre planning notes**

***Please Note that demands upon the water and sewerage systems change continually; consequently the information given above should be regarded as reliable for a maximum period of 12 months from the date of this letter.***

## Appendix E Development Plans