



**LIDL GREAT BRITAIN LTD
PURBROOK WAY
HAVANT**

**FLOOD RISK ASSESSMENT &
DRAINAGE STRATEGY**

DECEMBER 2020



the journey is the reward

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HAVANT**

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DRAINAGE STRATEGY**

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**Lidl Great Britain Ltd
Purbrook Way
Havant
Flood Risk Assessment & Drainage Strategy**

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1 Introduction

- 1.1 Mayer Brown Ltd has been commissioned by Lidl Great Britain Limited (Lidl GB) to undertake a Flood Risk Assessment (FRA) and Drainage Strategy in support of a planning application for a proposed new store located at Purbrook Way in Havant.
- 1.2 According to the Landmark Flood Risk Information (Appendix C), the approx. **1.27 hectare site** is in a low risk **Flood Zone 1**.
- 1.3 As outlined in the NPPF, for development proposals on sites comprising one hectare or more in area in a Flood Zone 1, the FRA should consider i) the vulnerability of flooding from sources other than river and sea flooding, ii) the potential to increase flood risk elsewhere through the addition of hard surfaces and iii) the effect of the new development on surface water runoff.
- 1.4 This FRA considers the impact of the proposed development in addition to the common ways in which flooding can occur. The conditions currently existing in the location of the site are described, together with the methods used to identify and assess potential impacts caused by the development proposals. The mitigation measures proposed have been identified to avoid and/or reduce the impacts caused by the development proposals.
- 1.5 This FRA and drainage strategy has been compiled in accordance with the “National Planning Policy Framework (NPPF)” published by Communities and Local Government in February 2019, “Technical Guidance to the National Planning Policy Framework” and ‘CIRIA C624: Development and Flood Risk Guidance’.

BREEAM Assessment

- 1.6 The proposed new store aims to achieve a rating of Very Good under the BREEAM UK Construction 2018 02 guidance.
- 1.7 POL 03 within the BREEAM assessment specifically relates to Flood and Surface Water Management and the credits achieved are summarised below:
 - Flood Resilience (Two credits, Low flood risk) – A site specific Flood Risk Assessment (this document) confirms the development is in a flood zone that is defined as having a low annual probability of flooding. This FRA also takes all current and future sources of flooding into consideration. **2 Credits**
 - Surface Water Run-off - Rate (One credit) – For Greenfield sites, drainage measures are specified so that the peak rate of run-off from the development is not greater than

it was for the pre-development site. The peak rate of the surface water run-off from the new store will not exceed QBAR Greenfield rates. A maintenance and management plan has been produced, and a 40% allowance has been made for climate change. **1 Credit**

- Surface Water Run-off – Volume (One credit)
 - o Flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance).
 - And
 - o Drainage design measures are specified so that the post-development peak rate of run-off is reduced to the limiting discharge, where the limiting discharge is defined as the mean annual flow rate (Qbar). **1 Credit**
- Minimising Watercourse Pollution (One credit) – There is no discharge from the developed site for rainfall up to 5mm. Infiltration drainage is not possible on the Development so the proposed drainage network will discharge all surface water run-off from off-site and, as such, the criteria for not discharging the first 5mm of rainfall from the cannot be met. **0 credits**

1.8 The report shows that out of a possible 5 credits available, **4 credits** can be achieved with the overall BREEAM rating of the Development.

2 Site Location and Description

Site Location

- 2.1 The application site is located in the north west of Havant with the A3(M) running approximately 50m to the west, Purbrook Way to the south and a B&Q store to the east, refer to Appendix A for the Site Location Plan.
- 2.2 The site falls under the administrative boundary of Havant Borough Council. The postcode is PO9 3QJ and the approximate co-ordinates to the centre are E469412, N107772.
- 2.3 The area surrounding the application site is predominantly commercial and quasi-retail in its nature with a large B&Q warehouse located to the immediate east.

Topography

- 2.4 The site covers a total area of approximately 1.27 hectares and is undeveloped greenfield land.
- 2.5 A topographical survey was undertaken in June 2020 by EDI Surveys Ltd and can be seen in Appendix B. The site consists predominantly of scrub with trees around the periphery. The levels fall from north west to south east with ground levels ranging between 42.90m AOD and 36.20m AOD.

Geology

- 2.6 A Phase 2 Ground investigation report was produced by Remada Ltd in October 2020 following their intrusive site investigation works carried out in August 2020. The relevant extracts are contained in Appendix L of this report.
- 2.7 Published geological maps indicate that the site is directly underlain by London Clay of thickness 77m to 120m, which is designated as unproductive strata.
- 2.8 The site has not been previously developed but its present-day topography and historic maps indicate that is formed of a spoil heap of surplus soils. The source of spoil heap (made ground) is not known but may be due to construction of either the B&Q store or adjacent roads (Purbrook Way and/or A3(M)). This is confirmed by the made ground observed at all exploratory locations as firm to stiff orange/brown grey slightly gravelly clay to a maximum depth of 5.0m.

Existing Drainage

- 2.9 The Southern Water sewer records in Appendix D show that there are no public sewers in the vicinity of the site.
- 2.10 As explained above, there is a large existing B&Q Warehouse immediately to the east. The topographic survey identified that there are existing surface and foul water sewers that drain the B&Q access road to the west and the western part of the existing warehouse.

3 Proposed Layout

- 3.1 The proposed development is for a new Lidl supermarket with associated parking and access road. Access to the site will be via the B&Q access road off Purbrook Way. Refer to Figure 3.1 and Appendix E for the Proposed Layout.

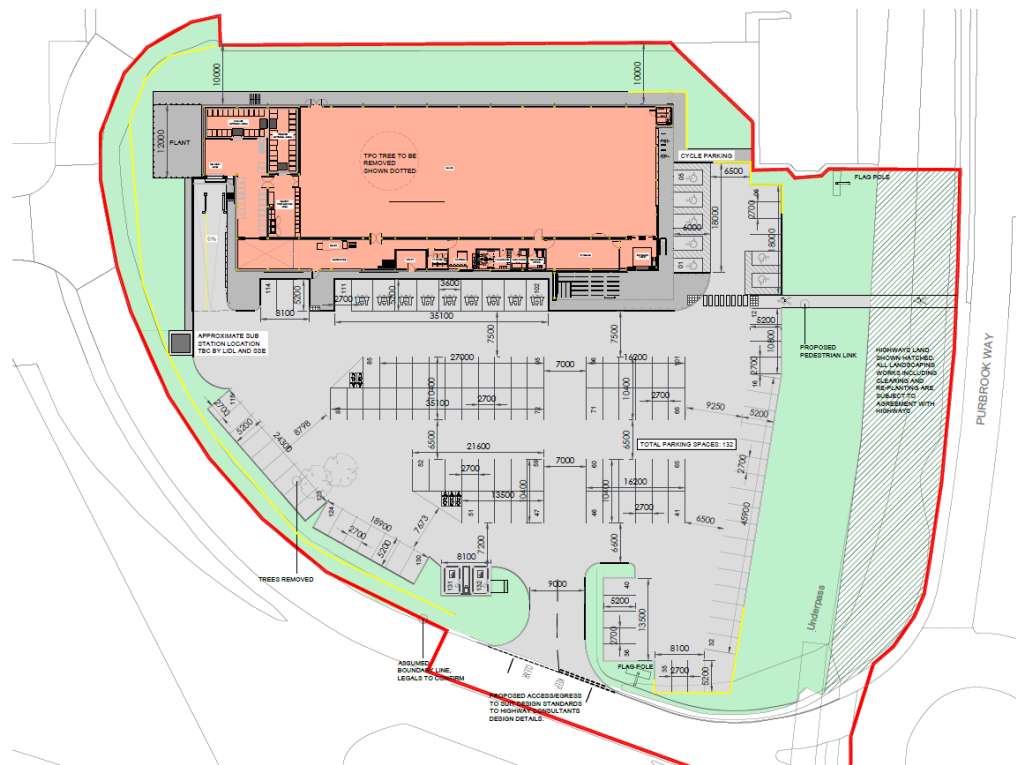


Figure 3.1: Proposed Layout

- 3.2 As shown in Figure 3.1, a large proportion of the Development will be impermeable hardstanding area with soft landscaping situated around the perimeter. The total amount of impermeable area to be positively drained is 0.79ha.
- 3.3 The development is in a low risk Flood Zone 1 area, so the proposed store and car park levels are dictated by boundary and engineering constraints as opposed to predicted fluvial or tidal levels.

4 Flood Risk and Mitigation Measures

4.1 In theory there are five principal types/sources of flooding that could affect the proposed development. These are outlined below with proposed mitigation measures described where necessary. The relevant sections and mitigation measures have come about through a review of the Havant Borough Council (HBC) SFRA, the EA flood Maps for Planning and the Landmark Flood Risk information (Appendix C).

- **Fluvial** – The site is in a low risk Flood Zone 1. This means that it has an annual probability of <0.1% of experiencing flooding from fluvial sources. There are no mitigation measures required so it will not be addressed further in this FRA.
- **Tidal** – The site is in a low risk Flood Zone 1. This means that it has an annual probability of <0.1% of experiencing flooding from tidal sources. There are no mitigation measures required so it will not be addressed further in this FRA.
- **Groundwater** – The clay layers in the London Clay Formation form a low permeability layer (aquitard) which should stop any vertical movement of groundwater. The Landmark flood information (Appendix C) and SFRA confirm the site is at a low risk of flooding from groundwater. This means that there are no mitigation measures required so it will not be addressed further in this FRA.
- **Surface Water Runoff** – The Landmark information (Appendix C) and SFRA indicate that there is a very small area at high risk of surface water flooding along the south west boundary of the site. However, the sequential approach to design has been taken so this area is not to be developed and will remain as existing. A Surface Water drainage system will be implemented which is discussed further in Section 5.
- **Infrastructure Failure** – The SFRA identifies no historic sewer flood events in the vicinity of the site. Therefore, the site is at a low risk of flooding from infrastructure failure and there are no mitigation measures required so it will not be addressed further in this FRA.

Flood Mechanism	Source	Flood Risk to the Development	Mitigation Required?
Fluvial	N/A	Low	No
Tidal	N/A	Low	No
Groundwater	Underlying geology and groundwater levels	Low	No
Surface Water / Overland Flow	Runoff from surrounding elevated land and highway corridors	Low-High	Natural flow paths to be maintained.
Infrastructure Failure	Surface water systems and Water mains	Low	No

Table 4.1: Flood Risk Summary

5 Proposed Surface Water Drainage

Existing Surface Water Drainage

- 5.1 The Southern Water sewer records in Appendix D show that there are no public sewers in the vicinity of the site.
- 5.2 There is a large existing B&Q Warehouse immediately to the east. The topographic survey identified that there are existing surface and foul water sewers that drain the B&Q access road to the west and the western part of the existing warehouse.

Infiltration & Underlying Geology

- 5.3 Published geological maps indicate that the site is directly underlain by London Clay of thickness 77m to 120m, which is designated as unproductive strata.
- 5.4 The site has not been previously developed but its present-day topography and historic maps indicate that is formed of a spoil heap of surplus soils. The source of spoil heap (made ground) is not known but may be due to construction of either the B&Q store or adjacent roads (Purbrook Way and/or A3(M)). This is confirmed by the made ground observed at all exploratory locations as firm to stiff orange/brown grey slightly gravelly clay to a maximum depth of 5.0m. (Refer to Appendix L)
- 5.5 Clay is impermeable and it is therefore considered that infiltration drainage is not suitable at the development site.

Sustainable Drainage (SuDS) and Drainage Hierarchy

- 5.6 Hampshire County Council as the Lead Local Flood Authority (LLFA) are predominantly concerned about the quantity, rate and quality of surface water run-off leaving the Development. It is proposed that surface water leaving the development should not exceed the existing greenfield QBAR rate of flow.
- 5.7 Sustainable Urban Drainage Systems (SUDS) are a range of techniques that aim to mimic the way rainfall drains in natural systems and so reduces the hydraulic and hydrological impact on the local area and downstream catchments. There are a number of options available to impose surface water restrictions on proposed development plots such as oversized sewers, below ground storage tanks, attenuation ponds and basins, swales, permeable paving, or infiltration systems.
- 5.8 To determine the most sustainable method of surface water disposal the hierarchy from approved document part H was used, see below:

- **An adequate soakaway or some other adequate infiltration system** – Infiltration drainage is not possible at the application site as it is underlain by London Clay Formation.
- **A Watercourse** – There are no watercourses in close vicinity of the site, refer to Appendix A.
- **A Sewer** – There are no public surface water sewers in the vicinity, but there is a the private 150mm diameter surface water in the B&Q access road immediately to the north of the site.

5.9 With the above in mind the proposed surface water outfall location will discharge at a restricted rate into the existing B&Q surface water sewer network in the verge of the main access. The proposed drainage strategy shows the proposed connection point and is contained in Appendix G.

Proposed Discharge Rates and Calculations

5.10 The existing greenfield rates from the 0.79 hectare of impermeable area have been calculated using microdrainage, see below (for full calculations refer to Appendix F):

- Q1 years: 2.6l/s
- Q30 years: 6.8l/s
- Q100 years: 9.6l/s
- **QBAR: 3.0l/s**

5.11 The proposed peak discharge from the completed development into the existing drainage network will be restricted to the existing QBAR rate of **3 litres / second** using a hydrobrake and tank system.

5.12 The “Source Control” function in Microdrainage has been used to calculate the volume of surface water storage within the Development, which can be seen in Appendix F.

5.13 In order to restrict the run-off to **3 litres / second** a total volume of approximately **750m³** will be required for the critical **1in100yr+40% climate change event**.

Proposed Surface Water Disposal

5.14 It is proposed to discharge surface water run-off into the existing B&Q drainage network to the north, refer to Appendix G for the proposed drainage strategy.

- Water from the roof of the building will drain via a piped network directly into the proposed new attenuation tank.
- The car park will drain via a gully system and through a petrol interceptor, to provide treatment, before discharging into the proposed new attenuation tank.

- 5.15 A hydro-brake chamber (Appendix I) will be located just downstream of the attenuation tank that will restrict the discharge to a peak rate of 3 litres / second prior to discharging off site, with excess water backing up into the attenuation tank provided.
- 5.16 The proposed attenuation tank will be a proprietary crate system chosen by the Main Contractor based on availability and price. (A typical product is the Geolight system manufactured and supplied by SDS limited as shown in Appendix H).

Surface Water Treatment

- 5.17 A petrol interceptor will be included in the surface water drainage network, which will remove any oil, silts and sediments present in the water from the car park and circulation areas prior to discharging into the sewer.

Adoption and Maintenance

- 5.18 The proposed surface water network will remain in private ownership. This should enable tight control over the operation and maintenance of the drainage/SuDS systems on site. A site specific SuDs Maintenance and Management Plan is contained in Appendix K.

Design Criteria

- 5.19 The positive drainage will be designed in accordance with Sewers for Adoption, and BS EN 752 – Drain and sewer systems outside buildings and the Building Regulations - part H (2015).
- 5.20 The surface water network design and rate of surface water runoff would be based on the Modified Rational method and designed in accordance with the Wallingford Procedure. To carry out the design of the networks, a number of Global Variables are used. These Global Variables/parameters are related to the location of the site in the UK and have been obtained from Maps for “design and analysis of urban storm drainage – Wallingford procedure”. These are as follows;
- Region = England & Wales
 - $M(5-60) = 19.50\text{mm}$
 - Ration (r) = 0.35
- 5.21 The positive surface water system would be designed such that:
- The pipes remain unsurcharged during the 1 in 2 year design storm;
 - The system should not flood during the worst case 1 in 30 year storm with a free outfall;

- The surface water run-off from the proposed development would be contained on site for up to and including the worst case 1 in 100 year storm event, plus an additional 40% for climate change;
- The pipe velocities are such that self-cleansing is achieved at lesser more moderate storm intensities :-
 - o Pipe roughness (ks) = 0.6
 - o Minimum pipe velocity at full flow = 1.00m/s
 - o Percentage Impermeable areas:
 - Buildings = 100%
 - Roads = 100%
 - Parking = 100%
 - Soft Landscaping = 0%

6 Proposed Foul Drainage

Existing Foul Drainage

- 6.1 The Southern Water sewer records in Appendix D show that there are no public sewers in the vicinity of the site.
- 6.2 There is a large existing B&Q Warehouse immediately to the east. The topographic survey has recorded the existing surface and foul water sewers that drain the B&Q access road to the west and the western part of the existing warehouse.

Proposed Foul Drainage

- 6.3 All sewers will fall on a gravity basis (no pumps required) to the proposed connection point to the B&Q existing drainage network as shown on the drainage strategy drawing in Appendix G.

Proposed Foul Flow

- 6.4 The application is for a new Lidl supermarket where the foul flows from the welfare facilities and other connections associated with a supermarket (chiller, freezer, bakery etc) are anticipated to be minimal and, as such, the downstream receiving foul network will have sufficient capacity.

7 Conclusion

7.1 The development is in a low risk Flood Zone 1 area so the proposed levels will be dictated by boundary and engineering constraints as opposed to a predicted fluvial or tidal flood level.

7.2 The development is also at low risk from flooding from the following sources: Groundwater and Infrastructure Failure (see Table 7.1):

Flood Mechanism	Source	Flood Risk to the Development	Mitigation Required?
Fluvial	N/A	Low	No
Tidal	N/A	Low	No
Groundwater	Underlying geology and groundwater levels	Low	No
Surface Water / Overland Flow	Runoff from surrounding elevated land and highway corridors	Low-High	Natural flow paths to be maintained.
Infrastructure Failure	Surface water systems and Water mains	Low	No

Table 7.1: Flood Risk Summary

7.3 The surface water run-off from the Development will discharge via a network of pipes and gullies into the existing B&Q drainage network to the north at a peak discharge rate of **3 litres / second**. The SuDS features will ensure excess water will be safely contained within the site boundary up to and including the 1 in 100 year event plus 40% climate change.

7.4 The proposed foul sewers serving the development will connect to the existing B&Q network to the north.

7.5 Surface water treatment will be provided using a petrol interceptor.

7.6 This report aims to achieve a rating of Excellent under the BREEAM UK Construction 2018 02 guidance. POL 03 relates to Flood and Surface Water management out of a possible 5 credits available, 4 credits have been met which assists with the overall BREEAM rating of the Development.

7.7 Having completed this Flood Risk Assessment and Drainage Strategy, the conclusion is that the proposed new Lidl supermarket at Purbrook Way, Havant is not at risk of flooding and can be safely constructed without flooding itself and will not increase the risk of flooding to downstream/surrounding properties.

APPENDIX A: Site Location

Property Location



Location Plan

The map below shows the location of the property.

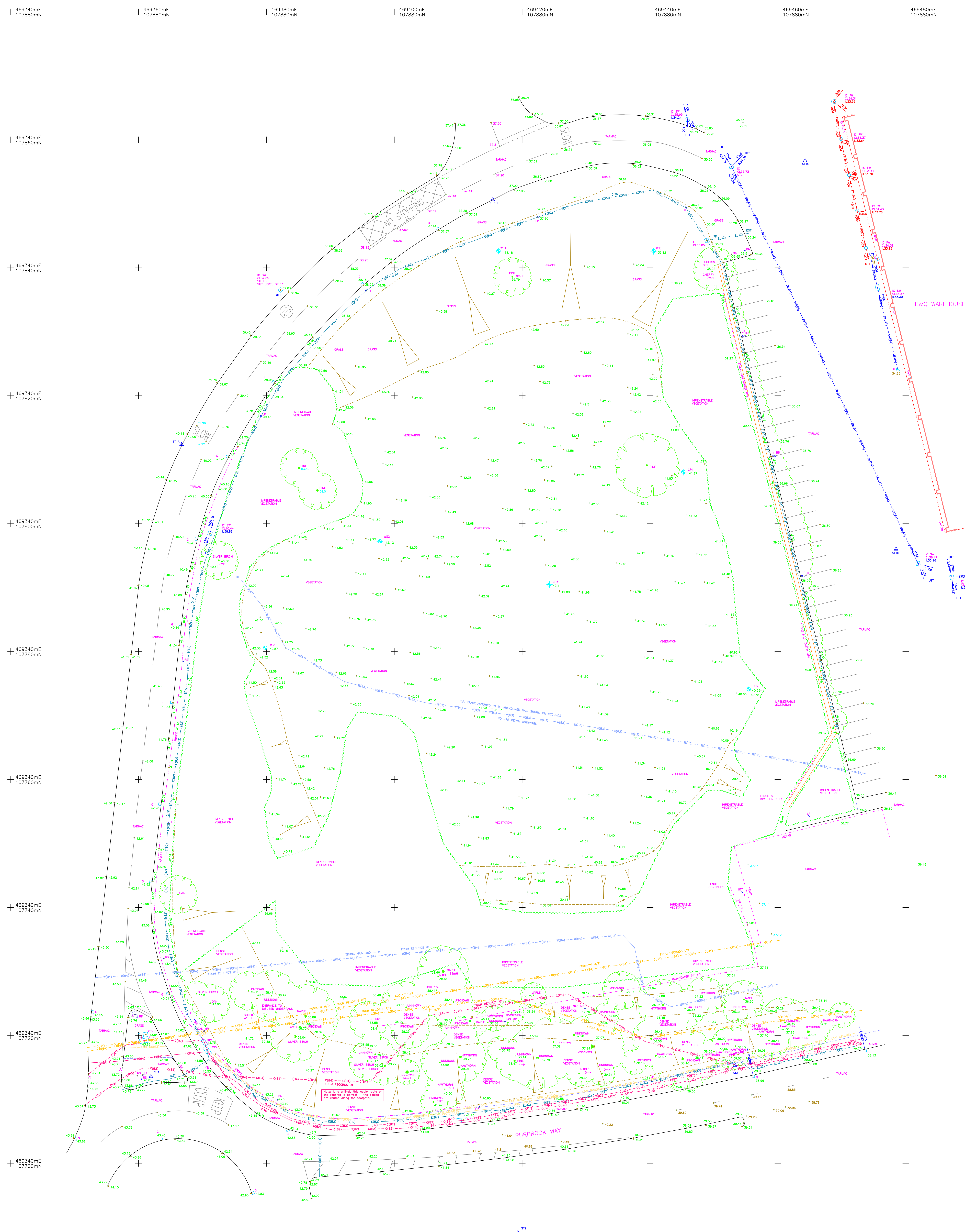
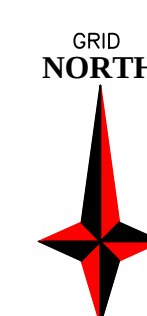


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◇ Site

○ Search Radii

APPENDIX B: Topographic Survey



NOTES:

The accuracy and content of this drawing are dependent on the original specification and ERI shall be consulted before use at other sites.

Where underground services are shown, all reasonable care has been taken within the spirit of the original specification and requirement. Before use of the information the user must satisfy themselves as to the completeness and accuracy of such data before undertaking any works. Due to the nature of this work and limitations imposed by ground conditions and the detection equipment no guarantee can be given that all services have been recorded. Trial holes should be dug at critical locations.

All reasonable care has been taken in the survey data represented on this drawing but any discrepancies must be reported to ERI immediately.

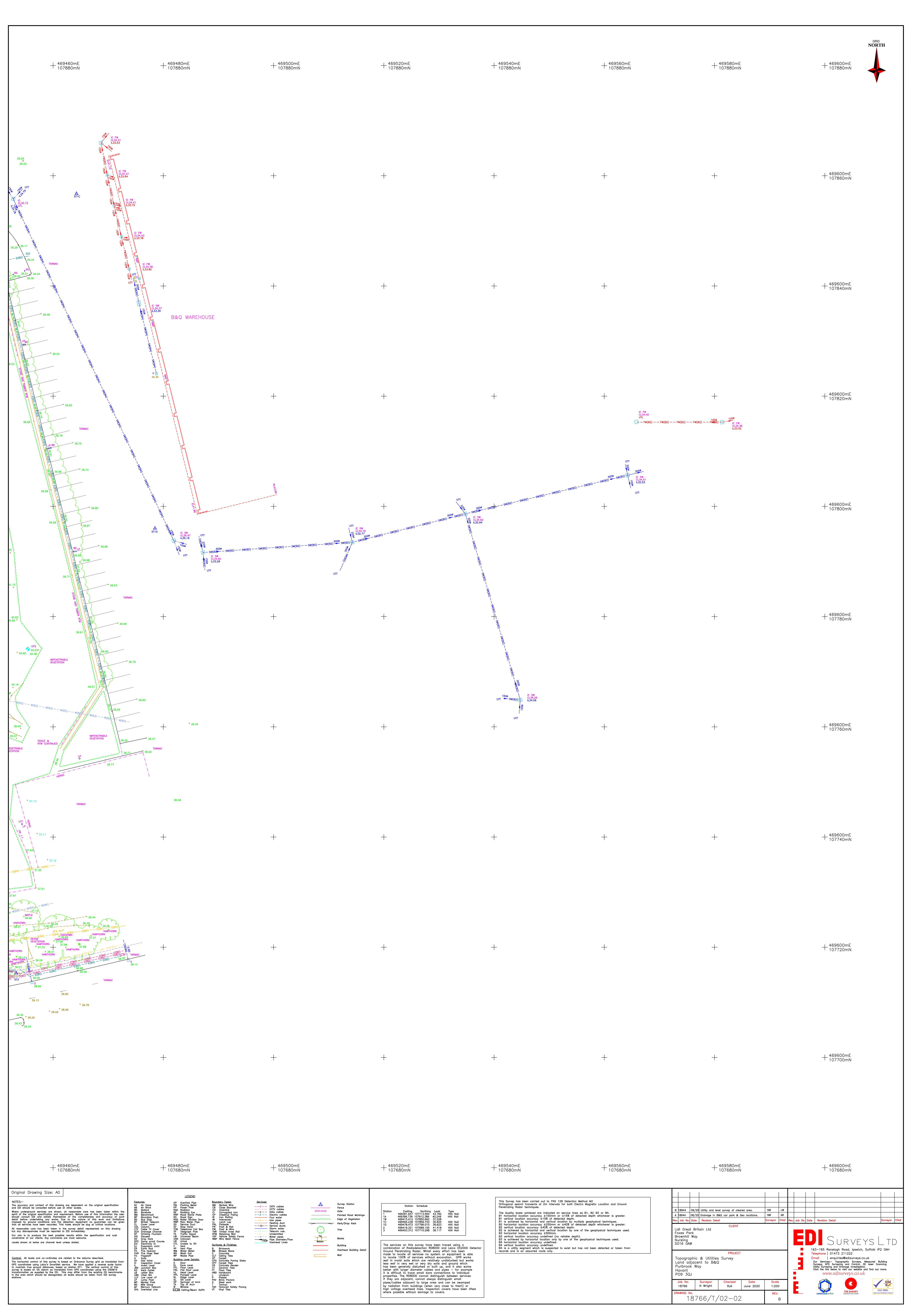
Our aim is to produce the best possible results within the specification and cost constraints of our clients. Any comments are most welcome.

Levels shown on kerbs are channel level unless stated.

[illegible][illegible][illegible][illegible]

B	1894	06/20	Utility and level survey of cleared area.	NW	AR
A	1894	08/20	Ditches in S&S car park & Geo locations.	NW	AR
Rev.	Job No.	Date	Revision Details	Surveyor	Clerk
CLIENT					
Lidl Great Britain Ltd Foxes Park Brentford Hill Mulling S16 6AW					
PROJECT					
Topographic & Utilities Survey Land adjacent to B405 Purbrook Way Haydon PO9 3QJ					
Drawn No.	Surveyor	Checked	Date	Scale	
18766	N Wright	RJA	June 2020	1:200	
DRAWING NO.				REV.	

JOB No.	Date	Revision	Detail	Surveyor	Ck'd
EDI SURVEYS LTD					
163-165 Ranelagh Road, Ipswich, Suffolk IP2 0AH					
Telephone 01473 211222					
Email enquiries@edisurveys.co.uk					
Our Services:- Topographic Survey, Measurement Building					
Contours, Spot Levels, Section Lines, 3D Street Scanning					
Utility Surveys and Drainage Investigation.					
Click the link below to visit our website and find out more					
www.edisurveys.co.uk					
  					



APPENDIX C: Flood Risk Information

Flood map for planning

Your reference
Lidl Havant

Location (easting/northing)
469394/107780

Created
18 Nov 2020 18:24

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

This means:

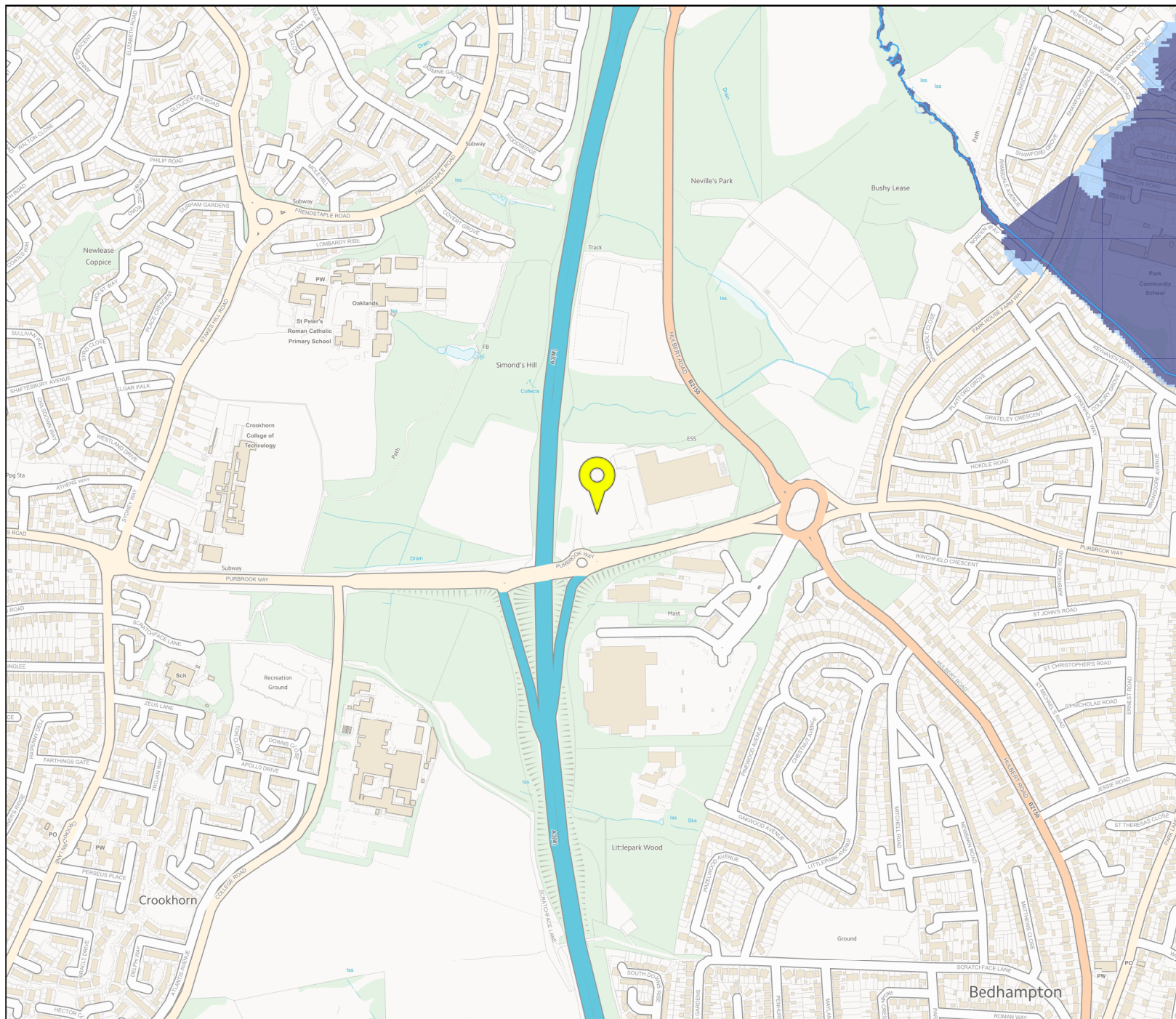
- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

Notes

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

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

The Open Government Licence sets out the terms and conditions for using government data.
<https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>



Flood map for planning

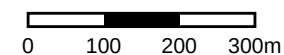
Your reference
Lidl Havant

Location (easting/northing)
469394/107780

Scale
1:10000

Created
18 Nov 2020 18:24

-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefitting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area





Section 2a: River and Coastal Flooding

No features relating to potential river and/or coastal flooding have been identified within 500m of the property. Please see the Front Page and the Professional Opinion and Recommendations section for our overall risk opinion, further information and next steps guidance.

Details	Distance	Bearing	Contact
Risk of Flooding From Rivers and Sea (RoFRS) No features identified for this property.			
Flooding From Rivers or Sea Without Defences (Flood Zone 3) No features identified for this property.			
Extreme Flooding From Rivers or Sea Without Defences (Flood Zone 2) No features identified for this property.			
Area Benefiting from Defences No features identified for this property.			
Flood Defences No features identified for this property.			

Flood



Section 2b: Surface Water Flooding

The map below shows the location of surface water flood risks within 500m of the property, with further details in the tables that follow. Please see the Front Page and the Professional Opinion and Recommendations section for our overall risk opinion, further information and next steps guidance.



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- Surface Water - 1 in 75 year return
- Surface Water - 1 in 200 year return
- Surface Water - 1 in 1000 year return



Section 2b: Surface Water Flooding

The table below provides details of potential surface water flooding identified within 500m of the property. Please see the Front Page and the Professional Opinion and Recommendations section for our overall risk opinion, further information and next steps guidance.

Details	Distance	Bearing	Contact
Surface Water Flooding Return Period: 1 in 75			
Depth of flood water: Greater than 0.3m and Less than or equal to 1.0m Data Provider: JBA Risk Management Limited	On Site	SW	1
Depth of flood water: Greater than 0.1m and Less than or equal to 0.3m Data Provider: JBA Risk Management Limited	On Site	SW	1
Depth of flood water: Greater than 1.0m Data Provider: JBA Risk Management Limited	129m	N	1
Depth of flood water: Equal to 0.1m Data Provider: JBA Risk Management Limited	282m	E	1
Surface Water Flooding Return Period: 1 in 200			
Depth of flood water: Greater than 0.3m and Less than or equal to 1.0m Data Provider: JBA Risk Management Limited	On Site	SW	1
Depth of flood water: Greater than 0.1m and Less than or equal to 0.3m Data Provider: JBA Risk Management Limited	On Site	S	1
Depth of flood water: Greater than 1.0m Data Provider: JBA Risk Management Limited	128m	N	1
Surface Water Flooding Return Period: 1 in 1000			
Depth of flood water: Greater than 0.3m and Less than or equal to 1.0m Data Provider: JBA Risk Management Limited	On Site	SW	1
Depth of flood water: Greater than 0.1m and Less than or equal to 0.3m Data Provider: JBA Risk Management Limited	On Site	SW	1
Depth of flood water: Greater than 1.0m Data Provider: JBA Risk Management Limited	126m	N	1
Depth of flood water: Equal to 0.1m Data Provider: JBA Risk Management Limited	153m	SE	1

Flood data provided by JBA Risk Management Limited. © Copyright JBA Risk Management Limited 2008-2020

What does this mean?

Surface Water Flooding Return Period: 1 in 75

This area is at risk of flooding in a 1:75 year rainfall event (an event that has a 1 in 75 chance of happening in any given year). It is expected that in this event a large amount of rainfall would overwhelm the drainage systems or be unable to soak away into the ground immediately, and would therefore gather at the areas shown on the map. The depth information above will help you understand how severe any resulting flood might be. If your property/site is within this area we would recommend you consider further investigations to clarify the impact of any flooding.

Flood

Surface Water Flooding Return Period: 1 in 200

This area is at risk of flooding in a 1:200 year rainfall event (an event that has a 1 in 200 chance of happening in any given year). It is expected that in this event a large amount of rainfall would overwhelm the drainage systems or be unable to soak away into the ground immediately, and would therefore gather at the areas shown on the map. The depth information above will help you understand how severe any resulting flood might be. If the predicted flood levels at your property/site are deep (over 1m) we would recommend you consider further investigations to clarify the impact of any flooding.

Surface Water Flooding Return Period: 1 in 1000

This area is at risk of flooding in a 1:1000 year rainfall event (an event that has a 1 in 1000 chance of happening in any given year). It is expected that in this event a large amount of rainfall would overwhelm the drainage systems or be unable to soak away into the ground immediately, and would therefore gather at the areas shown on the map. The depth information above will help you understand how severe any resulting flood might be. If the predicted flood levels at your property/site are deep (over 1m) we would recommend you consider further investigations to clarify the impact of any flooding.

Flood



Section 2c: Groundwater Flooding

The map below shows the location of groundwater flood risks within 500m of the property, with further details in the tables that follow. Please see the Front Page and the Professional Opinion and Recommendations section for our overall risk opinion, further information and next steps guidance.



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-  Groundwater Flood Risk - High Risk
-  Groundwater Flood Risk - Moderate Risk
-  Groundwater Flood Risk - Low Risk



Section 2c Groundwater Flooding

The table below provides details of potential groundwater flooding identified within 500m of the property. Please see the Front Page and the Professional Opinion and Recommendations section for our overall risk opinion, further information and next steps guidance.

Details	Distance	Bearing	Contact
Groundwater Flooding			
Risk: Low Data Provider: GeoSmart Information Ltd	286m	SW	1

What does this mean?

Groundwater Flooding

This area is considered to be at risk of groundwater flooding in a 1:100 year event. This means that in this type of rainfall event it is predicted that damage to property or harm to other sensitive receptors at, or near, this location could occur. Flooding may result in damage to property, road or rail closures and, in exceptional cases, may pose a risk to life. Further consideration of the local level of risk and mitigation, by a suitably qualified professional, is recommended.

Flood



Section 2d: Other Flooding

The map below shows the location of other flood risks within 500m of the property, with further details in the tables that follow. Please see the Front Page and the Professional Opinion and Recommendations section for our overall risk opinion, further information and next steps guidance.



- | | |
|--|--|
|  Historic Flood Events |  OS Mastermap Water Network |
|  Flood Water Storage Areas |  Flood Defences |
|  OS VectorMap District - Water Features |  Areas Benefiting from Flood Defences |



Section 2d: Other Flooding

The table below provides details of potential other flooding identified within 500m of the property. Please see the Front Page and the Professional Opinion and Recommendations section for our overall risk opinion, further information and next steps guidance.

Details	Distance	Bearing	Contact
Flood Water Storage Areas			
No features identified for this property.			
Historic Flood Events			
No features identified for this property.			
OS VectorMap District - Water Features			
Data Provider: Ordnance Survey	212m	NE	6
Data Provider: Ordnance Survey	314m	NW	6
Data Provider: Ordnance Survey	366m	NE	6
OS Mastermap Water Network			
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	106m	S	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	112m	N	6
Watercourse Level: Watercourse Name: Not Supplied Data Provider: Ordnance Survey	116m	NW	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	122m	NW	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	141m	N	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	142m	N	6
Watercourse Level: underground Watercourse Name: Not Supplied Data Provider: Ordnance Survey	142m	N	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	206m	NW	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	215m	W	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	218m	NW	6

Flood

Details	Distance	Bearing	Contact
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	228m	W	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	302m	W	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	307m	W	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	307m	W	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	314m	NW	6
Watercourse Level: Watercourse Name: Not Supplied Data Provider: Ordnance Survey	332m	W	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	332m	W	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	332m	NW	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	351m	W	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	355m	W	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	364m	NE	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	364m	NE	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	367m	NE	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	371m	NE	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	378m	NW	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	390m	NE	6

Flood

Details	Distance	Bearing	Contact
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	392m	NE	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	394m	W	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	454m	E	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	458m	S	6
Watercourse Level: Watercourse Name: Not Supplied Data Provider: Ordnance Survey	461m	S	6
Watercourse Level: Watercourse Name: Not Supplied Data Provider: Ordnance Survey	468m	N	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	473m	S	6
Watercourse Level: onGroundSurface Watercourse Name: Not Supplied Data Provider: Ordnance Survey	490m	N	6
Area Benefiting from Defences No features identified for this property.			
Flood Defences No features identified for this property.			

What does this mean?

OS VectorMap District — Water Features / OS Mastermap Water Network

Ordnance Survey Mapping has indicated that there is a water feature such as a river, stream, drain or coastal feature at this location. This may not necessarily pose a risk to the property, but if the water feature transects the property, the property owner may have maintenance responsibilities. Please see Landmark's Overall Flood Risk result to understand the expected impact on the property.

Next Steps

If you would like any further information in respect of the above findings, we recommend that you contact our Customer Services Team on 0844 844 9966 or helpdesk@landmark.co.uk. Further Information is also available in the 'Useful Information' section.

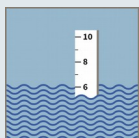
Preparation for a Flood Event

Understanding Flood Risk

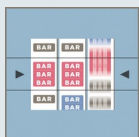
It is important to understand that flooding can happen anywhere, even if the property is not near to a watercourse or the sea. This is because in periods of very heavy rainfall, water can collect in many places where there may be a dip in the ground or a barrier blocking the water's path. Severe rainfall events can also lead to water rising from under the ground as the ground becomes saturated and water is unable to drain away naturally.

The impacts of flooding are not just financial as flooding can also devastate lives, causing both severe disruption at the time as well as continued disturbance through the drying out period in the months that follow. Therefore, it is important to consider any potential flood risk when purchasing a property.

How is the Overall Flood Risk Calculated?



Impact: We consider the expected depths of flooding at your property. Low depths, for example, 10cm, are unlikely to put people at risk but water damage to buildings and contents may be significant without any flood protection. High water depths, for example 1m, may severely threaten the safety of people and may cause extensive damage to buildings. It may be dangerous to keep deep floods out of a building because of the large weight of water pressing against the wall.



Likelihood: Flood risk is based on probability and different approaches to flood protection may be needed depending upon how likely flooding is expected. A common way of expressing how likely a flood event is to occur is 'return period'. For example, a 1:100 year event has a 1% likelihood of occurring in any given year, whereas a 1:200 year event has a 0.5% likelihood of occurring in any given year. The 1:200 event would be expected to result in a greater extent of flooding than the 1:100 event, as it would be more severe, but the likelihood of it occurring is lower.

APPENDIX D: Southern Water Sewer Records