

Lidl UK GmbH

Flood Consequence Assessment
For
Proposed Lidl Store
At
Bodhyfryd
Wrexham
Wales
LL12 7BW

Beam Consulting
14 Bond Street
Wakefield
West Yorkshire
WF1 2QP

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EXECUTIVE SUMMARY

This Flood Consequence Assessment (FCA) has been prepared for the proposed Lidl Store Bodhyfryd, Wrexham, Wales LL12 7BW.

Flood risk

Surface water flooding within the site is unlikely as the site lies within A zone however, the southern section of the proposed development may be at risk from flooding. Finished floor levels of the Lidl building will be raised to 85.3m AOD which is 500mm higher than the existing finished floor level of 85.25m AOD and maintain similar levels for the fast food restaurant which will mitigate the risk of flooding to the buildings.

The site is located some distance from the River Alyn, to the north of the site, and the River Dee, to the south of the site. Although these rivers are the main cause of river flooding in the area it is unlikely that there will flood risk on site from these rivers.

Surface water drainage

Due to the central location of the site in a built up area, infiltration and other similar SuDS systems are not suitable for this site. The SuDS Assessment has determined that surface water will be discharged to the combined sewer. The existing surface water drainage discharge point from the site is to remain, but the remainder of the existing drainage system will be removed and replaced with a new surface water system which will discharge via the existing surface water discharge point.

It is proposed to limit surface water to the greenfield run off rate of 5 litres/sec/ha. This gives a surface water discharge rate of 5.5 litres/sec. Based on this discharge rate 536m³ of underground storage would need to be provided based on a 1 in 100 year storm event plus 30% allowance for climate change. The site will be developed as two separate ownership sites. In order to ensure the surface water drainage systems are independent from each other, each site will provide proportionate surface water arrangements split between the individual buildings based on hard surface area as stated below.

Site	Hard surface area	Attenuation volume	Flow rate
Lidl	7238 m ²	447 m ³	4.6 l/sec
Fast Food	1445 m ²	89 m ³	0.9 l/sec
Totals	8683 m²	536 m³	5.5 l/sec

See Appendix F for drainage strategy drawing.

All surface water from roadways shall pass through a petrol interceptor.

The final solution to be adopted will depend on further investigation and the development of the detailed design.

Foul water drainage

The existing foul water drainage discharge from the site will remain as existing. The proposed new foul water drainage system will connect into the existing foul sewer connection on site. Based on available information on the existing buildings on site it is anticipated that the foul flows from the proposed developments will be considerably less than the existing.

The final solution to be adopted will depend on further investigation and the development of the detailed design.

1.0 INTRODUCTION

This Flood Consequence Assessment (FCA) has been prepared for the proposed Lidl Store, Bodhfryd, Wrexham, Wales LL12 7BW.

The assessment has been undertaken in accordance with the requirements of the following:

- i. Planning Policy Wales, 2002
- ii. Planning Policy Wales Technical Advice Note 15: Development and Flood Risk, July 2004.
- iii. Welsh Government "Recommended non-statutory standards for sustainable drainage (SuDS) in Wales – designing, constructing, operating and maintaining surface water drainage systems.

The Report is based on the following information:

- i. Site location
- ii. Current Clients' proposal
- iii. Development advice maps - based on the best available information considered sufficient to determine when flood risk issues need to be taken into account in planning future development. The maps are based on Natural Resources Wales extreme flood outlines and the British Geological Survey (BGS) drift data.
- iv. Consultation with Gareth Thomas, Development Planning Advisor at Natural Resources Wales letter dated 17th August 2017.
- v. Welsh Water consultation response of 31st August 2018 (see Appendix D)

All comments and opinions contained in this report, including any conclusions are based on information available to Beam Consulting Engineers during investigations prior to completion of the report. Conclusions drawn by Beam Consulting Engineers may differ if the available information is subsequently found to be inaccurate, incomplete or misleading. Beam Consulting Engineers accept no responsibility should this prove to be the case, nor if additional information exists or becomes available in relation to this site.

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- i. The date on which the assessment was undertaken, and
- ii. The date on which the report is issued.

Beam Consulting Engineers make no representation whatsoever in relation to the legal significance of findings reported or any legal matters referred to in the following report.

This document is a risk assessment of flooding issues associated with the noted site. The information presented and recommendations/conclusions stated are based on published statistical data and are for guidance only. The statements provide no guarantee against flooding of the site or elsewhere, nor as to the absolute accuracy of water levels, flow rates and associated probabilities referenced.

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2.0 BACKGROUND INFORMATION

The site is located off Bodhfryd, Wrexham, Wales LL12 7BW.

National Grid reference for the site is 333753, 350700.

2.1 EXISTING DEVELOPMENT

The site is currently developed as Wrexham Police Station with associated access road and car parking areas. The total site area is 10974m².

The existing site topographical survey and existing drainage drawings are enclosed in Appendix A. Based on the existing drainage drawing the existing foul water and surface water drainage discharge from the current development into the foul water and surface water systems for the whole site and the local drainage network. The proposed development is a part of a larger site which includes the existing Police Station.

2.2 PROPOSED DEVELOPMENT

It is proposed to demolish the existing Police Station buildings but not the Court buildings, and build a new Lidl store on part of the site with a fast food restaurant adjacent. This will involve reconfiguring the existing access road and car parking to provide additional car parking spaces with an increase in the impermeable area from 7964m² to 8683m², an increase of 719m².

The existing drainage to the car park and buildings will be removed with the exception of the last foul water and surface water manholes on site, these are to remain and the proposed surface water and foul water system will connect into them.

It is proposed to limit the surface water discharge from the site to the existing discharge less 30% for betterment, which gives a proposed discharge rate of 77.5 l/s. See calculations in appendix F.

The overall site impermeable area is to be increased by 719m² as part of the redevelopment, therefore the total new site impermeable area is 8683m² with 2291m² of landscaped area.

The proposed site layout drawing is enclosed in Appendix B.

3.0 FLOOD RISK

3.1 RISK OF FLOODING OF DEVELOPMENT SITE

The flood risk and site drainage assessment is based on the following sources of information:

- i. EA online Flood Maps:
 - a. The site is located within Flood Zone A as defined by the development advice map referred to under TAN15 (see map in Appendix C and a section of Figure 1 from TAN15 below).

Description of Zone		Use within the precautionary framework
Considered to be at little or no risk of fluvial or tidal/coastal flooding.	A	Used to indicate that justification test is not applicable and no need to consider flood risk further.

- ii. Consultation with Gareth Thomas, Development Planning Advisor at Natural Resources Wales (key notes from letter dated 17th August 2017 below, full attached in Appendix D):
 - a. The site lies entirely with Zone A and is therefore outside the extreme flood outline.
 - b. Some areas of the site could be at risk from surface water flooding and therefore mitigation measures for the redevelopment should be considered.
 - c. Drainage from areas used for delivery vehicles, servicing, washdown and waste storage must go into the foul drainage system.

Surface water flooding within the site is unlikely as the site lies within A zone however, the southern section of the proposed development may be at risk from flooding. It is proposed to raise the finished floor levels of the Lidl store to 85.3m AOD which is 500mm higher than the existing finished floor level of 85.25m AOD and maintain similar levels for the fast food restaurant. This will assist in mitigating the risk of flooding to the buildings.

3.2 JUSTIFICATION / SOURCES OF FLOODING AND FLOOD RISK

Sources of flooding	Flood risk
Streams and rivers Flooding that can take place from flows that are not contained within the channel due to high levels of rainfall in the catchment.	No flows or streams are present within the site boundary. To the north of the site, at some distance, lies the River Alyn and River Dee lies, at some distance, to the south of the site. Both of these rivers contribute to local flooding.
Coastal or estuarine Flooding that can occur from the sea due to a particularly high tide or surge, or combination of both.	The site is located at some distance from the coastline/River Alyn. See comments above for streams and rivers.
Groundwater Where the water table rises to such a height where flooding occurs. Most common in low-lying areas underlain by permeable ground (aquifers), usually due to extended periods of wet weather.	The site is located in an area that is not at risk of flooding from groundwater.
Sewers and highway drains Combined, foul or surface water sewers and highway drains that are temporarily over-loaded due to excessive rainfall or due to blockage.	The roads next to the site and adjacent developments have their own drainage systems in place. In the case of them being temporarily over-loaded due to excessive rainfall or due to blockage the water is collected within highways, car parks or grassed areas.
Surface water The net rainfall falling on a surface (on or off the site) which acts as runoff which has not infiltrated into the ground or entered into a drainage system.	There are pockets of grassed areas in the area surrounding the site, to the north of the site is the Garden Village. To the southwest of the site is a large car park. The surrounding area is a mixture of residential and retail. From the east round to the west of the site are larger retail units, for example an Asda supermarket. The roads next to the site and adjacent properties have their own drainage systems in place. In excessive rainfall or due to blockage the water is collected within highways, car parking or grassed areas.
Infrastructure failure Canals, reservoirs, industrial processes, burst water mains, blocked sewers or failed pumping stations.	Surface water, Sewers and highway drains Comments above apply.

3.3 JUSTIFICATION / SEQUENTIAL AND EXCEPTION TEST

Possible Hazard	Comments/ Remediation
A. Effect of Development on General Flood Risk Flooding caused to local sources - natural watercourses on or near to the site?	The surface water discharge from the site is into the existing sewer connection along the eastern boundary of the site. The proposed redevelopment shall have its own drainage system in place with onsite storage. In excessive rainfall or due to blockage the water shall be collected within highway, car park or landscaped areas.
B. Effect of Development on General Flood Risk Flooding caused to local sources - run-off from adjacent properties/ adjoining land, or overland flow	The adjacent properties to the site have their own drainage systems in place with the exception of the grassed area to the north of the site. In excessive rainfall or due to blockage the water is collected within highways, car parks or grassed/landscaped areas. Overland flow is unlikely in this area.
C. Contribution to Flood Flows from Development Drainage Flooding caused to adjacent properties from surface run-off from hard-paved areas.	The proposed development shall have its own drainage system in place. In excessive rainfall or due to blockage the water shall be collected within highway, car park or landscaped areas.
D. Contribution to Flood Flows from Development Flooding caused to 3rd party properties	The proposed development shall have its own drainage system in place. In excessive rainfall or due to blockage the water shall be collected within highway, car park or landscaped areas.
E. Benefit of Site Development to the Wider Community over Flood Risk	The proposed development shall have its own drainage system in place. In excessive rainfall or due to blockage the water shall be collected within highway, car park or landscaped areas.
F. Does an alternative site exist for the development?	The site is a redevelopment of the existing Police Station and it has sufficient space to accommodate the proposed Lidl store a fast food drive through within the existing boundary of the site and is at a suitable location. There is no alternative site.
G. Can the site be made safe?	The proposed development shall have its own drainage system in place. In excessive rainfall or due to blockage the water shall be collected within highway, car park or landscaped areas.

4.0 DRAINAGE ASSESSMENT AND STRATEGY

4.1 HEIRARCHY OF SURFACE WATER DISPOSAL

The surface water from the development should be discharged to one or more receptors in priority order. In accordance with the Welsh Government's publictaion "Recommended non-statutory standards for sustainable drainage (SuDS) in Wales – designing, constructing, operating and maintaining surface water drainage systems". The surface water disposal arrangements on this site have been considered in the following order of priority:

- Priority 1 Surface water collected for use
- Priority 2 Discharge to ground (infiltration)
- Priority 3 Discharge to a surface water body
- Priority 4 Discharge to a surface water sewer, or highway drain
- Priority 5 Discharge to a combined sewer.

4.2 SUDS ASSESSMENT

The proposed development has been assessed for the use of sustainable urban drainage systems on the basis of the Heirarchy of Surface Water Disposal set out above.

Surface water collected for use

This use is discounted due to the requirement for a disproportionately expensive and robust maintenance regime for the lifetime of the development.

Infiltration (soakways and/or infiltration basins)

The use of soakaways etc is generally an ideal SuDS solution for appropriate developments. This has been discounted for two reasons. There are diesel tanks on the current site that will require removal which will have at least some risk of contamination and there is made ground present across most of the site. This would require the positioning of the soakaways to be some depth, ie up to 2m below existing ground level, below car parks and due to the size of soakaways that would be required the installation of soakaways would be very expensive and present challenging future maintenance operations. On this basis soakaways have been discounted as a viable solution.

Ponds and Wetlands

This site is within an area of significantly developed urban area. Construction of relatively large ponds and wetlands is inappropriate in this area.

Detention Basins

This development site in an urban setting would be an inappropriate use of a retention basin. Land take for a detention basin, based on the attenuation requirement, on this urban site would be disproportionately large.

Swales

Green SuDS on this isolated urban site have been discounted as inappropriate. In addition, any green SuDS technique on a site of this nature would require regular maintenance for which a management company would have to be responsible. For this site, this would not be the best SuDS solution.

French Drains

There is not an appropriate location to introduce such drains on this site.

Pervious Pavements

Infiltration on site has been discounted due to ground conditions and so the use of infiltration pervious pavements has been discounted. Pervious pavements with a waterproof lining and an outlet to the surface water drainage system could be used within the driveway areas, which may contribute a small volume to the attenuation requirement however this could only ever be a very small part of an attenuation system and would require a disproportionately expensive and robust maintenance regime for the lifetime of the development.

Surface water sewer or highway drain

The nearby drains are combined sewers and highway drains. Telephone consultation with Neil Tawnt (LLFA) of Wrexham Council has indicated that connection to the highway drainage system was likely to be inappropriate. On this basis connection to surface water and/or highway drains has not been considered further.

Combined sewer

There are adjacent combined sewers which are considered as the only appropriate way forward. This is the basis of further considerations in this document.

4.3 SURFACE WATER DRAINAGE

Based on existing drainage information (enclosed in Appendix A) the existing foul drainage discharges into an existing sewer to the south of the site. Surface water discharge from the current development is 110.7 l/s and discharges into the combined sewer along the site boundary to the east of the site. On the existing site drainage plan there are what appear to be soakaways, but these are all ineffective.

The overall site area is to remain as existing 10974m². The total impermeable area is to increase by approximately 719m² to 8683m². The remaining 2291m² is to be landscaped areas.

Following the SuDS Assessment above surface water will be discharged to the combined sewer .

The existing surface water drainage discharge point from the site is to remain, but the remainder of the existing drainage system will be removed and replaced with a new surface water system which will discharge via the existing surface water discharge point.

It is proposed to limit surface water to the greenfield run off rate of 5 litres/sec/ha. This gives a surface water discharge rate of 5.5 litres/sec. Based on this discharge rate 536m³ of underground storage would need to be provided based on a 1 in 100 year storm event plus 30% allowance for climate change. See calculations in appendix F.

The site will be developed as two separate ownership sites. In order to ensure the surface water drainage systems are independent from each other, each site will provide proportionate surface water arrangements split between the individual buildings based on hard surface area as stated below.

Site	Hard surface area	Attenuation volume	Flow rate
Lidl	7238 m ²	447 m ³	4.6 l/sec
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Totals	8683 m²	536 m³	5.5 l/sec

See Appendix F for drainage strategy drawing.

All surface water from roadways shall pass through a petrol interceptor.

The final solution to be adopted will depend on further investigation and the development of the detailed design.

4.4 FOUL WATER DRAINAGE

The existing foul water drainage discharge from the site will remain as existing. The proposed new foul water drainage system will connect into the existing foul sewer connection on site. Based on available information on the existing buildings on site it is anticipated that the foul flows from the proposed developments will be considerably less than the existing.

See Appendix F for drainage strategy drawing.

The final solution to be adopted will depend on further investigation and the development of the detailed design.

5.0 RECOMMENDATIONS

Based on the Flood Consequence Assessment recommendations are as follows:

Flood risk

Surface water flooding within the site is unlikely as the site lies within A zone however, the southern section of the proposed development may be at risk from flooding. It is proposed to raise the finished floor levels of the Lidl store to 85.3m AOD which is 500mm higher than the existing finished floor level of 85.25m AOD and maintain similar levels for the fast food restaurant. This will assist in mitigating the risk of flooding to the buildings.

The site is located some distance from the River Alyn, to the north of the site, and the River Dee, to the south of the site. Although these rivers are the main cause of river flooding in the area it is unlikely that there will flood risk on site from these rivers.

Surface water drainage

Due to the central location of the site in a built up area, infiltration and other similar SuDS systems stated previously are not suitable for this site. The SuDS Assessment has determined that surface water will be discharged to the combined sewer. The existing surface water drainage discharge point from the site is to remain, but the remainder of the existing drainage system will be removed and replaced with a new surface water system which will discharge via the existing surface water discharge point.

It is proposed to limit surface water to the greenfield run off rate of 5 litres/sec/ha. This gives a surface water discharge rate of 5.5 litres/sec. Based on this discharge rate 536m³ of underground storage would need to be provided based on a 1 in 100 year storm event plus 30% allowance for climate change. See calculations in appendix F.

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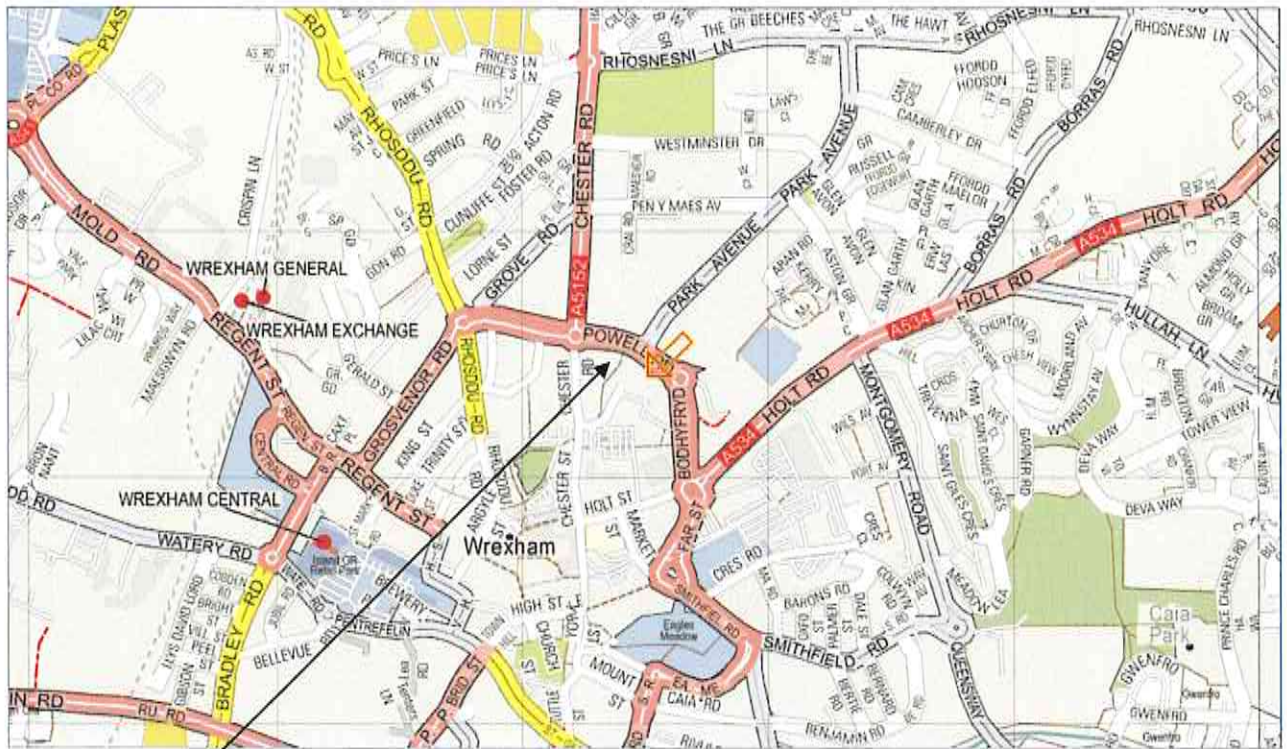
The final solution to be adopted will depend on further investigation and the development of the detailed design.

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The final solution to be adopted will depend on further investigation and the development of the detailed design.

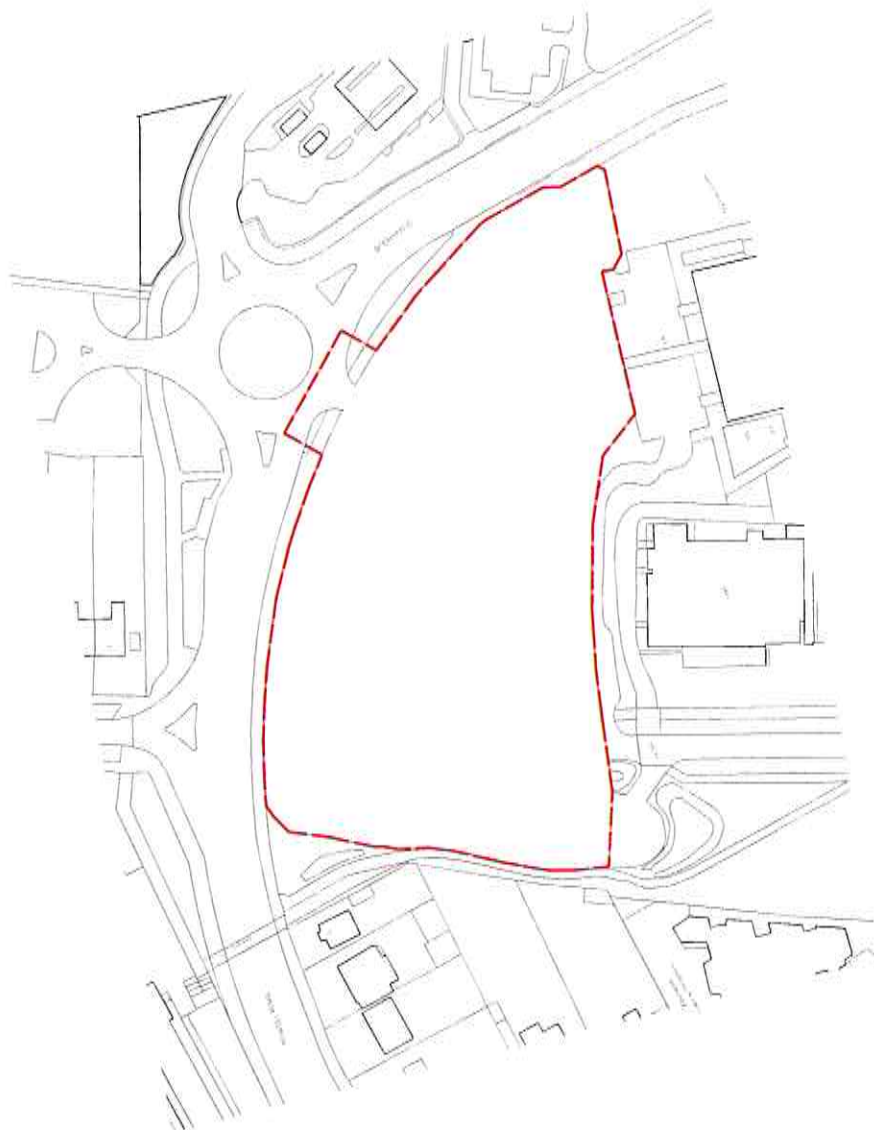
APPENDIX A: EXISTING SITE LOCATION, EXISTING DRAINAGE DRAWINGS, TOPOGRAPHICAL AND DRAINAGE SURVEY DRAWINGS



Site location

IMPORTANT INFORMATION

Dimensions to be confirmed on site prior to start of works and CDMS is to be informed of discrepancies immediately. No dimensions to be scaled from the drawing.
All materials and works are to be carried out in accordance with current British Standards, Planning Approval, current Building Regulations and Codes of Practice.
Party Wall Act - The Party Wall Act 1994 is to be signed by the property owner or appointed third party by property owner.
Health and Safety - CDMS 2015 Regulations apply to all construction works to the site and all parties working on site must comply with the duties. As such all parties have duties under these regulations.



STATUS: PLANNING

Client
LDL UK GMBH - RUNCORN, WA7 1SE

Project
BODINFERED, WRENNHAM

Title
LOCATION PLAN

Job No. 14025
Drawing No. AD 100
Drawn by SBH
Checked by SPH
Date JUNE 2018
Scale 1:1250
Sheet A3

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SCALE 1:1250 @ A3

DRAINS



2010-2011		
Year	Value	Unit
2010	100,000,000	USD
2011	120,000,000	USD
2012	150,000,000	USD
2013	180,000,000	USD
2014	200,000,000	USD
2015	220,000,000	USD
2016	240,000,000	USD
2017	260,000,000	USD
2018	280,000,000	USD
2019	300,000,000	USD
2020	320,000,000	USD
2021	340,000,000	USD
2022	360,000,000	USD
2023	380,000,000	USD
2024	400,000,000	USD
2025	420,000,000	USD
2026	440,000,000	USD
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2063	1,180,000,000	USD
2064	1,200,000,000	USD
2065	1,220,000,000	USD
2066	1,240,000,000	USD
2067	1,260,000,000	USD
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2079	1,500,000,000	USD
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2089	1,700,000,000	USD
2090	1,720,000,000	USD
2091	1,740,000,000	USD
2092	1,760,000,000	USD
2093	1,780,000,000	USD
2094	1,800,000,000	USD
2095	1,820,000,000	USD
2096	1,840,000,000	USD
2097	1,860,000,000	USD
2098	1,880,000,000	USD
2099	1,900,000,000	USD
2100	1,920,000,000	USD

[illegible][illegible]

QUESTION The following are the four types of **business forms** that are used in the business world. Which one is the most common?

ANSWER The most common business form is the **invoice**.

EXPLANATION The invoice is the most common business form because it is used to bill customers for goods and services. It is also used to track sales and manage accounts receivable.

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APPROVALS			
January			
1	1/1	1/1	1/1
2	2/1	2/1	2/1
3	3/1	3/1	3/1
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99	99/1	99/1	99/1
100	100/1	100/1	100/1

[illegible]

Job#	L33			
Project	Rochester, NY Wastewater LL12 TAG			
Contract Number	Overstay CL#12 Utility Survey			
First Date of Service	27th March 2018			
Monthly Volume (Yard)	Customer	City	State	Zip Code
1000	1000	1000	1000	1000
Project Manager	Project Manager	Project Manager	Project Manager	Project Manager
4054-0318-01				00

Project Name: Topographical Survey & Legend Client: UCL UK CASH Location: DISTRIBUTION CENTRE, EAST GATE WAY, MANOR PARK, BARNET, HAT FIE Survey No: 500001		Scale: 1:1000 Units: Metres		Survey Date: 11/12/2009 Survey Time: 10:00 AM		Surveyor: WILSON HUGHES Check: WILSON HUGHES		Client: UCL UK CASH Location: DISTRIBUTION CENTRE, EAST GATE WAY, MANOR PARK, BARNET, HAT FIE Survey No: 500001		Scale: 1:1000 Units: Metres		Survey Date: 11/12/2009 Survey Time: 10:00 AM		Surveyor: WILSON HUGHES Check: WILSON HUGHES		Client: UCL UK CASH Location: DISTRIBUTION CENTRE, EAST GATE WAY, MANOR PARK, BARNET, HAT FIE Survey No: 500001		Scale: 1:1000 Units: Metres		Survey Date: 11/12/2009 Survey Time: 10:00 AM		Surveyor: WILSON HUGHES Check: WILSON HUGHES	
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APPENDIX B: PROPOSED SITE DRAWINGS



SCHEDULE	
5 Auto Store with W/E Entrance	
Ancillary	246 m ²
Warehouse	555 m ²
5965 Area	1325 m ²
GF GIA	2125 m ²
GF GFA	2206 m ²
Total Site Area Red	9044 m ²
Total Site Area Blue	1930 m ²
Combined Site Area Red & Blue	10974 m ²
166 Standard Parking Spaces	106 no. spaces
166 Disabled Parking Spaces	7 no. spaces
166 P&T Parking Spaces	8 no. spaces
166 Total Parking Spaces	121 no. spaces
Drive into Standard Parking Spaces	26 no. spaces
Drive into Disabled Parking Spaces	2 no. spaces
Drive into Total Spaces	30 no. spaces
Site Overall Total Spaces	150 no. spaces
Trolley Bay	1 no. bay

STATUS: PLANNING

Client: JIA UK GWH - RUNCORN WAT VE

Project: RUNCORN WAT VE

Drawn by: JIA

Checked by: JIA

Date: JUNE 2018

Scale: 1:500

Sheet: A1

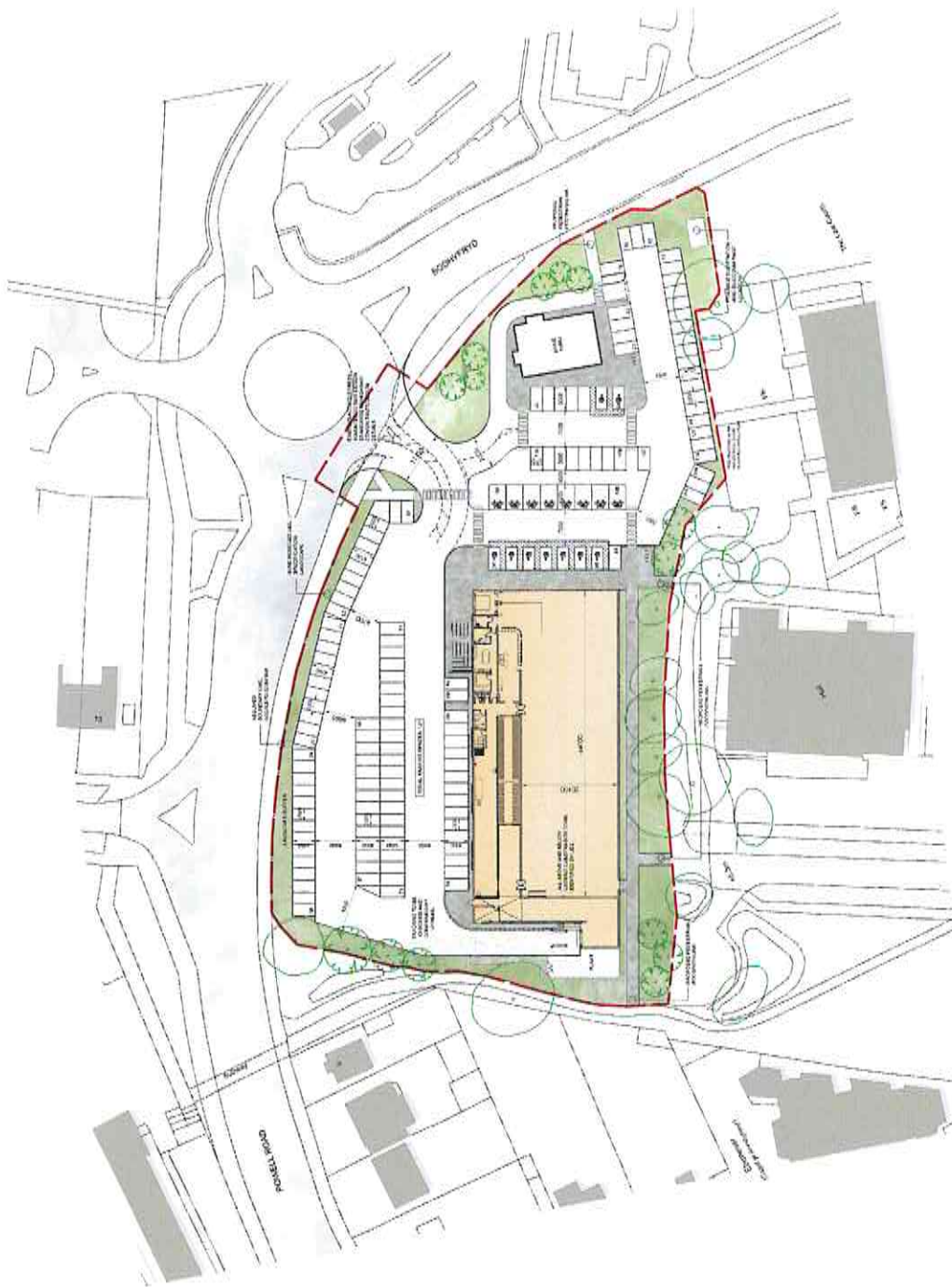


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Registered Practice

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Registered Practice



SITE LAYOUT KEY

APPLICATION SITE BOUNDARY

PROPOSED ZONE

PROPOSED LANDSCAPED AREAS
REFER TO DRAWING NO. 16055
AND 114 LANDSCAPE DESIGN

PROPOSED DRIVERS
ACCESS STEPS

FOOTPATHS

DISABLED PARKING

PARENT AND CHILD PARKING

CYCLE PARKING

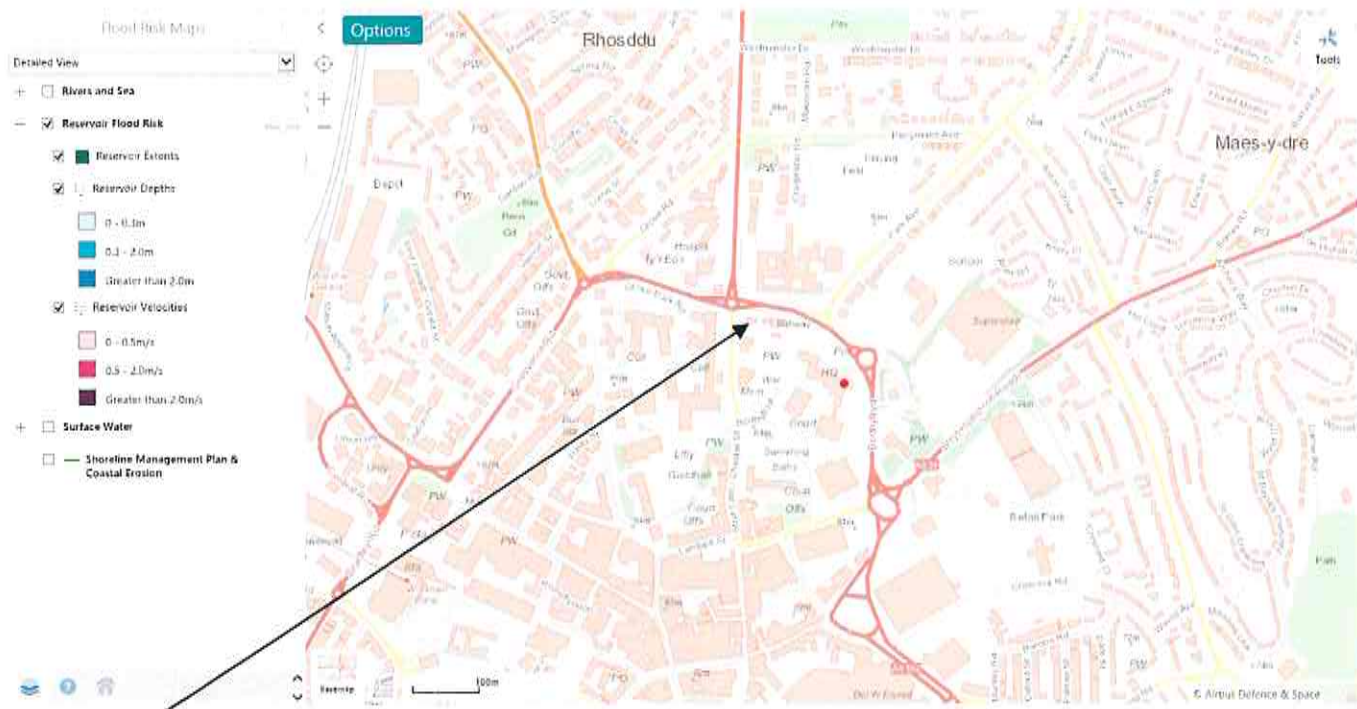
ZEBRA CROSSING WITH
FACILITATED PAVING

HGV WHEEL GUIDES

TROLLEY BAY

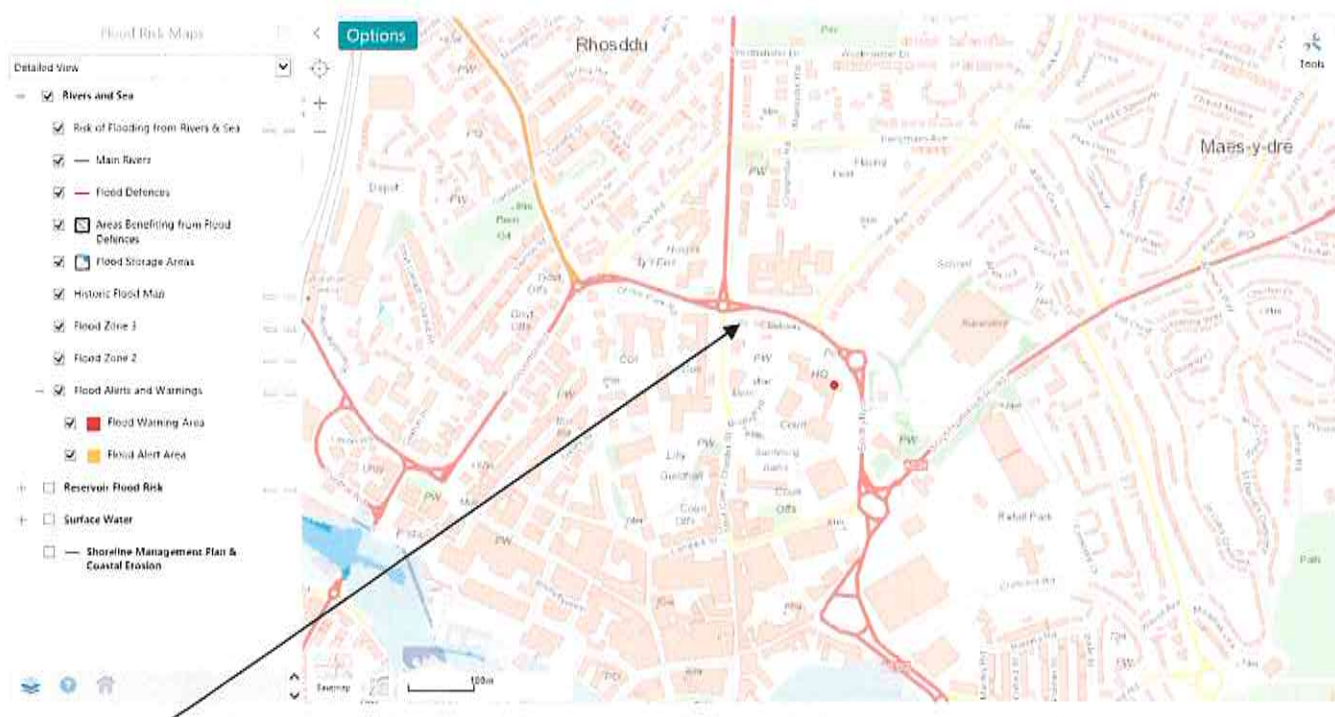
APPENDIX C: FLOOD MAPS

Risk of Flooding from Reservoirs



Site location

Risk of Flooding from Rivers and Sea



Site location

Risk of Flood from Surface Water



Site location

APPENDIX D: CORRESPONDENCE



**Cyfoeth
Naturiol
Cymru
Natural
Resources
Wales**

Ein cyf/Our ref: CAS-36308-Z8S0

Maes y Ffynnon
Penrhosgarnedd
Bangor
LL57 2DW

Ebost/Email: NorthPlanning@cyfoethnaturiolcymru.gov.uk
Ffôn/Phone: (0300) 065 3786

Katie Abbott, Senior Engineer
Beam Consulting
14 Bond Street
Wakefield
West Yorkshire
WF1 2QP

Date: 7th August 2017

Dear Ms Abbott,

**Proposed Supermarket
Bodhyfryd, Wrexham, LL12 7BW**

Thank you for your enquiry regarding the above proposal, which we received on the 19th July 2017.

We have considered your enquiry in relation to our Development Planning [checklist](#). We advise that the following matters are relevant to your site / proposed development and suggest you consider these further prior to the submission of any planning application:

Flood Risk

The site lies entirely in Zone A as defined by Welsh Government's Development Advice Map referred to within TAN15: Development & Flood Risk. Our Flood Map information confirms that the site lies outside of the extreme flood risk outline. The updated Flood Map for Surface Water Flooding indicates that some portions of the site could be at risk from surface water flooding, and therefore you may consider it appropriate to include mitigation measures within the re-developed site to reduce flood risks from this source. This could be assessed within the Flood Consequences Assessment, that we understand you have been commissioned to undertake.

In relation to the management of surface water runoff, we would recommend that you refer to Wrexham County Borough Council's "Management of Surface Water Generated from New Development" guidance. Early liaison with the Council's Flood and Water Management Team, who act as the Lead Local Flood Authority, is encouraged.

https://www.wrexham.gov.uk/english/planning_portal/publications/surface_water.htm

European Protected Species (EPS)

Our records show there may be protected species (bats) in the vicinity of the site. We advise liaison with the LPA ecologist to discuss and agree the scope of any surveys required.

We refer you to our [website](#) for further advice.

Foul Drainage

As the site is within a sewered area, we would fully expect for the foul drainage of the proposed development to connect to the main sewer.

Drainage from any areas used for delivery vehicles, servicing, washdown or waste storage purposes must drain to foul sewer.

Environmental Management

Any waste excavation material or building waste generated in the course of the development must be disposed of satisfactorily in accordance with duty of care requirements under section 34 of the Environmental Protection Act 1990. The waste shall be transported using registered waste carriers to suitably permitted or exempt sites. Transfer notes shall be kept for each load for a minimum of 2 years.

We recommend that a Site Waste Management Plan (SWMP) is drawn up prior to scheme's commencement in order to ensure full duty of care is complied with. Waste should be reused on site where possible. The SWMP should incorporate a monitoring system for wastes removed from site for reuse or disposal.

We request that all piped surface water drainage from the parking area, or areas where spills of oil may occur is passed through an oil interceptor, prior to discharge into the surface water drainage system.

Please note the view expressed in this letter is a response to a pre-planning enquiry only. We trust these comments will prove helpful but they should not set a precedent for any future Natural Resources Wales' response to any formal application for planning permission or other legal consent. Such applications shall be assessed on the information submitted and regulations of relevance at that time. The details contained in this letter are based on the information available to date. We advise that in addition to planning permission, it is the applicant's responsibility to ensure that they secure all other permits/consents relevant to their development.

If you have any queries concerning the above, please contact me on the details below.

Yn gywir / Yours' faithfully,



Mr. GARETH THOMAS

Cynghorydd Cynllunio Datblygiad / Development Planning Adviser

Ebost/Email: NorthPlanning@cyfoethnaturiolcymru.gov.uk

Deialu uniongyrchol/Direct dial: (0300) 065 3786 **Siaradwr Cymraeg / Welsh Speaker** 🇬🇧

Wrexham County Council
16 Lord Street
WREXHAM
LL11 1LG

Date: 31/08/2018
Our Ref: PLA0036654
Your Ref: P/2018/0675

Dear Sir

Grid Ref: SJ3375250685 333752 350685

Site: Divisional Police Headquarters, Bodhyfryd, Wrexham

Development: Erection of A1 retail store and A1/A3 drive-through coffee shop with car parking and servicing areas, access, landscaping and associated works, including relocation of electricity sub-station, following demolition of existing buildings and structures

We refer to your planning consultation relating to the above site, and we can provide the following comments in respect to the proposed development.

Having assessed the proposal, we note the developer wishes to discharge both foul flows and surface water runoff from the proposed development into the public sewer.

From the information provided, little justification has been provide to demonstrate that all other sustainable drainage options have been fully explored and exhausted. Consideration will need to be given to the incorporation of sustainable methods of drainage into the scheme in line with Welsh Government's 'Recommended non-statutory standards for sustainable drainage (SuDS) in Wales – designing, constructing, operating and maintaining surface water drainage systems' (2017). We note from the Flood Consequences Assessment that permeability testing in accordance with BRE Digest 365 has not been undertaken in line with priority level 2 of the Surface water runoff destination standards. Also, no evidence has been provided that the applicant has explored and exhausted discharging surface water runoff into highway drainage in line with priority level 4 of the standards. Discharging surface water into the combined sewer (priority level 5) should only be considered as a last resort.

Please note that, in the event if it can be proven to our satisfaction that all other sustainable options for sustainable drainage for surface water runoff have been fully explored and exhausted we may consider a connection into the combined sewer at a rate not exceeding 5l/s.

In light of the above, we would kindly request that if you are minded to grant Planning Consent for the above development that the following **Condition and Advisory Notes** provided below are included within the consent to ensure no detriment to existing residents or the environment and to Dwr Cymru Welsh Water's assets.

SEWERAGE

Condition

No development shall commence until a drainage scheme for the site has been submitted to and approved in writing by the local planning authority. The scheme shall provide for the disposal of foul, surface and land water, and include an assessment of the potential to dispose of surface and land water by sustainable means. Thereafter the scheme shall be implemented in accordance with the approved details prior to the occupation of the development and no further foul water, surface water and land drainage shall be allowed to connect directly or indirectly with the public sewerage system.

Reason: To prevent hydraulic overloading of the public sewerage system, to protect the health and safety of existing residents and ensure no pollution of or detriment to the environment.

Advisory Notes

The applicant may need to apply to Dwr Cymru / Welsh Water for any connection to the public sewer under S106 of the Water Industry Act 1991. 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 Gravity 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

The applicant is 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 us in dealing with the proposal the applicant may contact Dwr Cymru Welsh Water on 0800 085 3968 to establish the location and status of the apparatus. Under the Water Industry Act 1991 Dwr Cymru Welsh Water has rights of access to its apparatus at all times.

Our response is based on the information provided by your application. Should the proposal alter during the course of the application process we kindly request that we are re-consulted and reserve the right to make new representation.

If you have any queries please contact the undersigned on 0800 917 2652 or via email at developer.services@dwrcymru.com

Please quote our reference number in all communications and correspondence.

Yours faithfully,



Alaw Jones
Development Control Officer
Developer Services



Welsh Water is owned by Glas Cymru – a 'not-for-profit' company.
Mae Dwr Cymru yn eiddo i Glas Cymru – cwmni 'nid-ar-llw'.

We welcome correspondence in
Welsh and English

Dwr Cymru Cyl, a limited company registered in
Wales no 2366777. Registered office: Pentwyn Road,
Nelson, Treharris, Mid Glamorgan CF46 6LY

Rydym yn croesawu gohebiaeth yn y
Gymraeg neu yn Saesneg

Dwr Cymru Cyl, cwmni cyfyngedig wedi'i gofrestru yng
Nghymru rhif 2366777. Swyddfa gofrestredig: Heol Pentwyn
Nelson, Treharris, Morgannwg Ganol CF46 6LY.

APPENDIX E: DRAINAGE STRATEGY DRAWING

Author:
Positive Drainage Strategies: Subject
to approval and detailed design

Issuing drainage information
based on technical survey drawing
4004-0128-01 dated 12.03.18.

Key

- | | | | | | | | | | | | | | | | |
|---------------------------------|-------------------------------|---------------------------------------|------------------------------|----------------------------|------------------------------|------------------------|----------------------------|---------------------------------|-------------------------------|----------------------------|-----------------------------------|---------------------------------|----------------------------|--------------------------------------|------------------------|
| Existing Surface Water Drainage | Existing Sewer Water Drainage | Existing Combined Sanitary Stormwater | Proposed Surface Water Drain | Proposed Sewer Water Drain | Proposed Combined Stormwater | Existing Fire Mainline | Existing Combined Mainline | Proposed Surface Water Mainline | Proposed Sewer Water Mainline | Proposed Combined Mainline | Proposed Pumping Chamber Mainline | Proposed Sanitary Channel Gully | Proposed Subsurface Trench | Proposed Surface Water Channel Drain | Deposits Line Boundary |
| | | | | | | | | | | | | | | | |
| | | | | | | ES | EF | CS | CF | CM | PC | SG | DWT | | |

Question change	#	UNRECORDED	TM	REP
Subject applied	A	24/03/2016	TM	REP
RECORDED	REP	24/03	TM	REP

Beam Consulting
 16 Bond Street
 Walsby
 WY7 2DP
 Tel: 01914 361153
 Fax: 01914 361171

Lidl Store
Redbourn, Wrexham

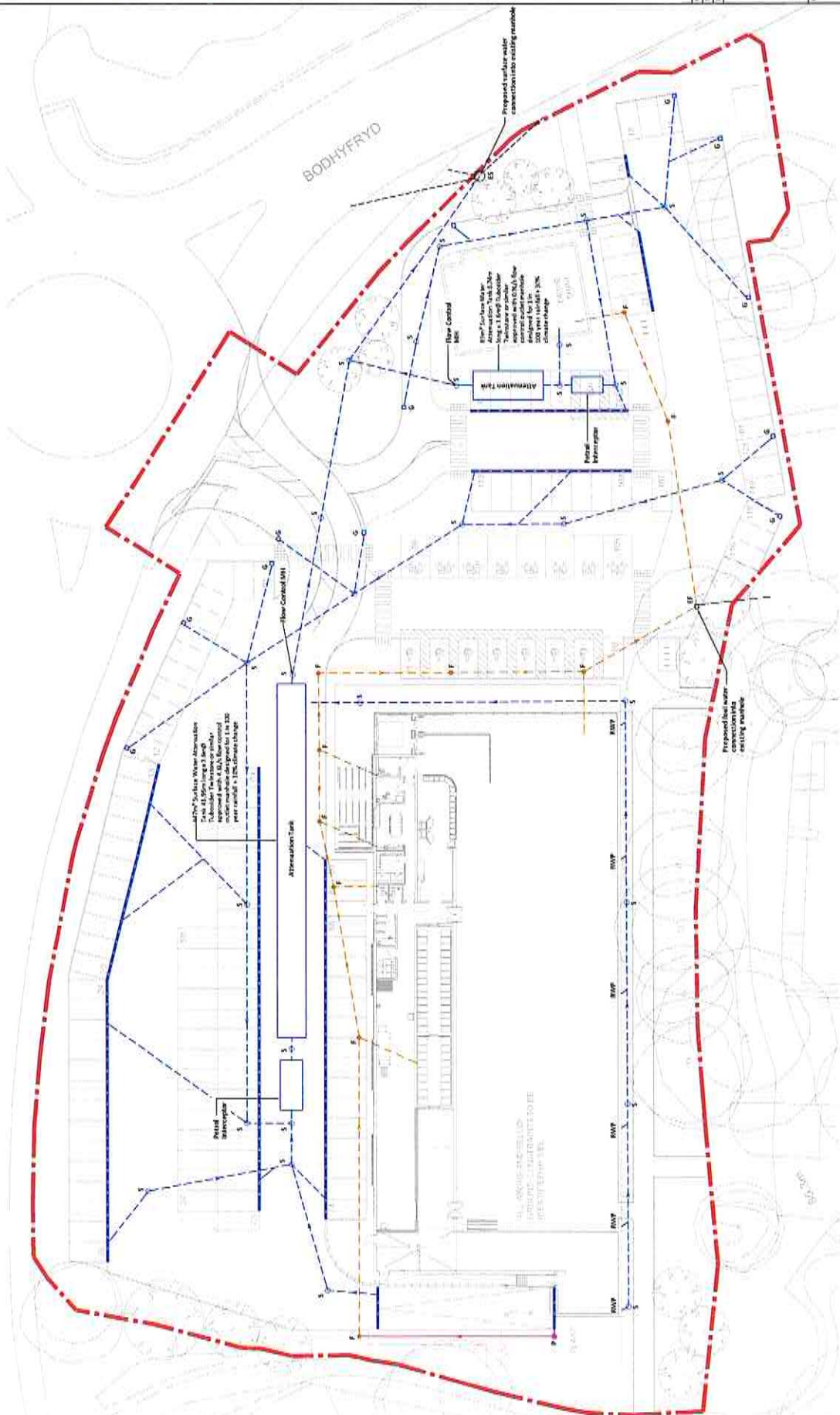
Proposed Drainage
General Arrangement

Lid GmbH UK
Gesellschaft für Angewandte Genetik

Information

DATE	19.06.2023
NAME	

09-124-500	RECORDING CHAIRMAN'S OFFICE	REC'D	AS SHOWN
------------	--------------------------------	-------	----------



Plan
Scale 1:250

APPENDIX F: CALCULATIONS

Project Title: Lidl Wrexham

09 / 124

Prepared By: KA

Date: 06/2018

Checked By: KGP

Date: 06/2018

EXISTING AND PROPOSED DEVELOPEMENT SURFACE WATER RUN-OFF 1 in 2 year

DESIGN DATA

Site location =	Wrexham
Rainfall intensity, i (l/s) =	50
Existing Impemeable area, A_i (m ²) =	7964
Routing coefficient, C_r =	1
Volumetric run-off coefficient, C_v =	1

RESULTS

Surface water discharge from the existing site	
Q (existing site)=	110.7 l/s
Proposed site allowable discharge	
Q (proposed site) =	5.5 l/s

EXISTING SITE

Rate of run-off, $Q = A_p \times i \times C_r \times C_v \times 2.78$

Q existing = 110.7 l/s

PROPOSED SITE

Proposed site allowable discharge is Existing less 30% :

Q proposed = 77.5 l/s
 Now reduced to 5.0 l/s/ha = 5.5 l/s

DESIGN NOTES

1. Surface water storage design is in accordance with the Wallingford Procedure - Design and Analysis of Urban Drainage. Volume 1 Principles, Methods and Practice. Volume 4 - Modified Rational Method.

Project Title: Lidl Wrexham

09 / 124

Prepared By: KA

Date: 06/2018

Checked By: KGP

Date: 06/2018

SURFACE WATER ATTENUATION FOR 1 YEAR RAINFALL RETURN PERIOD

DESIGN DATA

Site location =	Wrexham
M5-60 rainfall ratio (mm) =	18
60min rainfall ratio to 2 day rainfalls of 5 year return period, r =	0.35
Impemeable area (m ²) =	8683
Total site area (m ²) =	10974
Proposed discharge rate (l/s) =	5.5
Allowance for Climate Change (%) =	30

CALCULATIONS RESULTS

Required storage volume (m³) = 118

DETAILED CALCULATIONS

Duration, D	15	30	60	120	240	360	600	1440	2880
Z1	0.64	0.79	1.00	1.20	1.44	1.63	1.85	2.35	2.81
M5-D	11.5	14.2	18.0	21.6	25.9	29.3	33.3	42.3	50.6
Z2	0.613	0.618	0.632	0.646	0.664	0.677	0.687	0.705	0.721
M1-D	7.06	8.79	11.38	13.96	17.20	19.87	22.86	29.80	36.46
i (mm/hr)	28.25	17.59	11.38	6.98	4.30	3.31	2.29	1.24	0.76
i + Climate Change %	36.72	22.86	14.79	9.08	5.59	4.31	2.97	1.61	0.99
Area (m ²)	8683	8683	8683	8683	8683	8683	8683	8683	8683
Qp (l/s)	88.65	55.19	35.70	21.91	13.50	10.39	7.17	3.90	2.38
Qe (l/s)	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
Balancing Q	83.15	49.69	30.20	16.41	8.00	4.89	1.67	-1.60	-3.12
Storage volume (m ³)	74.83	89.45	108.71	118.13	115.14	105.71	60.29	-138.50	-538.46

DESIGN NOTES

1. Surface water storage design is in accordance with the Wallingford Procedure - Design and Analysis of Urban Drainage. Volume 1 Principles, Methods and Practice. Volume 4 - Modified Rational Method.

Project Title: Lidl Wrexham

09 / 124

Prepared By: KA

Date: 06/2018

Checked By: KGP

Date: 06/2018

SURFACE WATER ATTENUATION FOR 100 YEAR RAINFALL RETURN PERIOD

DESIGN DATA

Site location =	Wrexham
M5-60 rainfall ratio (mm) =	18
60min rainfall ratio to 2 day rainfalls of 5 year return period, r =	0.35
Impemeable area (m ²) =	8683
Total site area (m ²) =	10974
Proposed discharge rate (l/s) =	5.5
Allowance for Climate Change (%) =	30

CALCULATIONS RESULTS

Required storage volume (m ³) =	536
Rainfall intensity (mm/hr) =	116

DETAILED CALCULATIONS

Duration, D	15	30	60	120	240	360	600	1440	2880
Z1	0.64	0.79	1.00	1.20	1.44	1.63	1.85	2.35	2.81
M5-D	11.5	14.2	18.0	21.6	25.9	29.3	33.3	42.3	50.6
Z2	1.934	1.978	2.014	2.024	2.003	1.975	1.944	1.872	1.806
M100-D	22.28	28.12	36.25	43.71	51.91	57.95	64.72	79.17	91.35
i (mm/hr)	89.13	56.24	36.25	21.85	12.98	9.66	6.47	3.30	1.90
i + Climate Change %	115.87	73.11	47.13	28.41	16.87	12.56	8.41	4.29	2.47
Area (m ²)	8683	8683	8683	8683	8683	8683	8683	8683	8683
Qp (l/s)	279.70	176.49	113.76	68.58	40.72	30.31	20.31	10.35	5.97
Qe (l/s)	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
Balancing Q	274.20	170.99	108.26	63.08	35.22	24.81	14.81	4.85	0.47
Storage volume (m ³)	246.78	307.77	389.74	454.19	507.21	535.91	533.16	419.16	81.58

DESIGN NOTES

1. Surface water storage design is in accordance with the Wallingford Procedure - Design and Analysis of Urban Drainage. Volume 1 Principles, Methods and Practice. Volume 4 - Modified Rational Method.