



Nicola Sugg
Consultant Hydrogeologist
& Hydrologist

**PROPOSED DRIVE-THROUGH RESTAURANT
CHERRY TREE ROAD, BLACKPOOL
FLOOD RISK ASSESSMENT**

February 2022



Commissioned by: Euro Garages Ltd.

Issue: V2.0

Project Reference: NS_0124_50

CONTENTS

1.0	INTRODUCTION AND DEVELOPMENT DESCRIPTION	1
1.1	Project Introduction and Objectives.....	1
1.2	Planning Policy and Guidance.....	1
1.3	Site Location	2
1.4	Topography and Existing Land Use	3
1.5	Geology	4
1.6	Hydrological Features	4
1.7	Proposed Development and Flood Risk Vulnerability Classification.....	5
2.0	FLOOD RISK ASSESSMENT	6
2.1	Sources of Information.....	6
2.2	Flood Hazard.....	6
2.3	Flood Risk Mitigation Measures	9
2.4	The Sequential Test.....	10
3.0	SURFACE WATER MANAGEMENT	11
4.0	SUMMARY AND CONCLUSIONS	12
5.0	CLOSURE.....	13

APPENDICES

- Appendix 1 Site Topographic Survey
- Appendix 2 Proposed Site Layout Plan
- Appendix 3 Surface Water Drainage Strategy

1.0 INTRODUCTION AND DEVELOPMENT DESCRIPTION

1.1 Project Introduction and Objectives

Euro Garages Ltd. has commissioned NSugg Ltd. to undertake a Flood Risk Assessment (FRA) to support a planning application for the proposed development of a drive-through restaurant within the car park of ASDA supermarket off Cherry Tree Road, Blackpool, Lancashire, FY4 4QH. This document represents a site-specific FRA for the proposed development.

1.2 Planning Policy and Guidance

This Flood Risk Assessment has been undertaken with due regard to the following national and local planning policy and flood risk guidance.

1.2.1 National Planning Policy

The National Planning Policy Framework (NPPF)¹ and associated Planning Practice Guidance for Flood Risk² aim to steer new development to areas with the lowest risk of flooding.

New development must also ensure that flood risk is not increased elsewhere, and where appropriate, planning applications should be supported by a site-specific Flood Risk Assessment.

The NPPF recommends that development should only be allowed in areas at risk of flooding where the FRA (and the sequential and exception tests, as applicable) can demonstrate that:

- a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;
- b) the development is appropriately flood resistant and resilient;
- c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;
- d) any residual risk can be safely managed; and
- e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

The guidance confirms that major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate.

1.2.2 Environment Agency Policy and Guidance

The Environment Agency's guidance for FRAs³ confirms that planning applications for the following development proposals must be supported by a FRA:

¹ Ministry of Housing, Communities & Local Government, February 2019, National Planning Policy Framework.

² Ministry of Housing, Communities & Local Government, March 2014, Planning Practice Guidance, Flood Risk and Coastal Change.

- Development in Flood Zone 2 or 3 including minor development and change of use.
- Development sites of more than 1 hectare (ha) in Flood Zone 1.
- Development sites less than 1 ha in Flood Zone 1, including a change of use in development type to a more vulnerable class (for example from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (for example surface water drains, reservoirs).
- Development in an area within Flood Zone 1 which has critical drainage problems as notified by the Environment Agency.

The Agency's guidance supports the NPPF and specifies the requirements for FRAs based on the level of flood risk and the vulnerability of the proposed development to flooding.

In addition, Environment Agency consent is required for any proposed works or structures, in, under, over or within eight metres of the top of the bank of the watercourse, designated a 'main river', (or sixteen metres in the case of a tidal watercourse).

1.2.3 Local Policy and Guidance

The following documents provide local flood risk policy and guidance for development within Blackpool:

- Blackpool Council's 2020 Level 1 Strategic Flood Risk Assessment (SFRA)⁴ presents details of the local hydrology, potential sources of flood risk, records of historic flood incidents and recommendations for development within the region.
- Blackpool Council's Surface Water Management Plan (SWMP) Risk Assessment⁵ presents the results of modelling of surface water flooding and identifies areas at high risk of surface water flooding.
- Blackpool Council's Local Plan⁶ details local flood risk planning policy. Policy CS9, Water Management, states that all new development must manage the impacts of flooding and mitigate the effects of climate change in order to reduce flood risk.

1.3 Site Location

The application site is located within the eastern car park of ASDA superstore, off Cherry Tree Road, Blackpool, Lancashire FY4 4QH, as shown on the Site Location Plan within Figure 1. The site is located approximately 3km south-east of Blackpool town centre, within a mixed-use commercial and residential area.

The total area of the application site, as indicated on the Site Location Plan, is approximately 0.12 hectares. The Environment Agency's on-line flood map for planning indicates that the entire application site lies within Flood Zone 1 (low probability of fluvial/tidal flooding), however the site is shown to be at risk of surface water flooding.

The NPPF and associated technical guidance confirms that all applications for proposed new development within Flood Zone 2 or 3 and development proposals exceeding one hectare within Flood Zone 1 must be accompanied by a site-specific Flood Risk Assessment

³ Environment Agency, March 2014 (updated February 2017), Guidance – Flood Risk Assessments if you're applying for planning permission.

⁴ Blackpool Council, Level 1 Strategic Flood Risk Assessment, Updated December 2020.

⁵ ARUP, March 2013, Blackpool SWMP Risk Assessment Report.

⁶ Blackpool Council, Local Plan Part 1 Core Strategy Adopted January 2016.

(FRA). Application sites in Flood Zone 1, but at potential risk of flooding from other sources, must also be accompanied by a site-specific FRA.

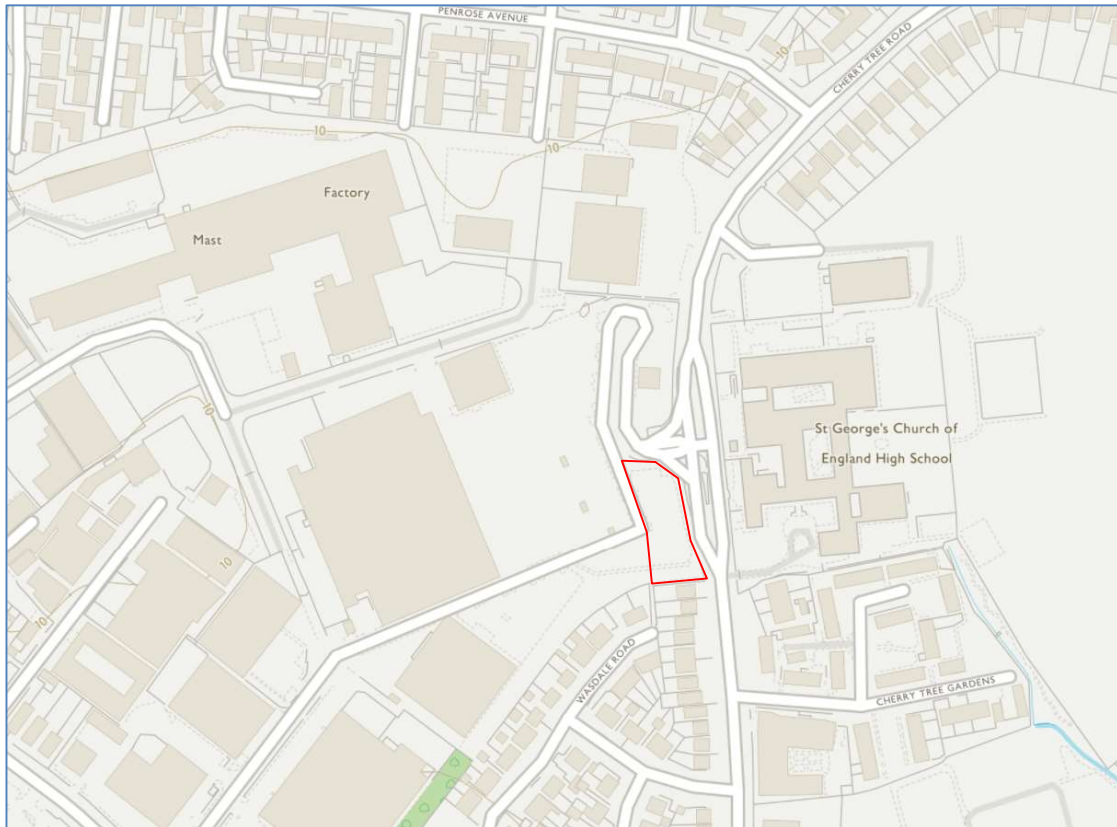


Figure 1. Site Location Plan

1.4 Topography and Existing Land Use

Review of Ordnance Survey mapping indicates that ground levels are relatively low (<10m AOD) and flat lying throughout the coastal town of Blackpool, with application site levels at approximately 8m AOD.

The application site is bound to the east by Cherry Tree Road with St George's Church of England High School beyond, to the north by a petrol filling station and commercial development, to the west by ASDA car park and superstore and to the south by commercial and residential development.

The application site currently comprises an area of car park associated with the ASDA superstore, with perimeter hedgerows / trees to the north, east and south.

A topographic survey was undertaken of the application site in April 2021; a copy of the site survey is included as Appendix 1. The survey confirms that ground levels are in the range 8.5m AOD to 8.9m AOD across the application site, with local variation for site drainage. Ground levels rise slightly along the southern boundary, to a raised perimeter tree lined embankment with a crest level of approximately 9.4m AOD.

1.5 Geology

British Geological Survey mapping indicates that the local geology beneath the application site comprises mudstone of the Triassic Kirkham Mudstone Member, overlain by superficial Glacial Till⁷.

A published geological borehole log from a 1977 site investigation in the immediate vicinity of the application site confirms ground conditions of stiff brown, slightly sandy Clay overlying very stiff, fissured, sandy Clay, to a borehole depth of 7.95m below ground level. No groundwater was encountered.

A Phase 1 and 2 Geo-environmental Assessment was undertaken in May 2021⁸ and included the installation of four window sample boreholes across the application site to a maximum depth of 5.45m below ground level (mbgl). Ground conditions were confirmed as: Made Ground (up to 1.0m in thickness) overlying superficial Glacial Till (characterised as orange/brown sandy gravelly Clay and fine to medium Sand). Bedrock was not encountered within any of the boreholes. Groundwater was not encountered during the site investigation, although strata described as 'wet' were recorded at various depths within each borehole.

Review of Cranfield University's soil maps⁹ indicates that the soils beneath the application site are defined as Soilscape 18: slowly permeable, seasonally wet, slightly acid but base-rich loamy and clayey soils with impeded drainage.

Due to the low permeability surface geology and developed nature of the application site, a high proportion of incident rainfall will form surface water runoff.

1.6 Hydrological Features

The closest surface water feature to the application site is a minor tributary drain located approximately 150m east of the application site, which flows in a south-easterly direction towards Cornford Road Pumping Station, approximately 350m downstream. Cornford Road Pumping Station is a surface water pumping station owned and operated by United Utilities.

The local SFRA confirms that land drainage within Blackpool is managed via pumping stations, with the risk of surface water flooding influenced by the local drainage system.

The closest main river down-gradient of the application site are man-made drains within Great Marton Moss, approximately 1.5km south-east of the site.

Figure 2 presents the local hydrological site setting.

⁷ British Geological Survey, Geology of Britain Viewer, accessed 24th May 2021.

⁸ bEk Enviro Ltd., May 2021, Land at ASDA Cherry Tree Road, Blackpool, Phase 1 & 2 Geo-environmental Assessment Report.

⁹ Cranfield University's Soilscape Map, accessed 24th May 2021.

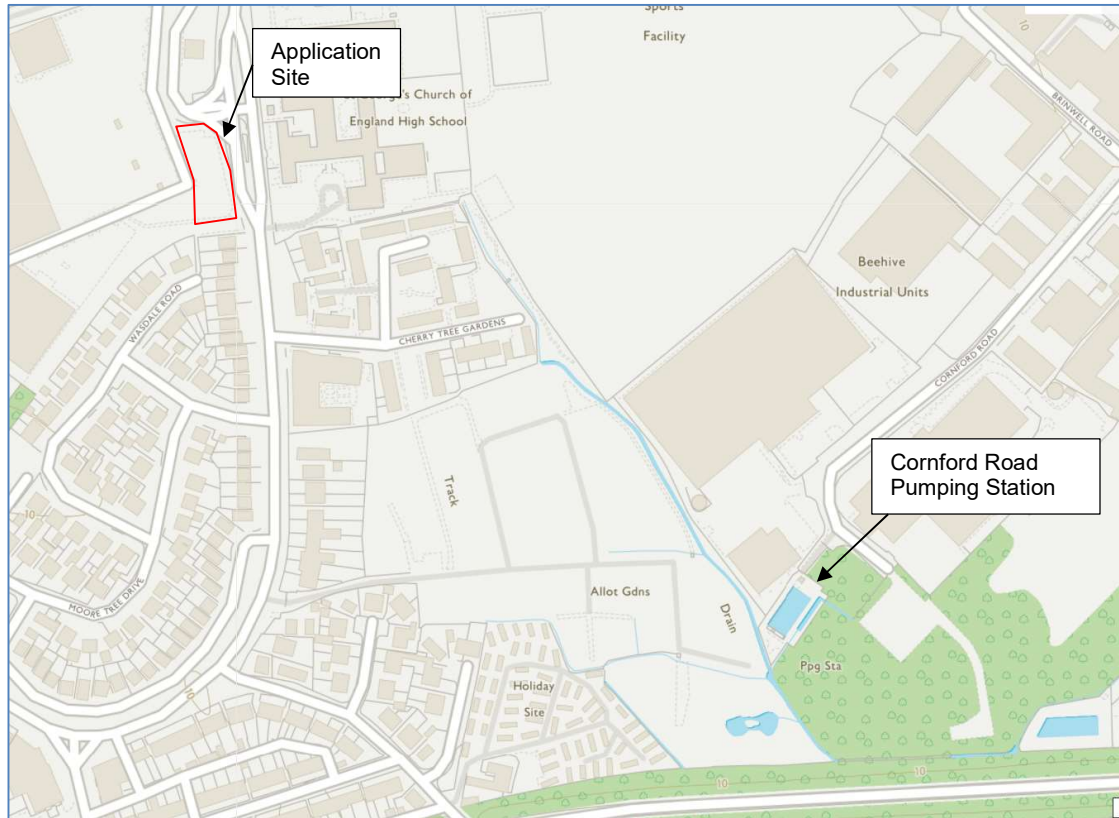


Figure 2. Hydrological Setting

1.7 Proposed Development and Flood Risk Vulnerability Classification

The proposed development comprises a drive-through restaurant with associated parking and landscaping. The proposed site layout plan is included within Appendix 2.

In terms of flood risk vulnerability classification, restaurants and take-aways are classified as 'less vulnerable'; this is discussed further in Section 2.3.

2.0 FLOOD RISK ASSESSMENT

2.1 Sources of Information

In addition to the flood risk planning policy and guidance outlined in Section 1.2, the following sources of information have been consulted during the preparation of this FRA:

- Environment Agency website – for information regarding surface water and fluvial/tidal flood risk, reservoir flood risk and outline flood zone maps.

2.2 Flood Hazard

All potential sources of flooding to the application site are considered within this section of the report.

2.2.1 Environment Agency Flood Zone Map and Fluvial/Tidal Flood Risk

The Environment Agency flood zone map presents information regarding the fluvial/tidal flood risk to the application site and is included as Figure 3 below. The flood zone map indicates that the entire application site is located within Flood Zone 1. Flood Zone 1 is land assessed as having a low probability of flooding, defined as less than 1 in 1000 (<0.1%) annual probability of river or sea flooding.

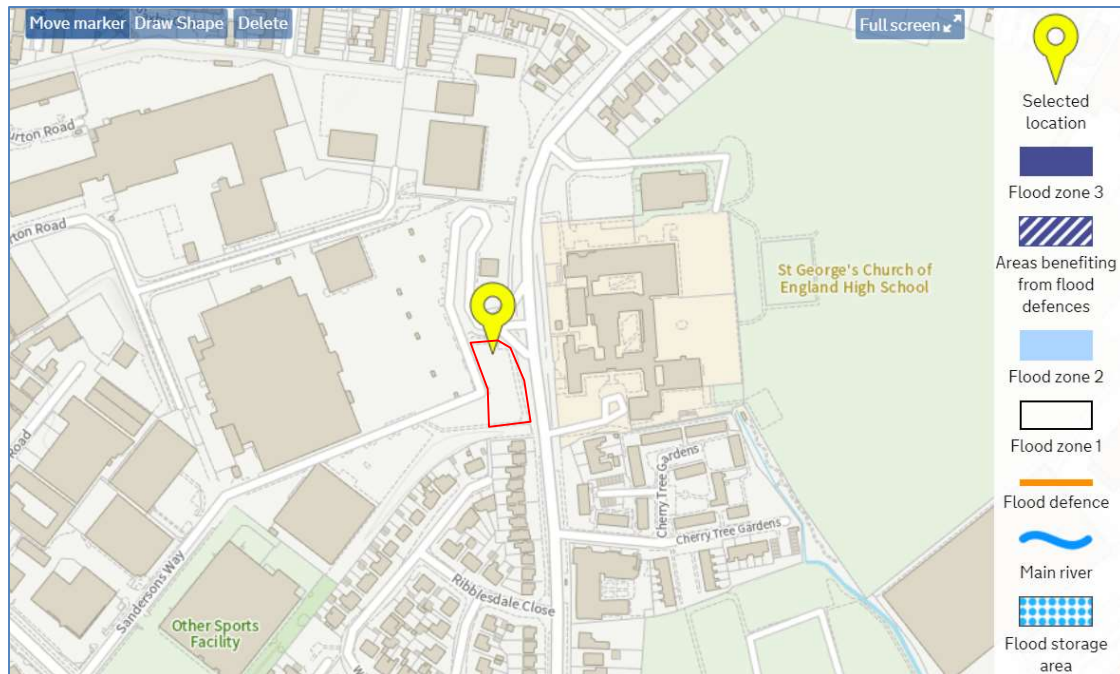


Figure 3. Environment Agency Flood Zone Map¹⁰

2.2.2 Other Potential Sources of Flooding

The local SFRA and online flood maps have been reviewed to identify any other potential sources of flood risk to the application site and evidence of historic flood events in the local area. This information is presented in Table 1 below.

¹⁰ www.flood-map-for-planning.service.gov.uk accessed 24th May 2021.

Table 1: ASDA, Cherry Tree Road, Blackpool – Potential Sources of Flooding

Potential Source	Potential Risk at Application Site?	Reasoning
Fluvial Flooding	No	The application site is located within low probability Flood Zone 1, defined as having <0.1% annual probability of river or sea flooding.
Tidal Flooding		
Flooding from High Groundwater	No	<p>Section 16 of the 2020 SFRA confirms that: <i>There are no identified flood risks relating to ground water flooding and no historical evidence of ground water flooding has been identified in Blackpool.</i></p> <p>A published geological log from a borehole installed within the immediate vicinity of the application site to a depth of 7.95m below ground level did not encounter groundwater.</p> <p>A Phase 2 ground investigation was undertaken in May 2021 and included the installation of four boreholes to a maximum depth of 5.45mbgl. No groundwater was encountered.</p>
Surface Water Flooding	Yes	The Environment Agency's online mapping confirms that the application site is at risk of surface water flooding; this is discussed further below.
Flooding from Artificial Drainage Systems	No	Section 18 of the 2020 SFRA does not identify any local historic flood events from sewers. The risk of flooding from surface water runoff is considered above.
Flooding due to Infrastructure Failure	No	The Environment Agency's online mapping confirms that the application site is not within the predicted maximum extent of flooding of local reservoir(s).

Table 1 confirms that the only potential source of flood risk identified within the application site is flooding from surface water runoff.

Figure 4 below presents the Environment Agency's surface water flood risk map and indicates that the majority of the application site is at low risk of surface water flooding (0.1% to 1.0% annual probability).

Figure 5 presents the predicted flood water depths for the worst-case, low risk scenario and indicates flood water depths of predominantly <300mm, but in the range 300-900mm in isolated topographic depressions.

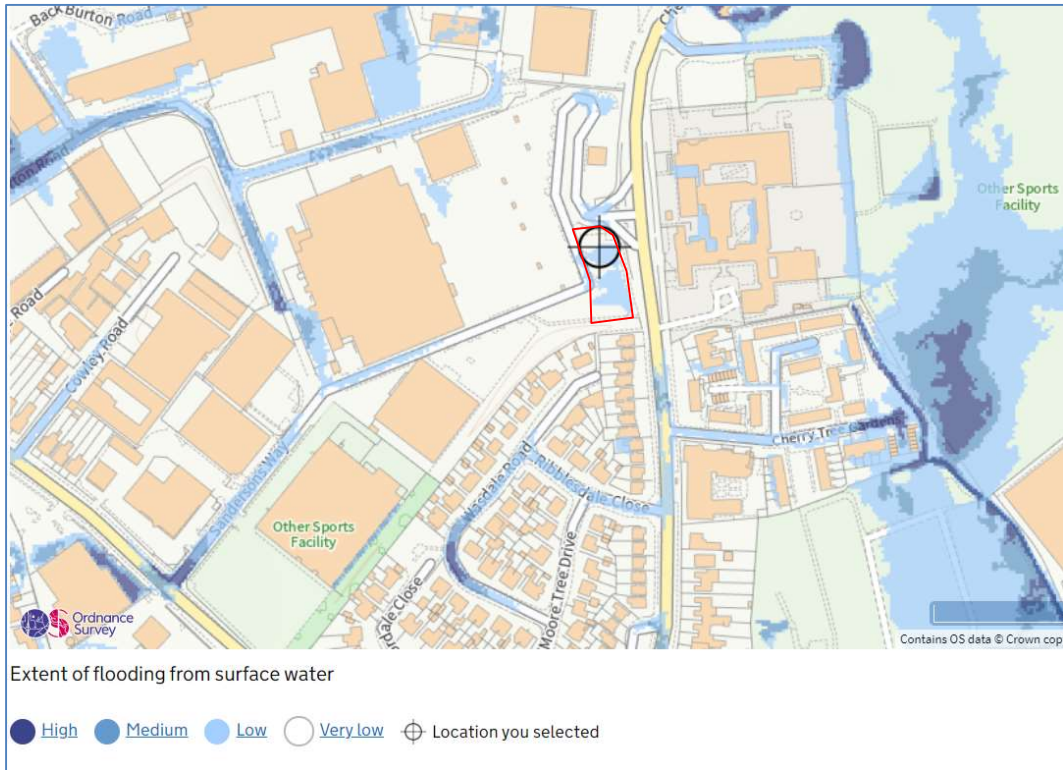


Figure 4. Environment Agency Surface Water Flood Risk Map.

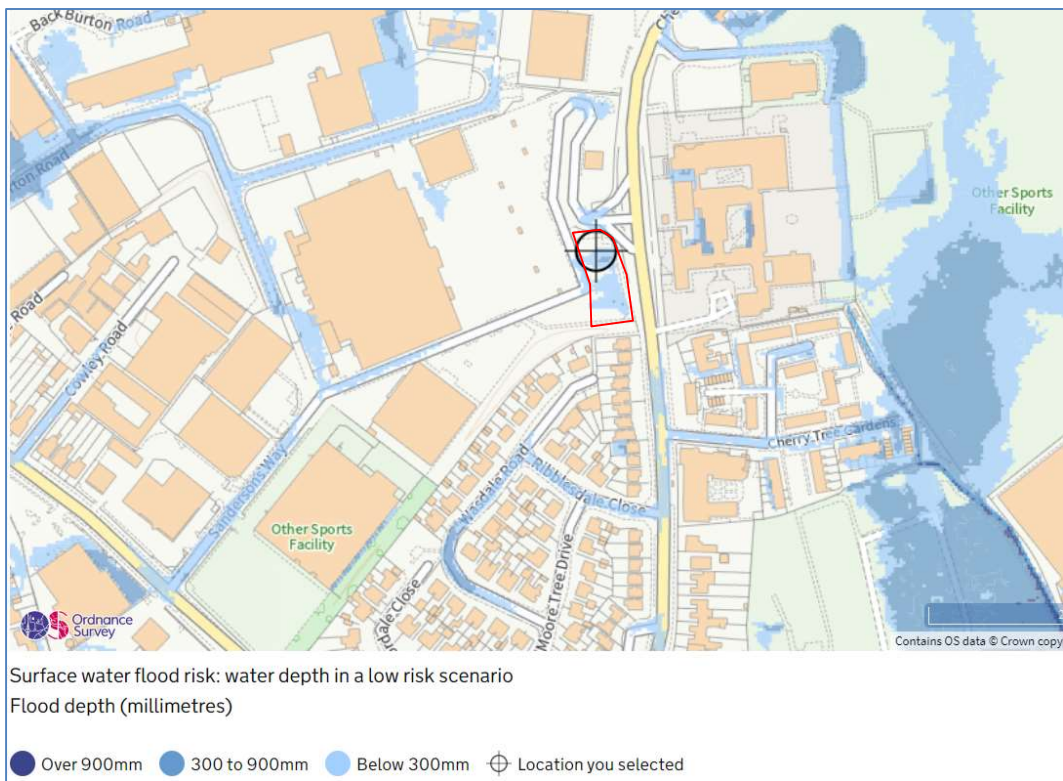


Figure 5. Environment Agency Surface Water Flood Risk: Predicted Water Depth (Low Risk Scenario).

Hydraulic modelling of surface water flood risk in Blackpool was undertaken by Arup in 2013 to inform the local Surface Water Management Plan (SWMP)¹¹. The results of the hydraulic modelling are presented on risk assessment maps which confirm the predicted maximum flood depth and flood hazard for a range of flood events.

Drawings D6.1 to D6.4 of the SWMP include the application site and indicate the following:

- Isolated areas of the application site are shown to be at risk of surface water flooding during the 1-in-20 year (5%), 1-in-100 year (1%) and 1-in-100 year plus climate change flood events, with predicted flood water depths of 0.1m to 0.3m and a low flood hazard rating (danger to some).
- The majority of the application site is shown to be at risk of surface water flooding during the extreme 1-in-1000 year (0.1%) annual probability event, with predicted flood water depths of generally in the range 0.1m to 0.3m and up to the range 0.3m to 0.6m in isolated areas. The flood hazard rating during the 0.1% event remains low (danger to some).

Appropriate surface water flood risk mitigation measures for the development are presented in Section 2.3.

Review of the Environment Agency's online historic flood map confirms that the application site is not within an area, or in the vicinity of an area, that has recorded flooding in the past¹².

2.2.3 Climate Change

It is recognised that the frequency and intensity of rainfall, and river flows are predicted to increase as a result of climate change, and this must be considered within the FRA. Table 2 of the Environment Agency's guidance on climate change allowances¹³ indicates that peak rainfall intensity within small (<5km²) and urban catchments could increase by between 20% (central allowance) and 40% (upper allowance) by the 2080's (2070 to 2115), from 1961-1990 baseline data.

A surface water management plan has been prepared for the development with appropriate allowance for long-term climate change (Section 3).

2.3 Flood Risk Mitigation Measures

Section 2.1 indicates that the application site is at risk of surface water flooding and therefore, the following appropriate flood risk mitigation measures are incorporated within the development design, based on the design surface water flood event (1-in-100 year plus climate change):

- Site levels shall be altered to eliminate local topographic depressions and to achieve gradients of 1:30 or 1:40 away from the building to surface drainage gullies. The proposed finished floor level of the building is 9.0mAOD which is a minimum of 300mm above existing site levels within the area of development.
- A site-specific Surface Water Management Plan has been prepared for the development (Section 3) to ensure the effective management of surface water runoff to minimise the

¹¹ Arup, March 2013, Blackpool Council, Blackpool SWMP Risk Assessment Report.

¹² <https://environment.data.gov.uk/DefraDataDownload/?mapService=EA/HistoricFloodMap&Mode=spatial> accessed 24th May 2021.

¹³ Environment Agency, February 2016 (updated December 2019), Guidance: Flood Risk Assessments: Climate Change Allowances.

risk of surface water flooding to the development, and to ensure no increased flood risk to others.

2.4 The Sequential Test

As set out in the NPPF, the aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. The application site is entirely within Flood Zone 1 defined as having a low probability of fluvial or tidal flooding. Table 3 of the Environment Agency's flood risk assessment guidance³ confirms that all development types are appropriate within Flood Zone 1.

3.0 SURFACE WATER MANAGEMENT

In accordance with local planning policy, a surface water drainage strategy has been prepared to ensure the development does not increase flood risk to others and to ensure the risk of surface water flooding to the development is minimised. A copy of the surface water drainage strategy is included as Appendix 3, with the drainage design reported separately¹⁴.

In summary, the application site forms a small part of the existing ASDA car park which currently drains into a combined sewer in Cherry Tree Road via a 600mm diameter concrete sewer. It is proposed that surface water runoff from the application site would continue to discharge to the combined sewer via this existing outfall, with runoff restricted to a maximum rate of 5l/s, as agreed with United Utilities, for all rainfall events up to and including the 100-year event with 40% allowance for long term climate change. Attenuation would be provided via below-ground geo-cellular crates located beneath the parking bays as indicated within Appendix 3.

¹⁴ Goodson Associates, June 2021, Euro Garages, ASDA Blackpool, Cherry Tree Road – Drainage Strategy Report – Rev A (February 2022).

4.0 SUMMARY AND CONCLUSIONS

This report represents a site-specific Flood Risk Assessment to support the proposed development of a drive-through restaurant with associated access, parking and landscaping at the ASDA store, off Cherry Tree Road, Blackpool. The application site extends to approximately 0.12 hectares and currently comprises an area of car parking associated with the ASDA store.

The Environment Agency flood zone map for planning indicates that the application site is entirely within Flood Zone 1 (low probability of flooding). A review of all potential sources of flooding to the application site has been undertaken and confirms that the site is at risk of surface water flooding from incident rainfall and local runoff.

The following mitigation measures have therefore been incorporated within the development design:

- Site levels shall be altered to eliminate local topographic depressions and to achieve gradients of approximately 1:40 away from the building to surface drainage gullies. The proposed finished floor level of the building is 9.0mAOD which is a minimum of 300mm above existing site levels within the area of development.
- A site-specific Surface Water Management Plan has been prepared for the development to ensure the effective management of surface water runoff to minimise the risk of surface water flooding to the development, and to ensure no increased flood risk to others.

Therefore, this FRA concludes that the proposed development of a drive-through restaurant, classified as 'less vulnerable' in flood risk terms, off Cherry Tree Road, Blackpool, is appropriate and sustainable with regards to flood risk.

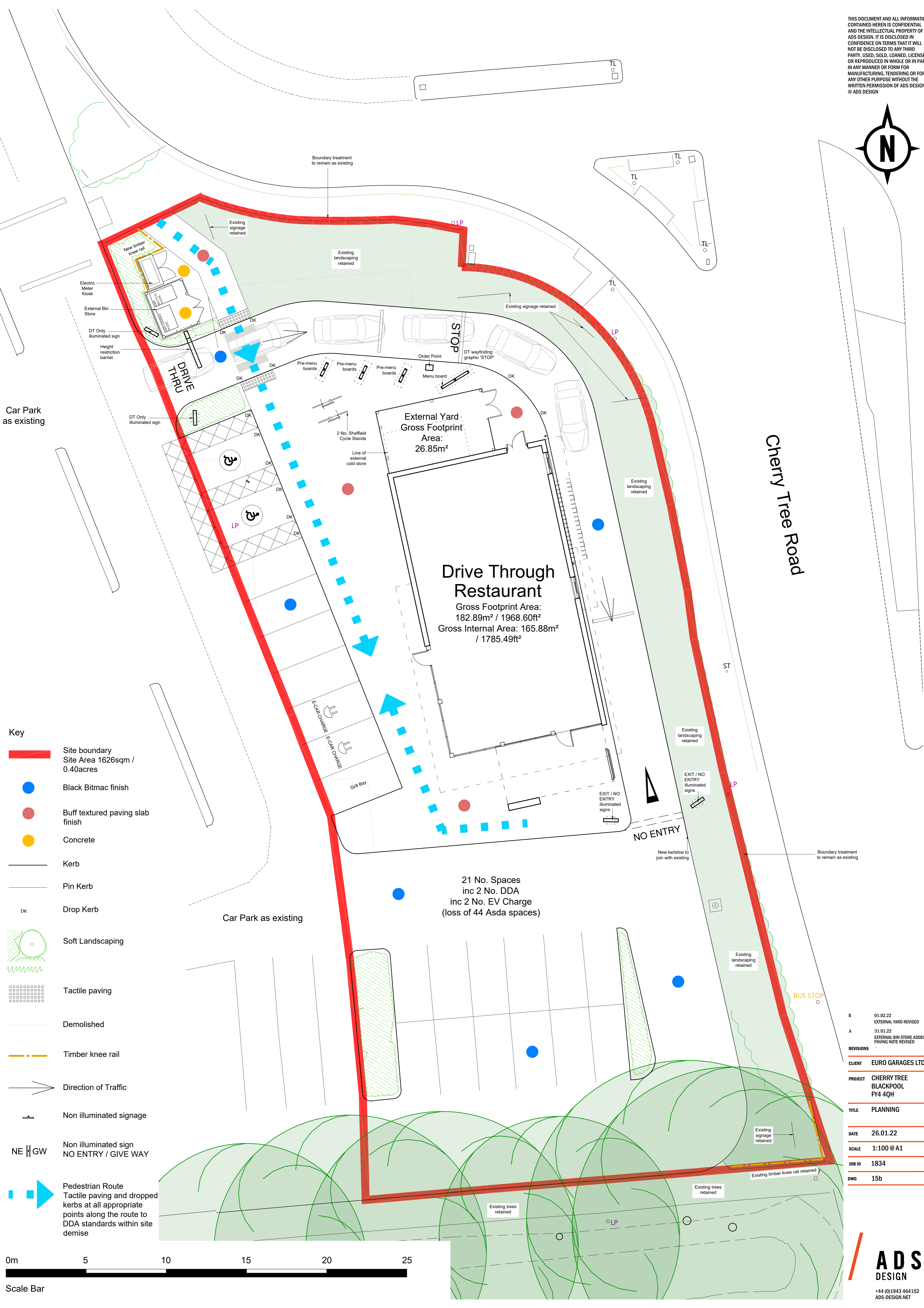
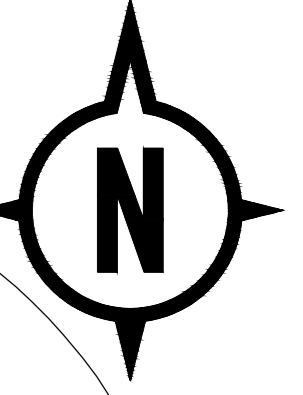
5.0 CLOSURE

This report has been prepared by Nicola Sugg (trading style of NSugg Limited) with all reasonable skill and care, and in accordance with the services agreed with Euro Garages Ltd. Relevant information provided by Euro Garages Ltd. has been accepted in good faith as being accurate and valid. This report is based on the relevant guidance and legislation in force at the date of the report and should be reviewed if such guidance and legislation are amended or superseded.

This report is for the exclusive use of Euro Garages Ltd.; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from Nicola Sugg.

APPENDIX 1

APPENDIX 2



- Key**
- Site boundary
Site Area 1626sqm / 0.40acres
 - Black Bitmac finish
 - Buff textured paving slab finish
 - Concrete
 - Kerb
 - Pin Kerb
 - DK Drop Kerb
 - Soft Landscaping
 - Tactile paving
 - Demolished
 - Timber knee rail
 - Direction of Traffic
 - Non illuminated signage
 - Non illuminated sign
NO ENTRY / GIVE WAY
 - Pedestrian Route
Tactile paving and dropped kerbs at all appropriate points along the route to DDA standards within site demise



REVISIONS	DATE
B	01.02.22 EXTERNAL YARD REVISED
A	31.01.22 EXTERNAL BIN STORE ADDED PAVING NOTE REVISED

CLIENT **EURO GARAGES LTD**

PROJECT **CHERRY TREE
BLACKPOOL
FY4 4QH**

TITLE **PLANNING**

DATE **26.01.22**

SCALE **1:100 @ A1**

JOB ID **1834**

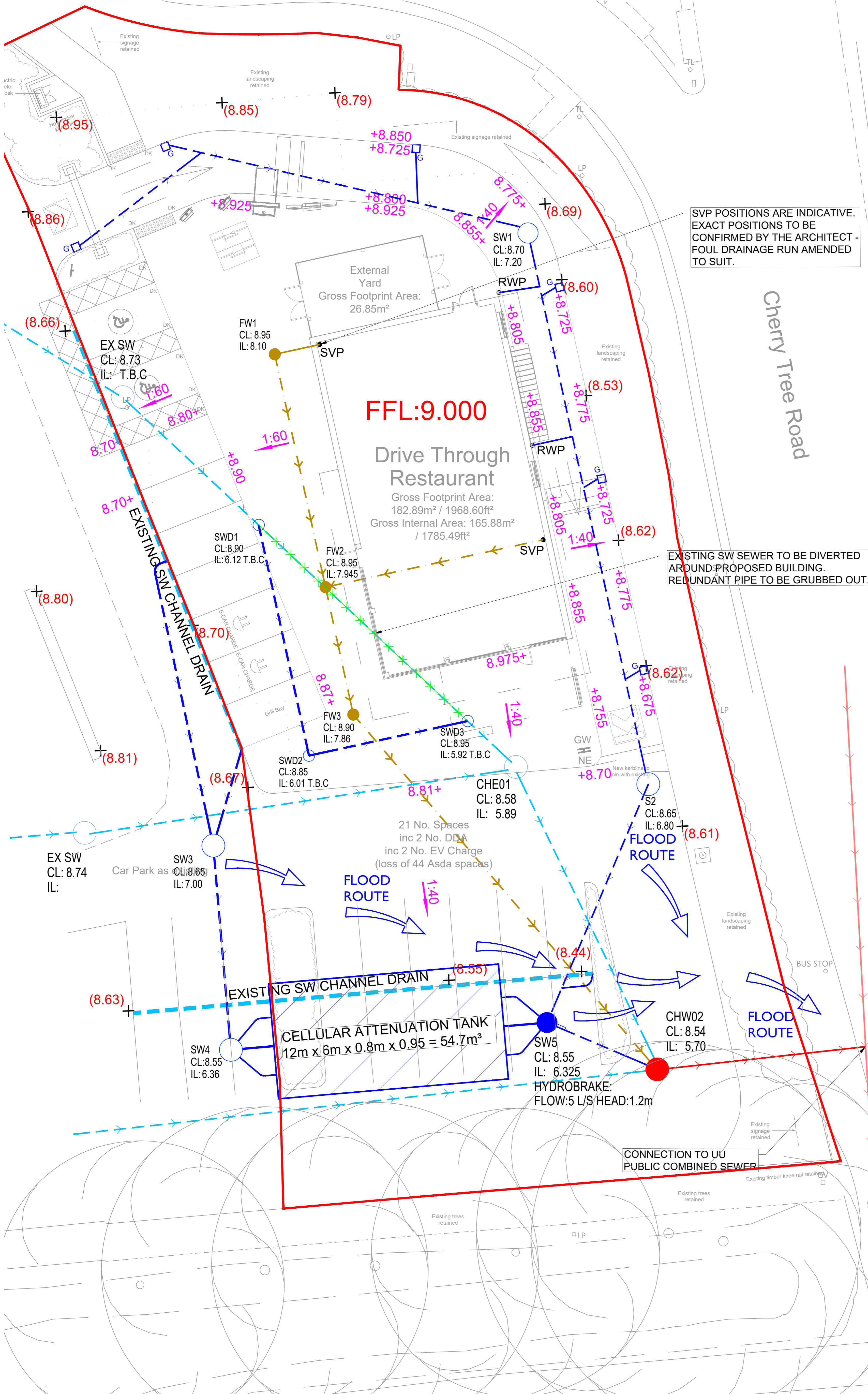
DWG **15b**

APPENDIX 3

OPERATION AND MAINTENANCE REQUIREMENTS FOR ATTENUATION STORAGE TANKS		
MAINTENANCE SCHEDULE	REQUIRED ACTION	TYPICAL FREQUENCY
REGULAR MAINTENANCE	INSPECT & IDENTIFY ANY AREAS THAT ARE NOT OPERATING CORRECTLY. IF REQUIRED, TAKE REMEDIAL ACTION	MONTHLY FOR 3 MONTHS THEN ANNUALLY
	REMOVE DEBRIS FROM THE CATCHMENT SURFACE (WHERE IT MAY CAUSE RISK TO PERFORMANCE)	MONTHLY
	REMOVE SEDIMENT FROM PRE-TREATMENT ROAD GULLIES & SILT TRAP MANHOLE	MONTHLY FOR 3 MONTHS THEN ANNUALLY OR AS REQUIRED
REMEDIAL ACTIONS	REPAIR/REHABILITATE INLETS, OUTLETS, OVERFLOWS & VENTS	AS REQUIRED
MONITORING	INSPECT/CHECK ALL INLETS, OUTLETS, VENTS & OVERFLOWS TO ENSURE THAT THEY ARE IN GOOD CONDITION & OPERATING AS DESIGNED	ANNUALLY
	CCTV SURVEY INSIDE OF TANK FOR SEDIMENT BUILD-UP & REMOVE IF NECESSARY	AFTER CONSTRUCTION, 1 YEAR, & THEN EVERY 5 YEARS OR AS REQUIRED

KEY:

- SW000 CL: IL: 1500, Xxm @ 1:X SURFACE WATER MH & DRAINAGE RUN
- FW000 CL: IL: 1500, Xxm @ 1:X FOUL WATER MH & DRAINAGE RUN
- CW000 CL: IL: XX0, Xxm @ 1:X COMBINED WATER MH & DRAINAGE RUN
- EX SW CL: IL: XX0, Xxm @ 1:X EXISTING SURFACE WATER MH & DRAINAGE RUN
- EX CW CL: IL: 1500, Xxm @ 1:X EXISTING COMBINED WATER MH & DRAINAGE RUN
- SW CL: IL: FLOW CONTROL MANHOLE
- HYDROBRAKE: FLOOD ROUTE
- EXISTING SW CHANNEL DRAIN
- EXISTING SURFACE CHANNEL DRAIN
- SURFACE GULLY
- SURFACE RODDING EYE
- RAINWATER PIPE
- SOIL VENT PIPE
- FLOOD ROUTE FOR STORM EVENTS IN EXCESS OF 1 IN 100 YEARS + 40% CLIMATE CHANGE
- PROPOSED BANKING
- PROPOSED LEVELS
- PROPOSED GRADIENTS
- EXISTING BOUNDARY LEVELS
- RETAINING WALL



CDM NOTES

SEWER CONNECTION IN HIGHWAY. TEMPORARY LANE CLOSURE REQUIRED

- ACCESS AND EGRESS TO THE SITE OFF A BUSY CAR PARK.
- EXISTING SERVICES IDENTIFIED ON SITE.
- ADEQUATE MEASURES REQUIRED TO CONTROL NOISE, DUST, FUMES AND VIBRATION.
- POTENTIAL GROUND INSTABILITY IN DEEP EXCAVATIONS.

REV.	DATE	REVISION	BY	CHK.
-	-	FIRST ISSUE	PH	NB
A	27.01.22	UPDATED TO SUIT LATEST ARCHITECT'S LAYOUT DRAWING 1834-15.	PH	NB

Euro Garages Ltd

Proposed Drive Thru Coffee Shop
 Asda Cherry Tree Road, Blackpool

Drainage Layout Plan

Goodson Associates
 Tel: +44 (0)113 369 7925
 Fax: -
 Email: leeds@goodsons.com
 Web: www.goodsons.com

Consulting Civil, Structural & Transportation Engineers
 Fountain House, 4 South Parade,
 Leeds, LS1 5QX
 Also at Aberdeen, Edinburgh and Glasgow.

PLANNING

DATE CREATED: June.2021	SCALE: 1:100 @ A1
CONTRACT No: P14995	DRAWING No: 500
REV: A	



Nicola Sugg
Consultant Hydrogeologist
& Hydrologist

nicola@nsugg.co.uk

www.nsugg.co.uk

07866 374158

Nicola Sugg trading style of NSugg Limited (company number: 08043774)
Registered Office: Grove Hill House, Martinstown, Dorchester, Dorset DT2 9JP