Water Quality Nutrient Statement For:

Costa - Wrexham

Border Retail Park

Holt Road, Wrexham

LL13 8RG



Prepared for:

Mason Partners

REF: N2658-WQNS

DATE: May 2024

Vale Consultancy

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Document Control

Project	**Costa – Wrexham, Border Retail Park, Wrexham, LL13 8NG**
Client	**Mason Partners**
Vale Consultancy Ref:	**N2658-WQNS**

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1 INTRODUCTION

1.1 Site Location

Vale Consultancy has been instructed by Mason Partners on behalf of Costa (*the Client*) to undertake a Water Quality Nutrient Statement (WQNS) for the proposed construction of a new Costa Drive Thru at Border Retail Park.

The address for the proposed works is to take place within an existing car park on Border Retail Park, Holt Road, Wrexham, LL13 8RG.

Coordinates: (*333976 E, 350531 N*).

Refer to **Figure 1**: Site Location Satellite Plan, where the location for the proposed structure is shown within the red boundary.



Figure 1 - Site Location Satellite Plan

The site is located within central Wrexham on the north eastern side of the city centre. The site is located approximately 800m to the north east of Wrexham Central Train Station. The surrounding land use is largely occupied by urban areas, with various commercial uses to the south and west and residential uses to the north and east.

The site (as defined by the *Application Site Boundary*) is bordered by Holt Road to the North, car parking for commercial units to the east, a Burger King Drive Thru to the south and a Tesco Petrol Filling Station to the west.

Within the existing site boundary, is car parking for the commercial units to the east of the site.

This document should be read in conjunction with the separate Drainage Strategy Report, prepared by Brian Clancy Higby Partnership which outlines the existing and proposed drainage arrangement on site.

Refer to **Appendix A** – Site Layout

1.2 Proposed Development

The proposal is to replace an existing car parking area which services the retail park with a new Costa Drive Thru. The development will consist of the Costa, building drive thru area, some replacement parking bays including disable access bays and all other ancillary areas to service the development. The building will have gross internal area of 1800 square feet.

Employment figures for units of this size typically equate to 11 full time members of staff.

Refer to **Appendix A** – Site Layout

2 FOUL DRAINAGE

2.1 Existing Drainage Systems

A drainage strategy has been carried out by Brian Clancy Higby Partnership, who commissioned a CCTV drainage survey at the wider site (Border Retail park) and confirmed that the existing Wickes building's foul is managed by an on-site foul sewer which runs parallel to the front of the buildings. There is also an existing surface water sewer at the site, also running parallel to the front of the existing buildings but with branches carrying water from around the existing car park.

Refer to **Appendix B** – Brian Clancy Higby Partnership

2.2 Proposed Drainage Systems

A drainage strategy has been carried out by Brian Clancy Higby Partnership and have specified that the foul will be directed and discharged into an existing 100Ø DCWW foul sewer within the wider site area. This foul run later discharges into the five fords wastewater treatment plant as confirmed by DCWW.

2.3 Phosphorous Reduction in the Dee Catchment

NRW have defined the River Dee as a sensitive SAC in terms of levels of Phosphorous in line with the Conservation of Habitats and Species Regulation 2017. In these areas, particular attention should be paid to levels of nutrients entering the eco-system.

Large areas of the Dee Catchment have habitats severely affected by the introduction of nutrients into the water systems. In order to prevent this, some areas of the Dee Catchment are required to demonstrate that any new development will not materially increase levels of certain nutrients including phosphates and nitrogen into the water environments and therefore, increase the damage to these areas.

The proposed foul will connect onto and discharge into the existing 100Ø DCWW network which later discharges to an existing Wastewater Treatment Work which has phosphate consent.

Refer to **Appendix C** – DCWW Correspondence

It should be noted that from the development, that the existing red line boundary of the site does not currently produce a nutrient loading, however, the existing site services the adjacent retail park by way of parking

provision. The construction of the unit reduces the overall number of parking spaces and therefore, indirectly reduces capacity of the other retail units. For the purpose of this report, the nutrient loading will be calculated based on the increase of nutrients within the red line, however, this can be partially offset by the reduction in capacity of the units outside of the red line boundary.

Wrexham Council do not currently offer a calculator or advise with regards to nutrient loading. Welsh Government Planning advice indicates that new development should connect into existing adopted networks where possible so that Wastewater Treatment at the treatment works can be managed and controlled and private drainage networks/wastewater treatment works are not preferred.

Using other calculators, a phosphate loading based off 11 full time employees of approximately 3.47kg total Phosphate Loading per annum has been calculated.

At the time of writing, Wrexham Council have no clear strategy in place for Phosphate reduction in the Dee catchment, but have provided guidance that they are still able to determine “Any development that does not increase the volume of concentration of wastewater, including extensions that do not increase occupancy or the volume or concentration of wastewater”.

Based on the above, it is likely that the employment type of the above development will attract staff from within the Dee catchment. Within the wider catchment, this development is not likely to increase volume of wastewater due to the majority of users already being within the catchment area. As well as this, the area is already an ancillary area for the retail park, so the provision of the unit is offset by the reduction of the capacity of the adjacent units within the retail park and is unlikely to change the overall footfall for the development.

3 Conclusions

A drainage strategy has been carried out by Brian Clancy Higby Partnership, who commissioned a CCTV drainage survey at the wider site (Border Retail park) and confirmed that the existing buildings’ foul is managed by an on-site DCWW foul sewer which runs parallel to the front of the buildings. There is also an existing surface water sewer at the site, also running parallel to the front of the existing buildings but with branches carrying water from around the existing car park.

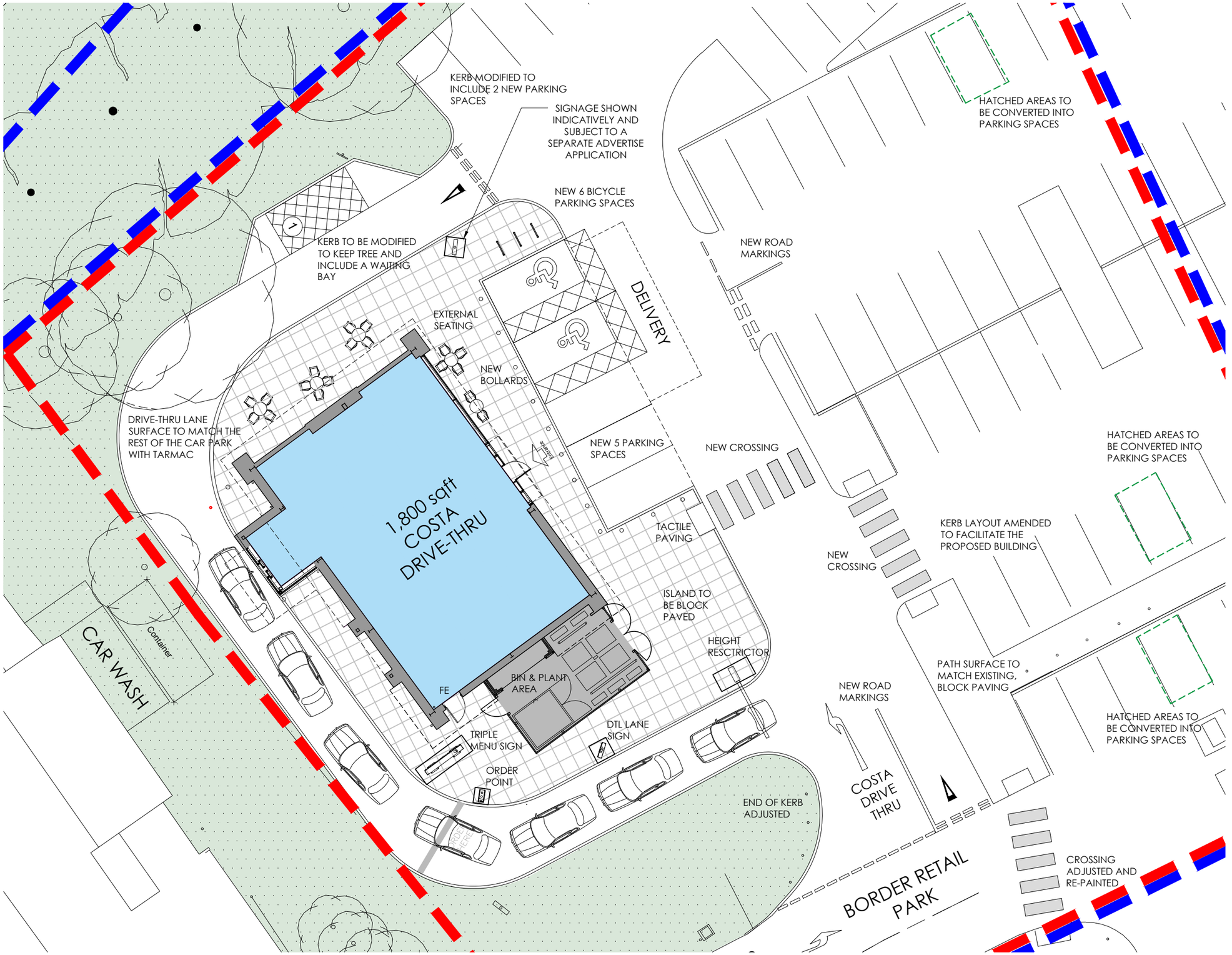
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APPENDIX A: Site Layout

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0m 5m 10m 15m

01 PROPOSED SITE PLAN
1:200

N

221 PROPOSED PARKING SPACES

(INC. 4 WAITING BAYS AND 17 DDA SPACES)

(NET LOSS OF 31 SPACES)

KEY:

- APPLICATION BOUNDARY
- OWNERSHIP LINE
- BAYS TO BE CONVERTED

ALL SIGNAGE SHOWN INDICATIVELY AND SUBJECT TO A SEPARATE ADVERTISE APPLICATION

Rev	Date	Description	Rev By	Chk'd By
A	18.03.24	Boundary line amended	JT	DRW

Project Title	PROPOSED DEVELOPMENT BORDER RETAIL PARK WREXHAM LL13 8NG
Client	WAYPOINT ASSET MANAGEMENT
Status	PLANNING
Scale	1:200 — Drawing Size A3
Date	08/02/2024 — Drawn By JT — Checked DRW
Drawing Title	PROPOSED SITE PLAN
Job-Dwg No	18980-111 — Rev A

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CAD file reference CAD FILE REFERENCE

APPENDIX B: Brian Clancy Higby Partnership Drainage Strategy Report

BRIAN CLANCY HIGBY PARTNERSHIP
CHARTERED STRUCTURAL & CIVIL ENGINEERS

DRAINAGE STRATEGY

for

NEW COSTA DRIVE-THRU

BORDER RETAIL PARK

HOLT ROAD

WREXHAM

LL13 8RG

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2.0 DESCRIPTION OF DEVELOPMENT

3.0 EXISTING DRAINAGE

4.0 SURFACE WATER DRAINAGE STRATEGY

5.0 PROPOSED DRAINAGE STRATEGY – FOUL WATER

6.0 CONCLUSIONS

APPENDIX

PLAN - EXISTING DRAINAGE

SITE INVESTIGATION REPORT BY GROUNDTECH - EXTRACT

BCHP DRAWINGS
23050913 020P1 Proposed Drainage Layout
23050913 021P1 Proposed Drainage details.

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DRAINAGE STRATEGY

1.0 INTRODUCTION

1.1 It is proposed to locate a new detached single storey building, a Costa Drive Thru within the existing car park that serves Border Retail Park, at the south western corner of the existing car park. The existing car park is in non-permeable tarmac construction.

1.2 The existing car parking will be removed in the location of the new building, which is to be built on piled foundations. The existing car park surrounding the new building will be modified to suit the new access route through the driveway, and a revised parking layout.

1.3 This report is intended to provide supporting information for the consent of planning permission.

2.0 DESCRIPTION OF DEVELOPMENT

2.1 The building is a single storey building, approximately 1800 sq. ft (internal area) to be constructed with a monopitch roof , with the fall down to the western boundary, where the rainwater pipes are to be located.

2.2 The existing car parking will be removed in the location of the new building, which is to be built on piled foundations. The existing car park surrounding the new building will be modified to suit the new access route through the driveway, and a revised parking layout.

3.0 EXISTING DRAINAGE

3.1 A survey of the existing foul and surface water discharge on the site has been undertaken and is included within the Appendix. This confirms that both the existing foul and surface water drainage are on separate systems.

3.2 The surface water drainage from the car park is connected via gulleys to a below ground drainage system, which discharges from the western end of the car park, where the development is proposed across to the East, towards the existing stores, and appears to discharge out through the existing entrance into the site, assumed to be connecting to the existing public sewer system.

3.3 The foul drainage has a route parallel to the front wall of the existing stores, and discharges out through the existing entrance onto Holt Road, at the north west corner of the existing site, presumed to be connecting into the public sewer network.

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4.0 SURFACE WATER DRAINAGE STRATEGY

4.1 The primary flood risk to others generated by a development is the surface water runoff. The site is currently a developed site. The proposed development will not increase the amount of surface water to discharge.

4.2 The Technical Guidance for the National Planning Policy Framework requires that a development requires that the management of the surface water runoff utilises Sustainable Urban Drainage (SUDS) and considers the hierarchy of provision which are as follows:

- Infiltration to ground – soakaways and permeable surfacing
- Discharge to local watercourse.
- Discharge to surface water drain.
- Discharge to sewer.

4.3 The first option to be considered for surface water disposal for the development must be infiltration into the ground.

The ground conditions on the site has been investigated by the Geotechnical Contractor, Groundtech and an extract from their report is included within the Appendix.

This report indicates that the prevailing ground conditions are of sand, with no ground water encountered. It was also established that the site had previously been partially excavated as a sand pit, the pit extending across the area of where the new building is to be constricted (hence the requirement for the building to be piled).

However, given its suitability for percolation, it is proposed the surface water run off created by the new building is discharged into a soakaway adjacent to the SE corner of the site, greater than 5m from the proposed building and adjacent boundaries. This allows the flow rate into the existing car park drainage system to be reduced, with only the existing car parking, albeit remodelled to be discharged into the existing below ground system, which is assumed to have suitable petrol interceptors within the system currently.

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Maintenance of system

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect and identify any areas that are not operation correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	Remove sediment from pre-treatment structures	Annually, or as required
Remedial Actions	Repair/ rehabilitate inlets, outlets, overflows and vent	As required
Monitoring	Inspect/ check all inlets, outlets, vents and overflows to ensure they are in good working order	Annually
	Inspect soakaway, silt traps and gullies and note rate of sediment accumulation	Monthly to assess accumulation for 3 months, and then as required
	Survey inside of soakaway for sediment build up and remove if necessary	Every 5 years or, as required

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5.0 PROPOSED DRAINAGE STRATEGY – FOUL WATER

5.1 It is proposed to connect the new foul drainage to the existing foul drainage system.

6.0 CONCLUSIONS

6.1 As the prevailing ground conditions are sand and suitable for percolation, it is proposed the surface water run off created by the new building is discharged into a soakaway adjacent to the SE corner of the site, greater than 5m from the proposed building and adjacent boundaries.

This allows the flow rate into the existing car park drainage system to be reduced, with only the existing car parking, albeit remodelled to be discharged into the existing below ground system, which is assumed to have suitable petrol interceptors within the system currently.



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PAS 128: 2014 QUALITY LEVEL GUIDE

QL(0)	DESCRIPTION	QC	QL(B)	DESCRIPTION
QL-0	Service positions taken from records		QL-B2	Acoustical tactical location using only one geophone technique
QL-C	Unverified existence and presence but unspecified by geophysical technique	confirm	QL-B3	Acoustical tactical location using a multiple geophone technique
QL-B4	Verified existence and presence, but unspecified by any geophysical technique	N/A	QL-A	Precise location and 3D characterisation by vision excavation, hydraulic and/or vacuum excavation
QL-B3	Verified existence and presence and location with some but not all depth information			

DETECTION METHOD

IN ACCORDANCE WITH PAS 128: 2014 SURVEY TYPE B

DRAINAGE SURVEY

All accessible Manholes and Inspection chambers have had their respective covers lifted with pipe sizes, inverts, chamber sizes/types and service data recorded from ground level. All connections from DPs, Gullies, Drains, VP's, RE's and lamp holes have been proven wherever possible using audible connections (AC) and/or sonde instrumentation where applicable. Where these methods have proved unsuccessful then assumed (AR) straight line connections will be shown.

CCTV DRAINAGE SURVEY

All accessible Manholes and Inspection chambers have had their respective covers lifted with pipe sizes, inverts, chamber sizes/type and service data recorded from ground level. Pipework has been traced, accessed and collected for post processing. Drainage layout, including manhole covers not located by topographical survey, may be taken from CCTV chainage and will be shown as indicative only.

Electricity

Elec cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required.

British Telecoms

BT cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required. Due to current laws and legislation protecting all BT apparatus, cabling can only be located remotely. We therefore compare all our telecom findings against record information to produce the final service layout. In some instances, where high amount of cable ducts are present, we may only be able to identify a linear centre peak signal rather than identifying all the individual duct positions. For further information regarding Telecoms apparatus, please contact Openreach directly.

Cable TV &

CTV and/or Com cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required.

Fibre Optic

FO cables will have been predominantly located using GPR methodology. This is due to the materials used within fibre optic cabling. In some rare instances, tracer cabling or conductible non fibre optic cabling will be present within some or all ducting. When this is the case, both EML and GPR methodology will be combined to identify service network and achieve greater quality levels.

Lighting, Traffic Signal & Security Cables

LC, TS and/or Sec cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required.

Gas & Water Inc. Fuel Pipes and Hot Water Pipes

GM/GS and/or WM/WS pipe work will have been attempted and located using both EML & GPR methodology with electronically derived depths shown for the former and depths to crown levels shown for the latter.
When the Gas/Water pipe work is constructed using conductible materials, then we are able to to employ multiple geophysical techniques to identify service network and achieve greater quality levels. When a non conductible material is used, GPR methodology will be employed to locate and plot the final service layout.

Ground Penetrating Radar

GPR methodology is used to identify and locate all non metallic, non conductible piping and cabling. We also employ GPR to obtain a greater accuracy levels on EML located services. The GPR has a greater success rate on pipe or service diameter upward of Ø63mm/Ø63mm, as size increments increase, so does the chance of detection. The GPR can produces varying results and as such, wouldn't be used as an independent utility surveying instrument.

Unidentified Traces

All UITs will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required. Every effort has been made to identify the service but in this instance, is not achievable. We recommend excavation work to determine identity and depth where applicable.

Scarring (QL-C)

Scarring has been identified on site with a potential of an undetectable service present.

Assumed Routes & Taken from Records (QL-B4/D)

Assumed routes (AR) are shown if there is evidence that a service exists but we are unable to trace it whilst on site. The surveyor will attempt to locate various risers/cis/valves/meters (service evidence) etc. around site area to successfully determine an assumed route between these points. If there is little evidence on site but they believe a service is still present, then a common sense approach to an assumed route shall be employed.

Taken from records (TFR) are service routes that are taken from STAT record plans or previous survey information and overlaid onto our drawings.

SURVEY RECOMMENDATIONS

The areas of dense vegetation to be cleared to allow access if any of these areas are deemed critical or of high importance.

To undertake a CCTV drainage survey of the entire site area to establish a more comprehensive drainage network, and asset condition of the pipework.

The sewers with high levels of silt or blockages to be jetted to extend the CCTV drainage survey, if any of these areas are deemed critical or of high importance.

Due to the geophysical nature of subsurface technology, we always recommend excavation works to be carried out within critical areas for verification and to eliminate the possibility of undetectable services present.

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UTILITIES & UNDERGROUND INVESTIGATIONS

ABBREVIATIONS & SYMBOLS

1D 5C	1 Duct 5 Cables	DCr	Depth To Crown	RBC	Rectangular Brick Chamber
Ø	Diameter	DI	Depth To Invert	RCC	Rectangular Conc Chamber
AC	Audible Connection	DS	Depth To Silt	RE	Rodding Eye
AG	Above Ground	DTB	Depth To Base	SA	Survey Abandoned
AR	Assumed Route	DTW	Depth To Water	SL	Silt Level
BL	Base Level	DTS	Depth To Surcharge	SuL	Surcharge Level
CB	Concrete Benching	EBD	External Backdrop	TFR	Taken From Records
CBC	Circular Brick Chamber	EOT	End Of Trace →●	UTC	Unable To CCTV
CCC	Circular Conc Chamber	IBD	Internal Backdrop	UTD	Unable To Determine Outlet
CL	Cover Level	IL	Invert Level	UTI	Unable To Lift
CPC	Circ Plastic Chamber	OH	Overhead	UTS	Unable To Survey
CrL	Crown Level	PDR	Pipe Depth Response	UTT	Unable To Trace
CU	Camera Under Water →●	RB	Rest Bend	WL	Water Level

BT CABLE(S)
OVERHEAD BT CABLE(S)
COMMUNICATIONS CABLE(S)
CABLE TV CABLE(S)
EMPTY DUCT
ELECTRIC CABLE(S)
OVERHEAD ELECTRIC CABLE(S)
FIBREOPTIC CABLE(S)
FUEL PIPE(S)
GAS MAIN
GAS SERVICE
GROUND PENETRATING RADAR (GPR) TRACE
HOT WATER PIPE
LIGHTING CIRCUIT
OIL PIPE(S)
POSSIBLE SCARRING
SECURITY CABLING
TELECOM CABLE(S)
TRAFFIC CABLING
UNIDENTIFIED SERVICE
UNIDENTIFIED TRACE
WATER MAIN
WATER SERVICE
WATER TANK/TROUGH
COMBINED WATER RISING MAIN
EFFLUENT WATER
FOUL SEWER
FOUL WATER RISING MAIN
SURFACE WATER SEWER
SURFACE WATER RISING MAIN
INVESTIGATION EXTENTS

Note
UTILITIES COMMENT BOX (GENERAL NOTES)
DEPTH TO SERVICE

AUDIBLE CONNECTION
SERVICE ABOVE GROUND
CAMERA UNDER WATER
SERVICE OVERHEAD

DRAWING NOTES

All below ground details shown have been identified from above ground without excavation. Survey Solution use electro-magnetic and/or ground penetrating radar (GPR) methods to investigate for underground utilities, services and features. Results using these methods are not infallible and we recommend trial excavations are carried out for verification of positions, depths and identification.

Any areas on the drawing where services or features have not been shown are not necessarily clear of services or features but are an indication that no items have been identified during our investigations. All reasonable care and normal good practice should still be employed during design and construction processes.

Certain types of services such as plastic or concrete pipes, some conduit and ducting where direct access can not be achieved for tracing may not be shown and alternative locating methods should be used.

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Services, utilities and features may not have been surveyed if obstructed or not reasonably visible or accessible at the time of survey.

Survey Solutions accept no responsibility for the completeness or accuracy of either the topographical survey or base mapping on this project.

All critical dimensions and measurements should be checked and verified with any errors or discrepancies notified to Survey Solutions immediately. The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work.

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GENERAL SYNOPSIS

This survey has been carried out in accordance with PAS 128: 2014 & our version of the Royal Institution of Chartered Surveyors (RICS) specification for Measured Surveys of Land, Buildings and Utilities. Our survey extents have been agreed and confirmed with formal acceptance of 72394 from WES No.1 Ltd. If you have any queries regarding the final services layout, please may we ask you to carefully read all the information within this title block in its entirety before continuing to do so.

TOPOGRAPHICAL / DWG DRAWING INFORMATION

TOPOGRAPHICAL SURVEY DATE 02/06/2023

SURVEY TYPE	DESCRIPTION	EFFECT ON SURVEY RESULTS
TOPO	Survey Solutions	
OUTDATED		
OS		
NTS		

GENERAL SITE CONDITIONS

AVERAGE

ADDITIONAL INFORMATION	EFFECT ON SURVEY RESULTS

DESKTOP UTILITY RECORDS (PAS 128: 2014 SURVEY TYPE D)

PREREQUISITE FOR PAS 128: 2014 SURVEY TYPE B

COMMISSIONED: YES

UTILITY	AVAILABILITY	UTILITY COMPANY PROVIDER
SEWER	YES	WELSH WATER
WATER MAIN	YES	DEE VALLEY WATER
GAS MAIN	YES	WALES & WEST GAS
TELECOM	YES	BT OPENREACH
CABLE TV	YES	VIRGIN MEDIA
ELECTRICITY	YES	SP ENERGY NETWORKS
OIL PIPES	NO	N/A
OTHER	NO	N/A

REV	DESCRIPTION	DRAWN	CHECKED	APPR	SURVEY DATE

SURVEY SOLUTIONS

LAND SURVEYING
BUILDING SURVEYING
UNDERGROUND SURVEYING
SITE ENGINEERING
MONITORING

0845 040 5969
survey-solutions.co.uk

IPSWICH BEDFORD COVENTRY GLASGOW LONDON MANCHESTER NORWICH NOTTINGHAM YEOVIL

PROJECT TITLE
BORDER RETAIL PARK, HOLT ROAD
WREXHAM, LL13 8NG

DRAWING DETAIL
UTILITIES AND DRAINAGE SURVEY.
SHEET 1 OF 2

CLIENT
WES NO.1 LTD

SCALE
1:200

SURVEYOR	SURVEY DATE	CHECKED BY	APPROVED BY	DWG STATUS
NB TH JD	28/07/2023	DWR	DWR	FINAL

DRAWING NUMBER
49683MCUG-01

REVISION

ISSUE DATE
18/07/2023

RICS ices THE SURVEY ASSOCIATION CHAS QMS ISO 14001 : 2015 REGISTERED

PAS 128: 2014 QUALITY LEVEL GUIDE

QUALITY	DESCRIPTION	SUC	QUALITY	DESCRIPTION
QL-D	Service positions taken from records.		QL-B2	Inspection & vertical position using only one technique.
QL-C	Service existence & approximate horizontal position by geophysical technology.		QL-B1	Inspection & vertical position using multiple geophysical technology.
QL-B4	Service position & vertical position (depth) by a single technique.		QL-A	Precise 3D position of service determined by trial excavation, normally vacuum excavation method.
QL-B3	Inspection method by one geophysical technique but with limited vertical depth information.			

DETECTION METHOD
IN ACCORDANCE WITH PAS 128: 2014 SURVEY TYPE B

DRAINAGE SURVEY
All accessible Manholes and Inspection chambers have had their respective covers lifted with pipe sizes, inverts, chamber sizes/type and service data recorded from ground level. All connections from DPs, Gullies, Drains, VP's, RE's and lamp holes have been proven wherever possible using audible connections (AC) and/or sonde instrumentation where applicable. Where these methods have proved unsuccessful then assumed (AR) straight line connections will be shown.

CCTV DRAINAGE SURVEY
All accessible Manholes and Inspection chambers have had their respective covers lifted with pipe sizes, inverts, chamber sizes/type and service data recorded from ground level. Pipework has been traced, accessed and collected for post processing. Drainage layout, including manhole covers not located by topographical survey, may be taken from CCTV chainage and will be shown as indicative only.

Electricity
Elec cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required.

British Telecoms
BT cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required. Due to current laws and legislation protecting all BT apparatus, cabling can only be located remotely. We therefore compare all our telecom findings against record information to produce the final service layout. In some instances, where high amount of cable ducts are present, we may only be able to identify a linear centre peak signal rather than identifying all the individual duct positions. For further information regarding Telecoms apparatus, please contact Openreach directly.

Cable TV &
CTV and/or Com cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required.

Fibre Optics
FO cables will have been predominantly located using GPR methodology. This is due to the materials used within fibre optic cabling. In some rare instances, tracer cabling or conductible non fibre optic cabling will be present within some or all ducting. When this is the case, both EML and GPR methodology will be combined to identify service network and achieve greater quality levels.

Lighting, Traffic Signal & Security Cables
LC, TS and/or Sec cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required.

Gas & Water Inc. Fuel Pipes and Hot Water Pipes
GM/GS and/or WM/WS pipe work will have been attempted and located using both EML & GPR methodology with electronically derived depths shown for the former and depths to crown levels shown for the latter.
When the Gas/Water pipe work is constructed using conductible materials, then we are able to to employ multiple geophysical techniques to identify service network and achieve greater quality levels. When a non conductible material is used, GPR methodology will be employed to locate and plot the final service layout.

Ground Penetrating Radar
GPR methodology is used to identify and locate all non metallic, non conductible piping and cabling. We also employ GPR to obtain a greater accuracy levels on EML located services. The GPR has a greater success rate on pipe or service diameter upward of Ø63mm,Ø63mm, as size increments increase, so does the chance of detection. The GPR can produces varying results and as such, wouldn't be used as an independent utility surveying instrument.

Unidentified Traces
All UIT's will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required. Every effort has been made to identify the service but in this instance, is not achievable. We recommend excavation work to determine identity and depth where applicable.

Scarring (QL-C)
Scarring has been identified on site with a potential of an undetectable service present.

Assumed Routes & Taken from Records (QL-B4/D)
Assumed routes (AR) are shown if there is evidence that a service exists but we are unable to trace it whilst on site. The surveyor will attempt to locate various risers/cis/valves/meters (service evidence) etc. around site area to successfully determine an assumed route between these points. If there is little evidence on site but they believe a service is still present, then a common sense approach to an assumed route shall be employed.

Taken from records (TFR) are service routes that are taken from STAT record plans or previous survey information and overlaid onto our drawings.

SURVEY RECOMMENDATIONS

The areas of dense vegetation to be cleared to allow access if any of these areas are deemed critical or of high importance.

To undertake a CCTV drainage survey of the entire site area to establish a more comprehensive drainage network, and asset condition of the pipework.

The sewers with high levels of silt or blockages to be jetted to extend the CCTV drainage survey, if any of these areas are deemed critical or of high importance.

Due to the geophysical nature of subsurface technology, we always recommend excavation works to be carried out within critical areas for verification and to eliminate the possibility of undetectable services present.

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UTILITIES & UNDERGROUND INVESTIGATIONS

ABBREVIATIONS & SYMBOLS

1D 5C	1 Duct 5 Cables	DCr	Depth To Crown	RBC	Rectangular Brick Chamber
Ø	Diameter	DI	Depth To Invert	RCC	Rectangular Conc Chamber
AC	Audible Connection	DS	Depth To Silt	RE	Redding Eye
AG	Above Ground	DTB	Depth To Base	SA	Survey Abandoned
AR	Assumed Route	DTW	Depth To Water	SL	Silt Level
BL	Base Level	DTS	Depth To Surcharge	SuL	Surcharge Level
CB	Concrete Benching	EBD	External Backdrop	TFR	Taken From Records
CBC	Circular Brick Chamber	EOT	End Of Trace →	UTC	Unable To CCTV
CCC	Circular Conc Chamber	IBD	Internal Backdrop	UTDO	Unable To Determine Outlet
CL	Cover Level	IL	Invert Level	UTL	Unable To Lift
CPC	Circ Plastic Chamber	OH	Overhead	UTS	Unable To Survey
CL	Crown Level	PDR	Poor Depth Response	UTT	Unable To Trace
CU	Camera Under Water →	RB ●	Root Bend	WL	Water Level

BT CABLES
OVERHEAD BT CABLE(S)
COMMUNICATIONS CABLE(S)
CABLE TV CABLE(S)
EMPTY DUCT
ELECTRIC CABLE(S)
OVERHEAD ELECTRIC CABLE(S)
FIBREOPTIC CABLE(S)
FUEL PIPE(S)
GAS MAIN
GAS SERVICE
GROUND PENETRATING RADAR (GPR) TRACE
HOT WATER PIPE
LIGHTING CIRCUIT
OIL PIPE(S)
SCARRING / SCARRING
SECURITY CABLING
TELECOM CABLE(S)
TRAFFIC SIGNAL
UNDENTIFIED SERVICE
UNIDENTIFIED TRACE
WATER MAIN
WATER SERVICE
WATER TANK/TOWER
COMBINED WATER RISING MAIN
EFFLUENT WATER
FOUL SEWER
FOUL WATER RISING MAIN
SEWER MAIN
SURFACE WATER SEWER
SURFACE WATER RISING MAIN
INVESTIGATION EXTENTS

Note: UTILITIES COMMENT BOX (GENERAL NOTES)
DEPTH TO SERVICE

AUDIBLE CONNECTION
SERVICE ABOVE GROUND
CAMERA UNDER WATER
SERVICE OVERHEAD

DRAWING NOTES

All below ground details shown have been identified from above ground without excavation. Survey Solution use electro-magnetic and/or ground penetrating radar (GPR) methods to investigate for underground utilities, services and features. Results using these methods are not infallible and we recommend trial excavations are carried out for verification of positions, depths and identification.

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GENERAL SYNOPSIS

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TOPOGRAPHICAL/ DWG DRAWING INFORMATION
TOPOGRAPHICAL SURVEY DATE 02/06/2023

SURVEY TYPE	DESCRIPTION	EFFECT ON SURVEY RESULTS
TOPO	Survey Solutions	
OUTDATED		
OS		
NTS		

GENERAL SITE CONDITIONS
AVERAGE

ADDITIONAL INFORMATION	EFFECT ON SURVEY RESULTS

DESKTOP UTILITY RECORDS (PAS 128: 2014 SURVEY TYPE D)
PREREQUISITE FOR PAS 128: 2014 SURVEY TYPE B
COMMISSIONED: YES

UTILITY	AVAILABILITY	UTILITY COMPANY PROVIDER
SEWER	YES	WELSH WATER
WATER MAIN	YES	DEE VALLEY WATER
GAS MAIN	YES	WALES & WEST GAS
TELECOM	YES	BT OPENREACH
CABLE TV	YES	VIRGIN MEDIA
ELECTRICITY	YES	SP ENERGY NETWORKS
OIL PIPES	NO	N/A
OTHER	NO	N/A

REV	DESCRIPTION	DRAWN	CHECKED	APPR.	SURVEY DATE

SURVEY SOLUTIONS
LAND SURVEYING
BUILDING SURVEYING
UNDERGROUND SURVEYING
SITE ENGINEERING
MONITORING
0845 040 5969
survey-solutions.co.uk
IPSWICH BEDFORD COVENTRY GLASGOW LONDON MANCHESTER NORWICH NOTTINGHAM YEOVIL

PROJECT TITLE
BORDER RETAIL PARK, HOLT ROAD
WREXHAM, LL13 8NG

DRAWING DETAIL
UTILITIES AND DRAINAGE SURVEY.
SHEET 2 OF 2

CLIENT				SCALE
WES NO.1 LTD				1:200
SURVEYOR	SURVEY DATE	CHECKED BY	APPROVED BY	DWG STATUS
NB TH JD	28/07/2023	DWR	DWR	FINAL
DRAWING NUMBER		REVISION		ISSUE DATE
49683MCUG-02				18/07/2023

RICS ices THE SURVEY ASSOCIATION CHAS QMS ISO 9001 : 2015 REGISTERED

COSTA DRIVE THRU

BORDER RETAIL PARK

WREXHAM

SITE INVESTIGATION INFORMATION

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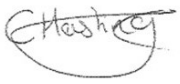
GROUNDTECH
CONSULTING

COSTA DRIVE THRU, WREXHAM

GEO-ENVIRONMENTAL APPRAISAL

BRIAN CLANCY HIGBY PARTNERSHIPS

FEBRUARY 2024

Document Control Form	
PROJECT	*COSTA DRIVE THROUGH, WREXHAM*
REPORT NAME	*GEO-ENVIRONMENTAL APPRAISAL*
REPORT REFERENCE	*GRO-23255-4945*
STATUS	*FINAL*
ISSUE DATE	*06 FEBRUARY 2024*
REVISION	
CLIENT	*BRIAN CLANCY HIGBY PARTNERSHIP*
CLIENT CONTACT	*PETER HIGBY*
For and Behalf of Groundtech Consulting	
SIGNATURE	
AUTHOR	Michael Berry MGeo (Hons) FGS
SIGNATURE	
CHECKED	Connor Hastings BSc (Hons) FGS
SIGNATURE	
REVIEWED	James Doyle BSc (Hons) CGeol FGS

SUMMARY

Site Details		
Site Location		*The site is located east of Wrexham Town Centre approximately on national grid reference 333972, 350527.*
Site Area		*The site covers roughly 0.09 hectares and is generally level. The sit is currently utilised as a car park with some small areas of soft landscaping.*
Preliminary Risk Assessment		
History		The site remained undeveloped from 1872 to 1898 when a sand pit was dug on site. The sand pit remained until 1959 when it appeared to be infilled. The site was developed into a car park in 2003 and has remained unchanged since then. The surrounding area has ben an industrial and commercial area since before 1872. The current retail park was developed in 2003.
Geology/Hydrogeology		The superficial deposits underlying the site are Glaciofluvial sheet deposits characterised by sand and gravel. The superficial deposits are considered a Secondary A aquifer. The bedrock is indicated to be the Salop Formation comprising of mudstone, sandstone and conglomerate. The bedrock is considered a Secondary A Aquifer.
Mining		The site lies in area requiring a mining search. The property is not within an area affected by past recorded mine workings and there are no mine entries within 20m of the site boundary.
Environmental Setting		The nearest named water course is the River Gwenfro 665m south of the site. There are 5 current industrial land uses within 250m of the site.
Pollution Linkage (PL) Assessment	Human Health	*Deep Made Ground may be present within the infilled sand pit located on the site and may be contaminated with a range of contaminants. The site will be covered in hardstanding but some small areas of are proposed. The risk is considered Moderate to Low.*
	Controlled Waters	*The site is underlain by granular superficial deposits considered a Secondary A aquifer. The bedrock is considered a Secondary A aquifer. The closest surface water feature is the River Gwenfro c. 665m south of the site. No significant source of mobile contamination has been encountered by the desk based study and the risk is considered Low.*
	Permanent Ground Gas	*There is considered onsite and offsite sources of ground gas including the infilled sand pit on site. The risk from permanent ground gases is considered moderate.*
Ground Model		

Made Ground Soils	*Made ground was encountered to a maximum depth of 2.4m bgl and comprised four main populations including clayey sand gravel and occasionally clayey gravelly sand. Minor constituents within the Made Ground included concrete, brick, tarmac and sandstone.*
Natural Soils	*Natural soils were encountered to a maximum depth of 5.0m bgl and adhered to the geological records. Brown occasionally gravelly sand was encountered from 0.5m bgl to a maximum observed depth of 5.0mbgl.*
Bedrock	*Bedrock was not encountered during the investigation.*
Groundwater	*No groundwater strikes were observed during the investigation.*
Ground Engineering Assessment	
Foundations	*The most suitable foundation solution is considered to be Vibro Treatment/Vibro Stone Columns (VSCs). Piles are also considered feasible founding within the medium dense Sand at 5.0m bgl. An allowable bearing pressure of 200kN/m^2 can be achieved with a 350mm diameter driven pile.*
Highways	*CBR values of 5% are likely achievable within the natural strata. Made Ground should be assumed to have a CBR value of <2.5%.*
SuDS	*SuDS drainage is considered feasible due to the granular natural deposits. If SuDS are to be considered, soil percolation tests should be undertaken in accordance with BRE365.*
Constraints	*Concrete obstruction were encountered within WS03 and WS05 at depths of between 1.8m and 2.0m bgl and will require grubbing out prior to foundation installation.*
GQRA and Revised (PL) Assessment	
Human Health	*No elevated contaminants of concern have been encountered and the risk to Human Health is considered Low.*
Controlled Waters	*The nearest surface water feature is the River Gwenfro circa 665m from the site. The site is underlain by Superficial A aquifers in both the superficial and bedrock deposits. No mobile contamination has been encountered and the site will be covered by hardsurfacing with a new drainage system installed. The risk to controlled waters is considered Low.*
Permanent Ground Gas	*The site has been classified as CS1 and no gas protection measures are required within the proposed development. The site lies in an areas not requiring radon protection.*
Final Appraisal	
Required Further Work	• *Detailed foundation design* • *Further ground investigation to confirm geotechnical parameters for pile design, if required* • *Confirmation of recommendations made within this appraisal with regulators*

6.0 GROUND MODEL

6.1 Made Ground

The site was mostly covered by tarmac. There were some small areas of soft landscaping to the north, south and west

Made Ground was encountered across the site to depths between Ground Level and 2.4m bgl. Four main Made Ground populations were encountered during the investigation and are described below:

1. *Red brown slightly clayey sandy angular to subangular fine to coarse gravel with minor constituents of concrete, brick, tarmac and sandstone was encountered within all exploratory holes from 0.15m bgl to a maximum depth of 0.5m bgl.*

2. *Yellow brown gravelly fine to coarse sand, gravel is angular to subangular fine to coarse with minor constituents of concrete, brick and sandstone was encountered within WS01, WS04, WS07, WS08 from 0.40m bgl to a maximum depth of 1.2m bgl.*

3. *Brown clayey sandy angular to subangular fine to coarse gravel with minor constituents of concrete, wood, sandstone and brick was encountered within WS05 from 0.5m bgl to a maximum depth of 2.0m bgl.*

4. *Brown clayey gravelly fine to coarse sand with minor constituents of brick, coal, sandstone and wood was encountered within WS02, WS04, WS07 and WS08 from 0.3m bgl to a maximum depth of 2.4m bgl.*



Exploratory Hole Locations

6.2 Natural Ground

The natural strata encountered generally confirmed the published geological records. Three main natural stratification encountered during the investigation and are described below:

1. *Brown gravelly fine to coarse sand with minor constituents of sandstone was encountered within WS01, WS02, WS04 from 0.50m bgl to a maximum depth of 4.0m bgl.*

2. *Brown fine to coarse sand was encountered within WS01, WS06, WS07, WS08 from 1.2m bgl to a maximum depth of 4.0m bgl.*

6.3 Bedrock

Bedrock was not encountered in this investigation.

6.4 Groundwater

Groundwater strikes were not observed in any of the exploratory boreholes.

6.5 Watching Brief

A watching brief was maintained during the Ground Investigation for visual and olfactory evidence of contamination.

No evidence of contamination was identified during the excavation of the boreholes.

6.6 Excavation Stability

Collapse was noted in the natural sand deposits during excavation of the boreholes.

6.7 Excavation Progress

Advancement of the boreholes became difficult below 3.0m bgl due to collapse of the natural sand.

Concrete obstructions were encountered within WS03 and WS05 at depths of between 1.8m and 2.0m bgl.

7.0 GROUND ENGINEERING

7.1 Assessment Background

The ground engineering investigation has been undertaken to formulate an accurate ground model in order to undertake preliminary foundation design. The ground model has been constructed with a moderate level of confidence, the ground model has evolved from the information obtained by the PRA.

The site currently forms part of a car park with small areas of soft landscaping. Granular Made Ground underlies the site to a maximum depth of 2.4m bgl. The natural strata comprised granular Glaciofluvial deposits encountered to a maximum observed depth of 5.0m bgl.

The proposed development is for a new Costa Coffee shop with drive through and parking.

The main limitation is the loose sand located between 2.0m and 4.0m bgl. This strata rules out the use of shallow foundations for this development.

Concrete obstructions were encountered within WS03 and WS05 at depths of between 1.8m and 2.0m bgl. Deeper Made Ground was observed within the eastern portion of the site associated with the former sand and gravel pit seen on the historical maps between 1909 and 1949. These obstructions will require grubbing up prior to foundation installation.

7.2 Geotechnical Parameters

The geotechnical test results have been evaluated to derive geotechnical parameters for the soils underlying the site. A depth to SPT N value graph is presented in *Appendix 1* as *GRO-23255-P05* to provide a generalised ground model for the site.

Characterization of the geotechnical parameters above has been undertaken to select a characteristic value, which is a cautious estimate of the value affecting the occurrence of the limit state.

The characteristic values of the granular strata have been selected based on correlation with SPT N values. The characteristic values for the Ultimate Limit State (ULS) selected are presented below:

Stratum	Parameter	Selected Characteristic Value
Loose Sand	*Angle of shearing resistance (ϕ')*	*30°*
Medium Dense Sand	*Angle of shearing resistance (ϕ')*	*31°*

7.3 Preliminary Foundation Design

Due to the poor SPTs between 1.2m and 4.0m bgl within the natural Sand and the deep Made Ground to 2.4m bgl, the most suitable foundations for the proposed development are considered to be Vibro Ground Improvement/Vibro Stone Columns (VSCs) or piles transferring load to the medium dense Sand from 4.0m bgl. A shallow foundation solution is not considered to be a viable option for the proposed development.

Vibro Stone Columns

The most suitable foundation solution for the proposed development are considered to be shallow reinforced strip foundations constructed in vibro treated ground.

A preliminary design resistance for ultimate limit state and serviceability limit state conditions will be provided by the specialist vibro contractor in their detailed design however, it is likely that the foundations could be designed to provide an allowable bearing capacity of around 150kN/m^2. The specialist vibro contractor should provide fitness for purpose cover for the treated zones and depth of treatment.

The depth of foundations is to be a minimum of 0.35m below the surface of the vibro treated ground as the integrity of the columns is not validated to this depth. The reinforced concrete foundation should be designed to span between the centres of adjacent stone columns.

Piled Foundations

Piled foundation designs will need to satisfy Ultimate Limit State (ULS) and Serviceability Limit State (SLS) conditions. This is due to the poor ground conditions and Made Ground within the upper circa 2.4m of the ground beneath the site due to the infilled sandpit. The length of the piles will vary depending on the final load requirements. Detailed loadings are not available at this stage.

Preliminary foundation design by calculation has been carried out using due skill and care using the global factor of safety method.

The site should be grubbed up to a minimum depth of 2.0m bgl to remove obstructions for the proposed piling works. This should be discussed and confirmed with a specialist piling Contractor.

Design by Calculation

A piled foundation solution is considered the most appropriate for the proposed development end bearing in medium dense sand.

The preliminary design by calculation has been based on the following ground model:

- *Made Ground* - *2.4m bgl*
- *Loose Sand* - *4.0m bgl*
- *Medium dense Sand* - *5.0m bgl*

Driven piles are likely to be suitable due to the loose sand, for a single 225mm diameter driven pile 5m in length end bearing in the medium dense Sand, an allowable load of 90kN has been calculated.

The piles should be driven to sett using a pile driving formulae, this will validate the detailed design which is to be undertaken by calculation.

It is recommended that a deeper investigation is undertaken to confirm the strata beneath the toe of the pile in accordance with EC7.

An appropriate working platform should be constructed in accordance with BR470 guidance.

Construction Recommendations

The recommendations in this appraisal are preliminary and the detailed design should be developed in advance and during the construction phase. If the ground conditions or groundwater regime encountered during the construction phase differ significantly to the conditions encountered during the Ground Investigation, work should cease and Groundtech Consulting contacted for further advice.

During the construction phase, supervision by a suitably qualified geotechnical engineer should be on a continuous basis to check the design assumptions are correct and construction conforms to design in accordance with EC7. Supervision should include inspections, Control Ground Investigations and monitoring by a suitably qualified geotechnical engineer.

7.4 Building Near Trees

The site is underlain by granular deposits and there is no possibility of heave occurring. Should cohesive strata be encountered during the construction phase, Groundtech Consulting should be contacted for advice.

7.5 Floor Slabs

Greater than 600mm of Made Ground is generally present beneath the site and therefore suspended floor slabs are recommended.

7.6 Construction

The boreholes indicate that instability of excavations is anticipated within the natural granular deposits. Instability of the Made Ground is a possibility and should be considered in the groundworks method statements.

Tracked high specification plant is recommended to maintain the build programme. Breaking equipment may also be required locally to penetrate obstructions identified by them to Ground Investigation. Concrete obstructions were encountered within WS03 and WS05 from 1.8m to 2.0m bgl.

Groundwater was not encountered during this investigation.

7.7 Concrete Classification

Made Ground
Water soluble sulphate testing was undertaken on three samples of the Made Ground. The range of soluble sulphate (SO_4) recorded is <1.50mgl/l to 218.6mg/l. Associated pH values ranged between 6.64 and 11.19 indicating alkaline conditions.

In a small dataset, the highest of the results of sulphate test results should be taken as the characteristic value and the lowest of the pH values. For the natural soils, a characteristic soluble sulphate concentration of 218.6mg/l has been selected together with a characteristic pH of 6.64.

Natural Strata
Water soluble sulphate testing was undertaken on three samples of the natural granular deposits. The range of soluble sulphate (SO_4) recorded is 8.8mgl/l to 33.6mg/l. Associated pH values ranged between 7.55 and 9.82 indicating slightly alkaline conditions.

In a small dataset, the highest of the results of sulphate test results should be taken as the characteristic value and the lowest of the pH values. For the natural soils, a characteristic soluble sulphate concentration of 33.6mg/l has been selected together with a characteristic pH of 7.55.

Granular deposits are present beneath the site therefore the groundwater is considered to be mobile.

The results of laboratory pH and sulphate content indicate that ACEC Class AC-1 and sulphate class DS-1 conditions prevail in accordance with BRE Special Digest 1 “Concrete in aggressive ground” 2005. The specific

concrete mixes (the Design Concrete Class) to be used on site will be determined by the site specific concrete requirements in terms of the durability and structural performance. These are assessed in terms of the Structural Performance Level (SPL) and any need for Additional Protective Measures (APM) detailed in Part D of BRE Special Digest 1 with further guidance in Pt E and F.

7.8 Highway Design

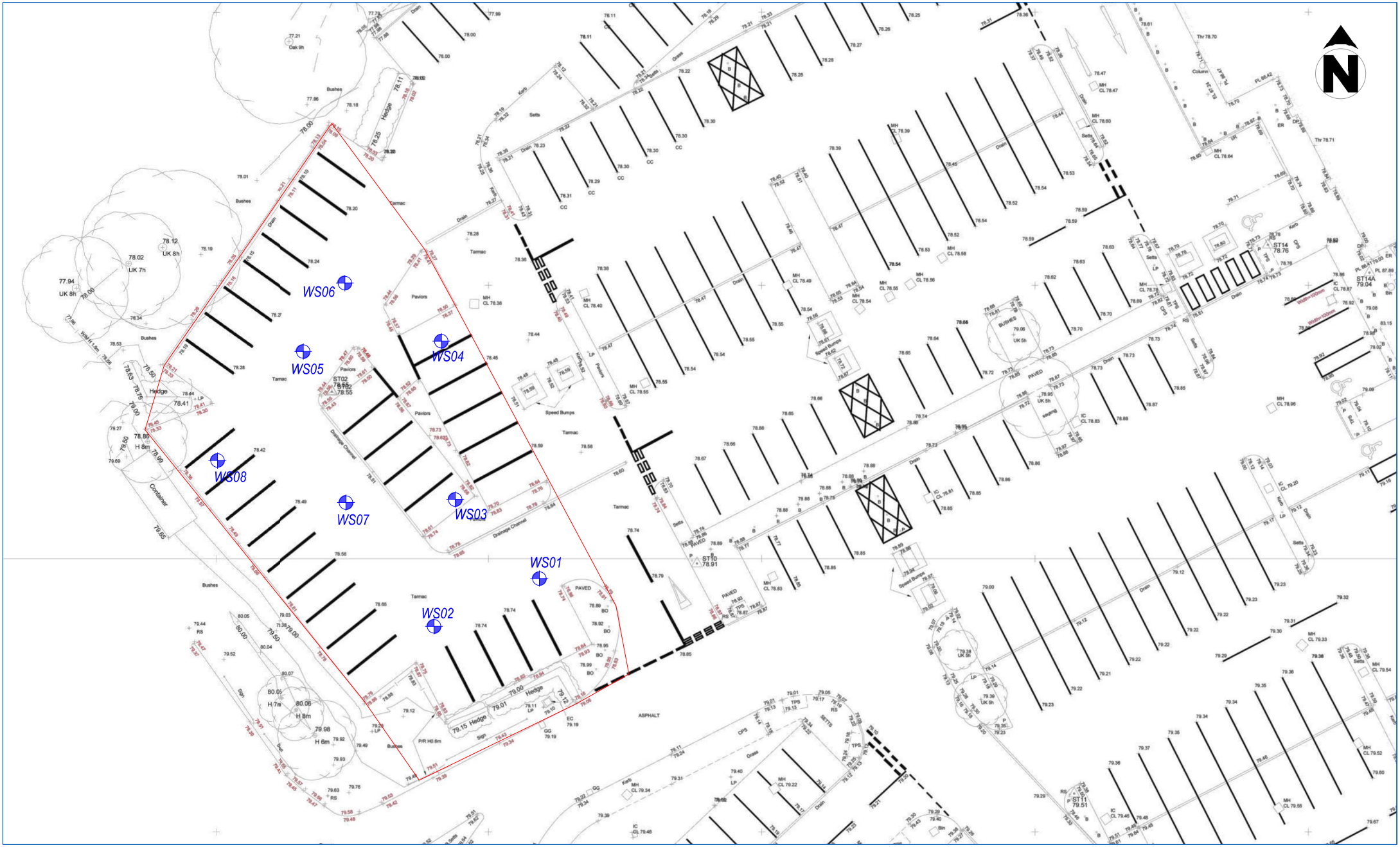
CBR values of 5% are likely to be achieved in undisturbed natural soils for pavement design purposes, unless proven otherwise by in-situ testing at sub-base level by a specialist geotechnical engineer. As a minimum the subgrade should be proof rolled prior to construction. Some reengineering of the subgrade is required prior to highway construction to achieve the required design CBR value.

Untreated made ground should be assumed to have a CBR value of <2.5%, unless proven otherwise. Highways Agency document HD25 'Interim Advice Note 73/06 Revision 1' (2009) states that where a subgrade has a CBR value lower than 2.5%, it is considered unsuitable support for a pavement foundation since it would tend to deform under construction traffic, and must be improved.

Where highways are proposed in areas underlain by Made Ground, it is recommended that made ground to a depth of 1.0m below subgrade level is excavated, sorted and classified in accordance with Series 600 (Earthworks) of the Highways Agency "Specification for Highways Works". Following the above, any suitable material which can be used as part of highway construction shall be compacted in accordance with the earthworks specification.

7.9 Sustainable Urban Drainage System (SuDS)

Soil percolation testing was outside of the scope of works of this Ground Investigation but could be a feasible option for the proposed development due to the presence of natural granular strata encountered beneath the site.



GROUNDTECH CONSULTING

CLIENT	BRIAN CLANCY HIGBY PARTNERSHIP
PROJECT TITLE	COSTA DRIVE THRU, WREXHAM
PLAN TITLE	EXPLORATORY HOLE LOCATION PLAN

DATE	JANUARY 2024
SCALE	NTS
PLAN NUMBER	GRO-23255-P04

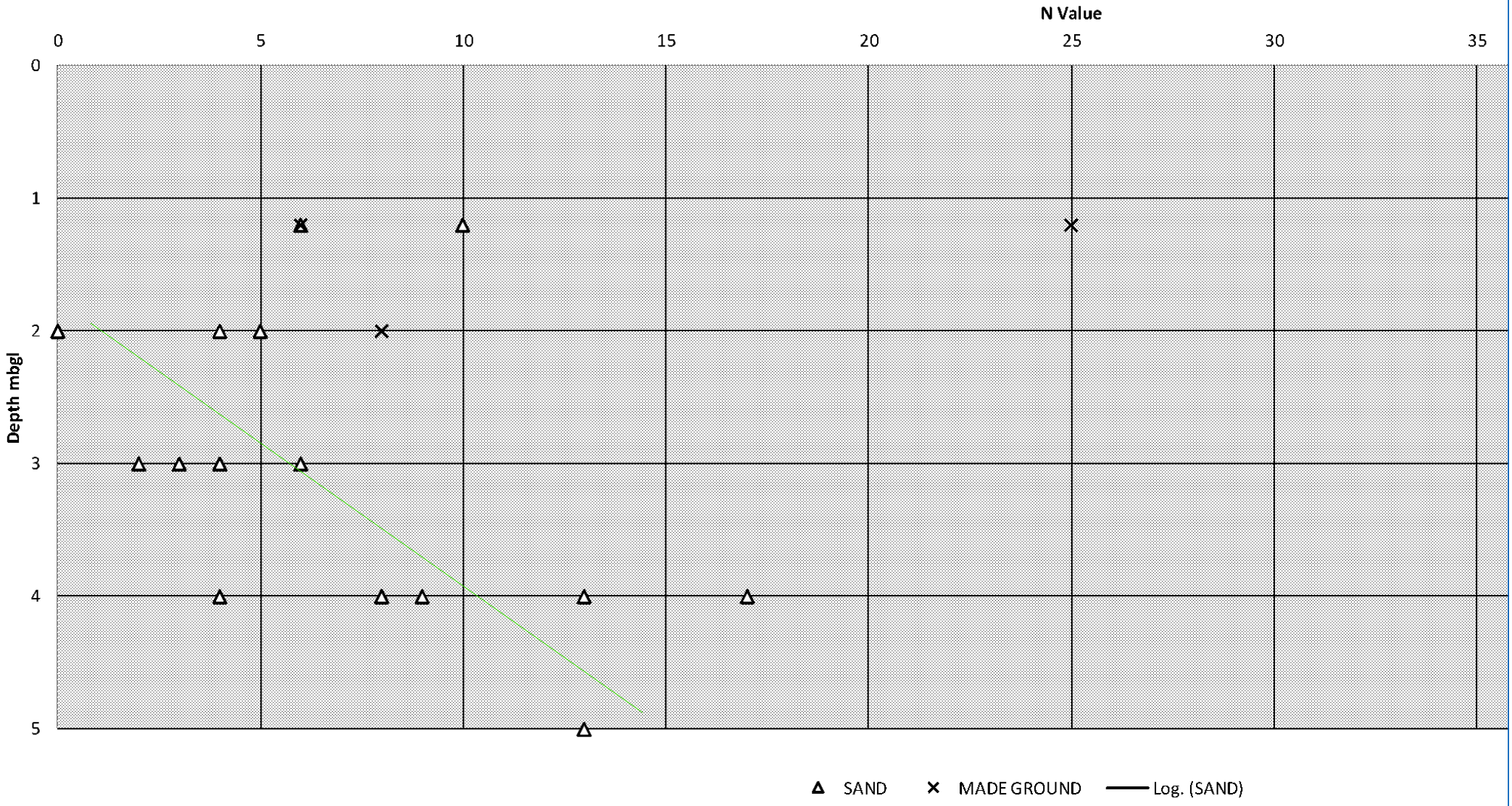
Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes

- Window sample location
- Site Boundary

DEPTH vs SPT 'N' VALUE



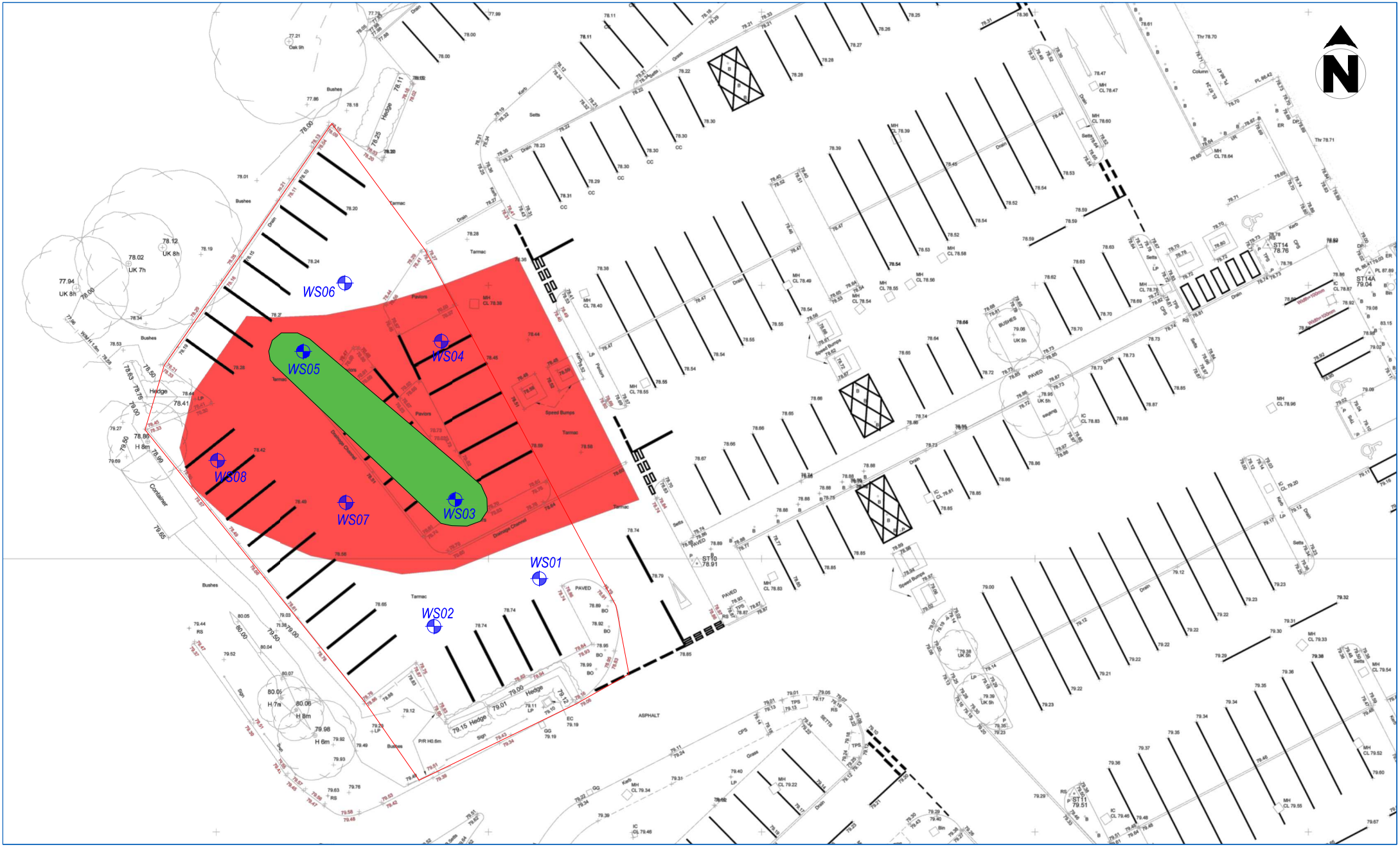
GROUNDTECH CONSULTING

CLIENT	BRIAN CLANCY HIGBY PARTNERSHIP
PROJECT TITLE	COSTA DRIVE THRU, WREXHAM
PLAN TITLE	GENERALISED GROUND MODEL
DATE	JANUARY 2024
SCALE	NTS
PLAN NUMBER	GRO-23255-P05

Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes



GROUNDTECH CONSULTING

CLIENT	BRIAN CLANCY HIGBY PARTNERSHIP
PROJECT TITLE	COSTA DRIVE THRU, WREXHAM
PLAN TITLE	REVISED DEVELOPMENT CONSTRAINTS PLAN

DATE	JANUARY 2024
SCALE	NTS
PLAN NUMBER	GRO-23255-P06

Rev.	Details	Date

Status	
Preliminary	
Draft	
Issued	●
For Comment	
Approved	

Notes

- Window sample location
- Sand Pit Location
- Concrete Obstruction

APPENDIX 9 - Exploratory Hole Logs

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **WS01**

Sheet 1 of 2

Project Name: COSTA DRIVE THROUGH	Project No. GRO-23255	Co-ords: -	Hole Type WS
Location: WREXHAM		Level:	Scale 1:25
Client: BRIAN CLANCY HIGBY PARTNERSHIPS		Dates: 28/11/2023 -	Logged By AJ

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15			MADE GROUND: Dark grey tarmac.
		0.30	ES					MADE GROUND: Red brown slightly clayey sandy angular to subangular fine to coarse gravel of concrete, brick, tarmac and sandstone. Sand is fine to coarse.
					0.50			
		0.60	ES					MADE GROUND: Yellow brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of concrete.
					0.70			Medium dense brown slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium of sandstone.
		0.90	ES					
		1.20	D					
		1.20		N=10 (2,3/3,3,3,1)				
					1.70			Loose brown fine to coarse SAND.
		1.80	ES					
		2.00	D					
		2.00		N=4 (1,1/1,1,1,1)				
		2.80	D					
		3.00	D					
		3.00		N=4 (1,1/1,1,1,1)				
		3.80	D					
		4.00	D					*Becoming medium dense at 4.00m bgl.*
		4.00		N=17 (2,3/4,4,4,5)				
		4.80	D					
		5.00	D		5.00			
								Continued on next sheet

Remarks

1. Location cleared of services using handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 5.00m bgl due to collapse of the natural sand. 5. Monitoring standpipe installed to 4.50m bgl (1.00m plain, 3.50m slotted).

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **WS01**

Sheet 2 of 2

Project Name: COSTA DRIVE THROUGH	Project No. GRO-23255	Co-ords: -	Hole Type WS
Location: WREXHAM		Level:	Scale 1:25
Client: BRIAN CLANCY HIGBY PARTNERSHIPS		Dates: 28/11/2023 -	Logged By AJ

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		5.00		N=13 (1,2/3,3,3,4)				End of borehole at 5.00 m

6
7
8
9
10

Remarks

1. Location cleared of services using handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 5.00m bgl due to collapse of the natural sand. 5. Monitoring standpipe installed to 4.50m bgl (1.00m plain, 3.50m slotted).

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **WS02**

Sheet 1 of 1

Project Name: COSTA DRIVE THROUGH	Project No. GRO-23255	Co-ords: -	Hole Type WS
Location: WREXHAM		Level:	Scale 1:25
Client: BRIAN CLANCY HIGBY PARTNERSHIPS		Dates: 28/11/2023 -	Logged By AJ

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.15			MADE GROUND: Dark grey tarmac.
		0.40	ES		0.30			MADE GROUND: Red brown slightly clayey sandy angular to subangular fine to coarse gravel of concrete, brick, tarmac and sandstone. Sand is fine to coarse.
		0.70	ES		0.50			MADE GROUND: Grey brown clayey slightly gravelly fine to coarse sand. Gravel is angular fine to medium of sandstone and concrete.
		1.20 1.20	D	N=10 (1,2/3,2,2,3)				Medium dense light brown slightly gravelly fine to coarse SAND. Gravel is rounded fine to medium of sandstone.
		1.50	ES					
		2.00 2.00	D	N=4 (1,1/1,1,1,1)				*Becoming loose between 2.00m to 3.00m bgl.*
		2.80	D					
		3.00 3.00	D	N=6 (1,1/2,2,1,1)				
		3.80	D					
		4.00 4.00	D	N=13 (3,3/3,4,3,3)	4.00			End of borehole at 4.00 m

1 2 3 4 5

Remarks

1. Location cleared of services using handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 4.00m bgl due to collapse of the natural sand. 5. Borehole backfilled with arisings.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **WS03**

Sheet 1 of 1

Project Name: COSTA DRIVE THROUGH	Project No. GRO-23255	Co-ords: -	Hole Type WS
Location: WREXHAM		Level:	Scale 1:25
Client: BRIAN CLANCY HIGBY PARTNERSHIPS		Dates: 28/11/2023 -	Logged By AJ

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15			MADE GROUND: Dark grey tarmac.
		0.40	ES		0.50			MADE GROUND: Red brown slightly clayey sandy angular to subangular fine to coarse gravel of concrete, brick, tarmac and sandstone. Sand is fine to coarse.
		1.20 1.20 1.30	D ES	N=25 (3,4/4,5,7,9)				MADE GROUND: Brown clayey sandy angular to subangular fine to coarse gravel of brick, concrete and wood. Sand is fine to coarse.
		1.80 1.80	D	N=50 (10,14/50 for 170mm)	1.80 1.80			MADE GROUND: Concrete. End of borehole at 1.80 m

Remarks

1. Location cleared of services using handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 1.80m bgl due to concrete obstruction. 5. Borehole backfilled with arisings.

Borehole Log

Borehole No. **WS04**

Sheet 1 of 1

Project Name: COSTA DRIVE THROUGH	Project No. GRO-23255	Co-ords: -	Hole Type WS
Location: WREXHAM		Level:	Scale 1:25
Client: BRIAN CLANCY HIGBY PARTNERSHIPS		Dates: 28/11/2023 -	Logged By AJ

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	ES		0.15			MADE GROUND: Dark grey tarmac.
					0.50			MADE GROUND: Red brown slightly clayey sandy angular to subangular fine to coarse gravel of concrete, brick, tarmac and sandstone. Sand is fine to coarse.
		0.70	ES					MADE GROUND: Brown clayey gravelly fine to coarse sand. Gravel is angular fine to medium of brick, concrete and sandstone.
		1.20 1.20	D	N=6 (1,1/2,1,1,2)	1.20			MADE GROUND: Dark brown clayey gravelly fine to coarse sand. Gravel is subangular to subrounded fine to medium of brick, coal, sandstone and wood.
		1.50	ES					
		2.00 2.00	D	N=8 (1,1/1,1,3,3)				
		2.50	ES		2.40			Very loose brown slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium of sandstone.
		3.00 3.00	D	N=2 (1,0/1,0,1,0)				
		4.00 4.00	D	N=4 (1,1/1,1,1,1)	4.00			End of borehole at 4.00 m

Remarks

1. Location cleared of services using handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 4.00m bgl due to collapse of the natural sand. 5. Borehole backfilled with arisings.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **WS05** Sheet 1 of 1

Project Name: COSTA DRIVE THROUGH	Project No. GRO-23255	Co-ords: -	Hole Type WS
Location: WREXHAM		Level:	Scale 1:25
Client: BRIAN CLANCY HIGBY PARTNERSHIPS		Dates: 28/11/2023 -	Logged By AJ

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15			MADE GROUND: Dark grey tarmac.
					0.50			MADE GROUND: Red brown slightly clayey sandy angular to subangular fine to coarse gravel of concrete, brick, tarmac and sandstone. Sand is fine to coarse.
		1.20		N=25 (1,3/3,8,7,7)				MADE GROUND: Brown clayey sandy angular to subangular fine to coarse gravel of brick, concrete and wood. Sand is fine to coarse.
		2.00		N=50 (25 for 95mm/50 for 105mm)	2.00 2.00			MADE GROUND: Concrete. End of borehole at 2.00 m

Remarks

1. Location cleared of services using handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 2.00m bgl due to concrete obstruction. 5. Borehole backfilled with arisings.

GROUNDTECH CONSULTING

Borehole Log

Borehole No. **WS06**

Sheet 1 of 1

Project Name: COSTA DRIVE THROUGH	Project No. GRO-23255	Co-ords: -	Hole Type WS
Location: WREXHAM		Level:	Scale 1:25
Client: BRIAN CLANCY HIGBY PARTNERSHIPS		Dates: 28/11/2023 -	Logged By AJ

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15			MADE GROUND: Dark grey tarmac.
		0.30	ES					MADE GROUND: Red brown slightly clayey sandy angular to subangular fine to coarse gravel of concrete, brick, tarmac and sandstone. Sand is fine to coarse.
					0.50			
		0.70	ES					Loose brown clayey slightly gravelly fine to coarse SAND. Gravel is subrounded fine to medium of sandstone.
		1.20 1.20	D	N=6 (1,1/1,2,2,1)				
		1.70	ES					
		2.00 2.00	D	N=0 (1,0/0,0,0,0)	2.00			Very loose light brown fine to coarse SAND.
					4.00			End of borehole at 4.00 m

1 2 3 4 5

Remarks

1. Location cleared of services using handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 2.00m bgl due to collapse of the natural sand. 5. Monitoring standpipe installed to 2.00m bgl (1.00m plain, 1.00m slotted).

Borehole Log

Project Name: COSTA DRIVE THROUGH	Project No. GRO-23255	Co-ords: -
Location: WREXHAM		Level:
Client: BRIAN CLANCY HIGBY PARTNERSHIPS		Dates: 28/11/2023 -

Borehole No. **WS07** Sheet 1 of 1

Hole Type WS | Scale 1:25 | Logged By AJ

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.20	ES		0.15			MADE GROUND: Dark grey tarmac.
					0.40			MADE GROUND: Red brown slightly clayey sandy angular to subangular fine to coarse gravel of concrete, brick, tarmac and sandstone. Sand is fine to coarse.
		0.70	ES					MADE GROUND: Brown slightly gravelly fine to coarse sand. Gravel is subangular fine to medium of brick, concrete and sandstone.
		1.20 1.20	D	N=10 (1,2/3,3,2,2)	1.20			Medium dense brown fine to coarse SAND.
		1.50	ES					
		2.00 2.00	D	N=5 (1,1/1,1,1,2)				*Becoming loose from 2.00m.*
		2.50	ES					
		3.00 3.00	D	N=3 (0,1/1,1,0,1)				*Becoming very loose from 3.0m bgl.*
		4.00 4.00	D	N=8 (1,1/2,2,2,2)	4.00			End of borehole at 4.00 m

1 2 3 4 5

Remarks

1. Location cleared of services using handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m bgl. 3. No groundwater encountered. 4. Borehole terminated at 4.00m bgl due to collapse of the natural sand. 5. Monitoring standpipe installed to 3.00m bgl (1.00m plain, 2.00m slotted).

Borehole Log

Project Name: COSTA DRIVE THROUGH	Project No. GRO-23255	Borehole No. **WS08** Sheet 1 of 1
Location: WREXHAM	Co-ords: -	Hole Type WS
Client: BRIAN CLANCY HIGBY PARTNERSHIPS	Level:	Scale 1:25
	Dates: 28/11/2023 -	Logged By AJ

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15			MADE GROUND: Dark grey tarmac.
		0.30	ES					MADE GROUND: Red brown slightly clayey sandy angular to subangular fine to coarse gravel of concrete, brick, tarmac and sandstone. Sand is fine to coarse.
		0.60	ES		0.50			MADE GROUND: Brown slightly gravelly fine to coarse sand. Gravel is subangular fine to medium of brick, concrete and sandstone.
		1.20 1.20	D	N=10 (1,1/2,2,3,3)	1.20			Medium dense brown fine to coarse SAND.
		1.60	ES					
		2.00 2.00	D	N=4 (1,1/1,1,1,1)				*Becoming loose from 2.00m bgl.*
		2.60	ES					
		3.00 3.00	D	N=6 (1,1/2,2,1,1)				
		4.00 4.00	D	N=9 (1,2/2,3,2,2)	4.00			End of borehole at 4.00 m

Remarks

1. Location cleared of services using handheld Cable Avoidance Tool (CAT). 2. Hand excavated inspection pit to 1.20m. 3. No groundwater encountered. 4. Borehole terminated at 4.00m bgl due to collapse of the natural sand. 5. Borehole backfilled with arisings.

COSTA DRIVE THRU

BORDER RETAIL PARK

WREXHAM

BCHP DRAWINGS

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ALL DIMENSIONS & LEVELS ARE TO BE CONFIRMED ON SITE.

FOR ALL SETTING OUT DIMENSIONS & LEVELS REFER TO THE ARCHITECTS DRAWINGS

N.B – EXISTING RE–USED DRAINS

THE CONTRACTOR WILL INCORPORATE SOME OF THE EXISTING DRAINAGE SYSTEM, ALONG WITH NEW, IN THE PROPOSED WORKS.
HE IS TO REPORT TO THE CLIENT THAT HE IS SATISFIED WITH THE INTEGRITY OF THESE PIPES & MANHOLES.

KEY

- EXISTING FOUL SEWER
- EXISTING SURFACE WATER SEWER
- PROPOSED SURFACE DRAINS
- PROPOSED FOUL
- PROPOSED MH SURFACE
- PROPOSED MH – FOUL
- G — YARD GULLY
- RODDING EYE
- SVP — SOIL VENT PIPE
- BD — BACK DROP
- RWP — RAIN WATER PIPE
- STG — SEALED SOIL PIPE POP–UP FOR SINK WASTE OR CONDENSATE WASTE

EX.FOUL MH
CL= +77.700m
IL= +76.250m
DEPTH=1450mm
MH(QL-A)
CL 77.70
IL 76.25
FW/CCC
All Ø100mm

Step
Step
Step
Step

MH–F5
CL= +78.000m
IL= +76.750m
DEPTH= 1250mm

NOTE
CONTRACTOR TO UNDERTAKE A PERCOLATION TEST TO BRE DIGEST 365 TO CONFIRM INFILTRATION RATE INTO SAND. ASSUMED RATE $1x10^{-5}$ m/s

S4
PERFORATED PCC RING SOAKAWAY ENCLOSED IN A SQUARE PIT FILLED WITH 40mm SINGLE SIZED GRAVEL WITH 30% VOID RATIO SURROUNDED IN NEEDLE PUNCHED PERMEABLE GEO–TEXTILE–SEE DETAIL DRAWING
CL 78.500m– cover slab
Pipe IL +77.450m
Chamber IL +76.000m
DEPTH = 2.500mm

MH–S3
CL= +78.500m
IL= +77.500m
DEPTH= 1000mm

MH–F4
CL= +78.000m
IL= +77.500m
DEPTH= 500mm

MH(QL-A)
CL 78.40
IL 76.70
SW/CCC
X Ø300mm
A IL 76.95 Ø100mm
B Ø150mm

MH(QL-A)
CL 78.38
IL 77.05
SW/CCC
X,C Ø150mm
A,B Ø100mm
B Blocked

MH–S2
CL= +78.500m
IL= +77.700m
DEPTH= 800mm

MH–F3
CL= +78.500m
IL= +77.800m
DEPTH= 700mm

DRAINAGE RUN TO BE MADE REDUNDANT

RWP
RWP
RWP
RWP

FFL +78.750

SVP
SVP
SVP

G

Container

MH–F2
CL= +78.500m
IL= +78.000m
DEPTH= 500mm

MH–S1
CL= +78.500m
IL= +77.900m
DEPTH= 600mm

MH–F1
CL= +78.500m
IL= +78.050m
DEPTH= 450mm

ORDER HERE

Restricted leverage

GENERAL NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEER'S ARCHITECT'S AND SPECIALIST'S DRAWINGS, THE SPECIFICATIONS AND CONTRACT DOCUMENTS.
2. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL SETTING OUT DIMENSIONS AND LEVELS PRIOR TO COMMENCING WORK.
3. THE G.C. SHALL BE SOLELY RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ALL TEMPORARY WORKS, PROPPING AND SHORING.
4. ALL WORK IS TO COMPLY WITH ALL RELEVANT HEALTH AND SAFETY LEGISLATION AND REGULATIONS AND THE SAFETY PLAN.

CONSTRUCTION DESIGN MANAGEMENT (CDM) RISK ASSESSMENTS RELATING TO STRUCTURAL & CIVIL WORKS DETAILED ON THIS DRAWING. REFERENCE SHOULD BE MADE TO THE PROJECT RISK ASSESSMENTS FOR COMPREHENSIVE DETAIL.

ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH SAFETY PLAN.
SHORING TO EXCAVATIONS OVER 1.2M DEEP REQUIREMENTS.
POTENTIAL FOR EXCAVATION COLLAPSE.
WORK IN CONFINED SPACES PRECAUTIONS NECESSARY.
MECHANICAL & MANUAL HANDLING PRECAUTIONS NECESSARY.
BURIED SERVICES EXIST ON & OFF SITE. REFER TO STATUTORY SERVICES INFORMATION.

GENERAL DRAINAGE NOTES

ALL NEW MANHOLES TO BE TO AS PER DETAIL DRAWING–450 PPIC UNLESS NOTED OTHERWISE

ALL NEW PIPEWORK TO BE WAVIN OSMADRAIN OR WAVIN ULTRARIB UPVC PIPEWORK UNLESS OTHERWISE NOTED.

ALL PIPEWORK TO BE 100 DIA AT MINIMUM 1:80 FALL FW AND 1:100 SW UNLESS NOTED OTHERWISE

ALL PIPEWORK AT COVER LEVELS LESS THAN
900MM IN TRAFFICKED AREAS
400MM IN OTHER AREAS
SHOULD BE ENCASED IN CONCRETE (CLASS Z BEDDING)

ALL OTHER PIPEWORK TO BE IN CLASS S BEDDING

PIPEWORK PASSING THROUGH BUILDING WALLS SHOULD BE FITTED WITH ROCKER PIPES AS PER STANDARD DETAIL

ALL EXTERNAL MANHOLE COVERS TO BE TO EN124:1994
TRAFFICKED AREAS –GRADE D400
OTHER AREAS – GRADE A14

ALL RWP LOCATIONS AND NUMBERS TO BE CONFIRMED FROM ARCHITECTS DRAWINGS. ALL RWP'S TO ENTER SYSTEM VIA TRAPPED GULLY WITH GRATE TO ALLOW OVERFLOW IN EXTREME EVENT

EXACT SVP AND GULLY LOCATIONS TO BE CONFIRMED FROM ARCHITECTS DRAWINGS

GENERAL CONTRACTOR RESPONSIBLE FOR DESIGN AND CONSTRUCTION OF ALL TEMPORARY WORKS, PROPPING AND SHEETING

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ALL WORK IS TO COMPLY WITH THE REQUIREMENTS OF 'BS EN 752:2008' & 'SEWERS FOR ADOPTION–6TH EDITION–2006

Rev.	Date		Rev. by	Chkd. by
P4	05.06.24	PRELIMINARY ISSUE– FOR PRICING & COMMENTS ONLY –NOT FOR CONSTRUCTION	IS	PH
P3	03.06.24	PRELIMINARY ISSUE– FOR PRICING & COMMENTS ONLY –NOT FOR CONSTRUCTION	IS	PH
P2	26.03.24	PRELIMINARY ISSUE– FOR PRICING & COMMENTS ONLY –NOT FOR CONSTRUCTION	IS	PH
P1	20.03.24	PRELIMINARY ISSUE– FOR PRICING & COMMENTS ONLY –NOT FOR CONSTRUCTION	IS	PH

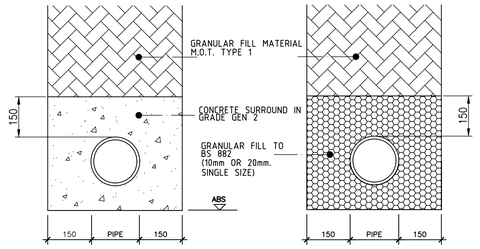
BRIAN CLANCY HIGBY PARTNERSHIP
Springwood,Booths Hall, Chelford Road, Knutsford. WA16 8QZ
Tel. 01565 757790

Client :
MASON PARTNERS LLP

Project Title :
COSTA DRIVE-THRU
BORDER RETAIL PARK
WREXHAM

Drg Title :
PROPOSED DRAINAGE LAYOUT SCHEME

Drg No. :	Revision :
23050913-020	P4
Scale : 1:100 @ A1	Drawn By / Date : IS MAR 24



CLASS Z BEDDING

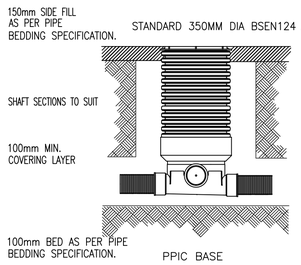
UNDER EXTERNAL AREAS WHERE PIPE CROWN IS LESS THAN 750mm BELOW SURFACE OF AREAS ACCESSIBLE TO TRAFFIC OR LESS THAN 400mm BELOW SURFACE IN ANY OTHER AREAS.
(N.B. FORM VERTICAL CONSTRUCTION JOINTS AT FACE OF ALL FLEXIBLE PIPE JOINTS IN 18mm COMPRESSIBLE BOARD)

CLASS S BEDDING

ALL AREAS NOT REQUIRING CLASS Z BEDDING.

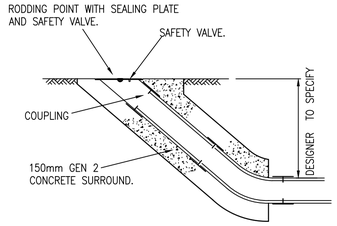
MAXIMUM TRENCH WIDTHS	
PIPE DIAMETER	WIDTH
100	550
150	600
225	700
300	750
375	1050
450	1150
525	1200
600	1350
675	1450
750	1500
825	1600
900	1900
1050	2050
1200	2300

TRENCH WIDTHS



NOTE
ALL PPIC'S DEEPER THAN 1.2M TO BE CLASSED AS NON-MAN ENTRY

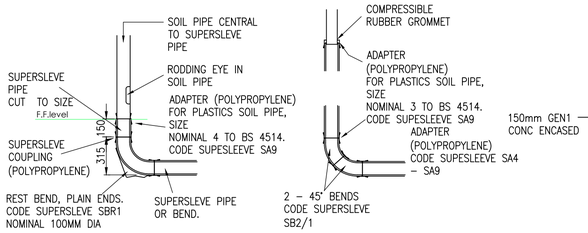
TYPICAL SHALLOW 450ø PPIC DETAIL OUTSIDE BUILDING PERIMETER



RODDING EYE

FOR ALL SETTING OUT DIMENSIONS & LEVELS REFER TO THE ARCHITECTS DRAWINGS

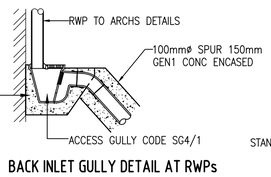
ALL DIMENSIONS & LEVELS ARE TO BE CONFIRMED ON SITE.



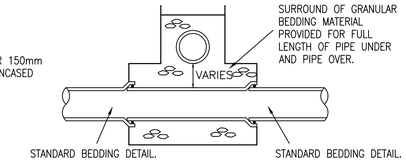
RWP OR SOIL AND VENT PIPE WITH RODDING EYE

Scale 1: 20

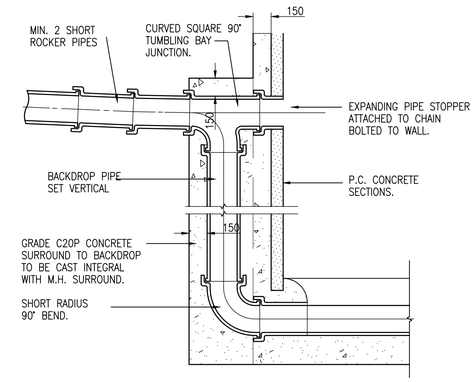
BED AND SURROUND TO SPECIFICATION REFER TO SITE INSTRUCTIONS AND SPECIFICATIONS



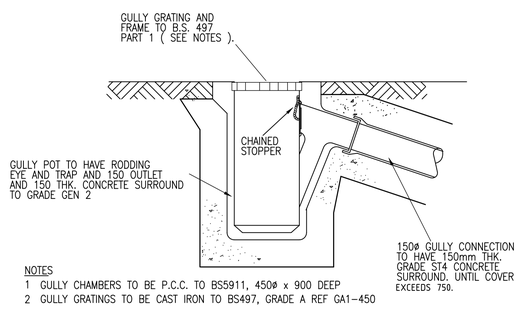
BACK INLET GULLY DETAIL AT RWPs



PIPE CROSSES OVER

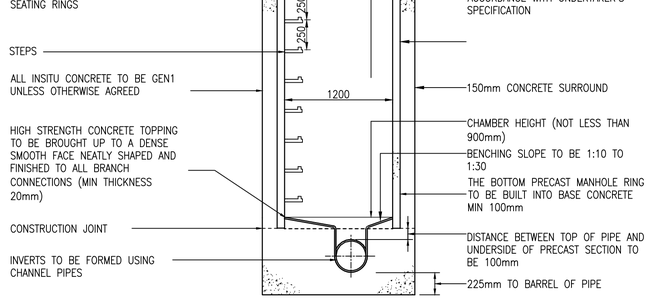


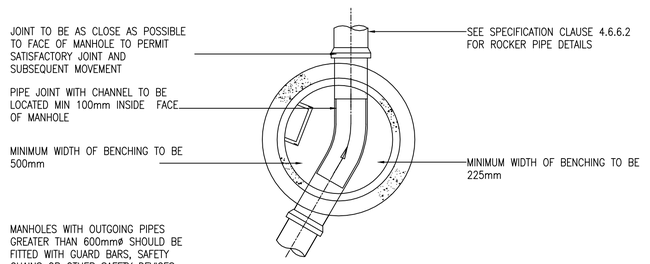
TYPICAL VERTICAL BACKDROP DETAIL



NOTES
1 GULLY CHAMBERS TO BE P.C.C. TO BS5911, 450ø x 900 DEEP
2 GULLY GRATINGS TO BE CAST IRON TO BS497, GRADE A REF GA1-450

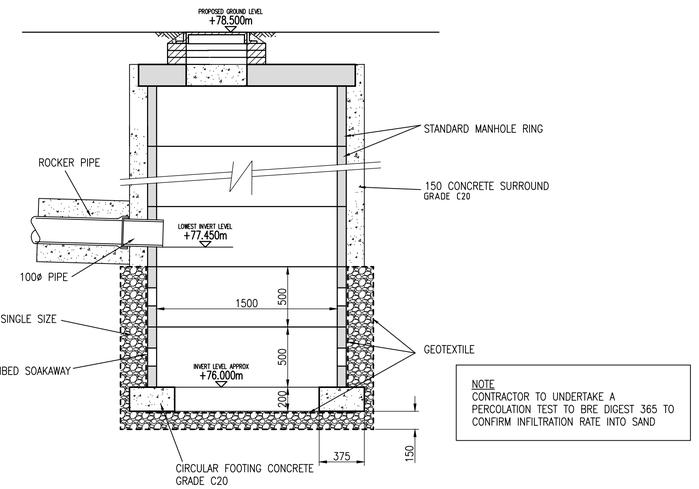
YARD GULLY DETAIL





TYPICAL MANHOLE DETAIL-1200 CONC

(SCALE 1:25)



NOTE
CONTRACTOR TO UNDERTAKE A PERCOLATION TEST TO BRE DIGEST 365 TO CONFIRM INFILTRATION RATE INTO SAND

TYPICAL SOAKAWAY DETAIL

(SCALE 1:25)

This scale bar is for microfilming purposes only.

0 10 20 30 40 50 60 70

The design information contained within this drawing is protected by Copyright.

All dimensions to be checked on site prior to commencement of work.

Figured dimensions to be used in preference to scale.

GENERAL NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEER'S ARCHITECT'S AND SPECIALIST'S DRAWINGS, THE SPECIFICATIONS AND CONTRACT DOCUMENTS.
2. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL SETTING OUT DIMENSIONS AND LEVELS PRIOR TO COMMENCING WORK.
3. THE G.C. SHALL BE SOLELY RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ALL TEMPORARY WORKS, PROPPING AND SHORING.
4. ALL WORK IS TO COMPLY WITH ALL RELEVANT HEALTH AND SAFETY LEGISLATION AND REGULATIONS AND THE SAFETY PLAN.

CONSTRUCTION DESIGN MANAGEMENT (CDM) RISK ASSESSMENTS RELATING TO STRUCTURAL & CIVIL WORKS DETAILED ON THIS DRAWING. REFERENCE SHOULD BE MADE TO THE PROJECT RISK ASSESSMENTS FOR COMPREHENSIVE DETAIL.

ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH SAFETY PLAN.
SHORING TO EXCAVATIONS OVER 1.2M DEEP REQUIREMENTS.
POTENTIAL FOR EXCAVATION COLLAPSE.
WORK IN CONFINED SPACES PRECAUTIONS NECESSARY.
MECHANICAL & MANUAL HANDLING PRECAUTIONS NECESSARY.
BURIED SERVICES EXIST ON & OFF SITE. REFER TO STATUTORY SERVICES INFORMATION.

GENERAL DRAINAGE NOTES

ALL NEW MANHOLES TO BE TO AS PER DETAIL DRAWING-450 PPIC UNLESS NOTED OTHERWISE

ALL NEW PIPEWORK TO BE WAVIN OSMADRAIN OR WAVIN ULTRARIB UPVC PIPEWORK UNLESS OTHERWISE NOTED.

ALL PIPEWORK TO BE 100 DIA AT MINIMUM 1:80 FALL FW AND 1:100 SW UNLESS NOTED OTHERWISE

ALL PIPEWORK AT COVER LEVELS LESS THAN
900MM IN TRAFFICKED AREAS
400MM IN OTHER AREAS
SHOULD BE ENCASED IN CONCRETE (CLASS Z BEDDING)

ALL OTHER PIPEWORK TO BE IN CLASS S BEDDING

PIPEWORK PASSING THROUGH BUILDING WALLS SHOULD BE FITTED WITH ROCKER PIPES AS PER STANDARD DETAIL

ALL EXTERNAL MANHOLE COVERS TO BE TO EN124:1994
TRAFFICKED AREAS -GRADE D400
OTHER AREAS - GRADE A14

ALL RWP LOCATIONS AND NUMBERS TO BE CONFIRMED FROM ARCHITECTS DRAWINGS. ALL RWP'S TO ENTER SYSTEM VIA TRAPPED GULLY WITH GRATE TO ALLOW OVERFLOW IN EXTREME EVENT

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P1	20.03.24	PRELIMINARY ISSUE - FOR PRICING & COMMENTS ONLY -NOT FOR CONSTRUCTION	IS	PH

BRIAN CLANCY HIGBY PARTNERSHIP
Springwood,Booths Hall, Chelford Road, Knutsford. WA16 8QZ
Tel. 01565 757790

Client :

MASON PARTNERS LLP

Project Title :

COSTA DRIVE-THRU
BORDER RETAIL PARK
WREXHAM

Drg Title :

PROPOSED DRAINAGE DETAILS

Drg No. :	Revision :
23050913-020	P1
Scale : 1-25 @ A1	Drawn By / Date : IS MAR 24

APPENDIX C: DCWW Correspondence

Dŵr Cymru
Welsh Water

Developer Services
PO Box 3146
Cardiff
CF30 0EH

Tel: +44 (0)800 917 2652
Fax: +44 (0)2920 740472
E.mail: developer.services@dwrcymru.com

Gwasanaethau Datblygu
Blwch Post 3146
Caerdydd
CF30 0EH

Ffôn: +44 (0)800 917 2652
Ffacs: +44 (0)2920 740472
E.bost: developer.services@dwrcymru.com

Mr Paul Graham
Vale Consultancy
Suite 2, Churchgate Court
3 Church Road
Cardiff
CF14 2DX

Date: 27/03/2024
Our Ref: PPA0008650

Dear Mr Graham,

Grid Ref: 333927 350499
Site Address: Border Retail Park, Wrexham
Development: Costa Drive Through

I refer to your pre-planning enquiry received relating to the above site, seeking our views on the capacity of our network of assets and infrastructure to accommodate your proposed development. Having reviewed the details submitted I can provide the following comments which should be taken into account within any future planning application for the development.

APPRAISAL

Firstly, we note that the proposal relates to a Costa Coffee drive through at Holt Road and acknowledge that the site comprises of a potential windfall development with no allocated status in the Local Development Plan (LDP). Accordingly, whilst it does not appear an assessment has been previously undertaken of the public sewerage and watermains systems, we offer the following comments as part of our appraisal of this development.

PUBLIC SEWERAGE NETWORK

The proposed development site is located in the immediate vicinity of a mixed sewerage system, comprising [combined], foul and surface water public sewers, which drains to Five Fords Wastewater Treatment Works (WwTW).

You are also advised that some public sewers and lateral drains may not be recorded on our maps of public sewers because they were originally privately owned and were transferred into public ownership by nature of the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011.

glas
Glas Cymru Cyfyngedig

Welsh Water is owned by Glas Cymru – a 'not-for-profit' company.
Mae Dŵr Cymru yn eiddo i Glas Cymru – cwmni 'nid-er-elw'.

We welcome correspondence in Welsh and English

Dŵr Cymru Cyf, 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

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

The presence of such assets may affect the proposal. In order to assist you may contact Dwr Cymru Welsh Water on 0800 085 3968 to establish the location and status of the apparatus in and around your site. Please be mindful that under the Water Industry Act 1991 Dwr Cymru Welsh Water has rights of access to its apparatus at all times.

SURFACE WATER DRAINAGE

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

It is therefore recommended that the developer consult with Wrexham County Council, as the determining SuDS Approval Body (SAB), in relation to their proposals for SuDS features. Please note, DCWW is a statutory consultee to the SAB application process and will provide comments to any SuDS proposals by response to SAB consultation. Please refer to further detailed advice relating to surface water management included in our attached Advice & Guidance note.

In addition, please note that no highway or land drainage run-off will be permitted to discharge directly or indirectly into the public sewerage system.

FOUL WATER DRAINAGE – SEWERAGE NETWORK

We have considered the impact of foul flows generated by the proposed development and concluded that flows can be accommodated within the public sewerage system. We advise that the flows should be connected to the foul sewer at or downstream of manhole SJ33508446 located to the west. Should a planning application be submitted for this development we will seek to control these points of communication via appropriate planning conditions and therefore recommend that any drainage layout or strategy submitted as part of your application takes this into account. However, should you wish for an alternative connection point to be considered please provide further information to us in the form of a drainage strategy, preferably in advance of a planning application being submitted.

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

FOUL WATER DRAINAGE – SEWAGE TREATMENT

Please note that the Natural Resources Wales have recently released Planning Advice relating to increased phosphate levels in several river Special Areas of Conservation (SAC). Applications for new development in these areas need to consider the requirements set out in the planning advice and should form part of the local planning authority's decision making when determining planning applications. The flows from this development would eventually drain to our Five Fords Wastewater Treatment Works which has a phosphate consent.

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

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

Please quote our reference number in all communications and correspondence.

Yours faithfully,



Owain George
Planning Liaison Manager
Developer Services

glas
Glas Cymru Cyfyngedig

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Rydym yn croesawu gohebiaeth yn y Gymraeg neu yn Saesneg

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

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