DRAINAGE & FLOOD RISK STATEMENT

Higham Lane North
Dodworth

Reference	**CH/DFS/4173.v1**
Date	**February 2019**
Version	**1**

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CONFIDENTIALITY STATEMENT

This report is addressed to and may be relied upon by the following:

Sterling Capitol PLC
2nd Floor
Victoria Wharf
Soverrign Street
LEEDS
LS1 4BA

This report has been prepared for the sole use and reliance of the above named party. This report shall not be relied upon or transferred to any other parties without the express written authorisation of JPG (Leeds) Limited. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party.

DOCUMENT HISTORY

VERSION	PURPOSE/DESCRIPTION	DATE
1	Final – For issue to Client	February 2019

1.0 INTRODUCTION

JPG (Leeds) Limited has been instructed by Sterling Capitol PLC to prepare a Drainage and Flood Risk Statement for a proposed commercial development for land at Capitol Park, Higham Lane, Barnsley.

The report will review the drainage and flood risk issues associated with the proposed development and recommend any mitigation which should take place as part of the development.

This document is prepared in accordance with the requirements of and in response to the Planning Practice Guidance & National Planning Policy Framework (NPPF) which states that those proposing particular developments are responsible for:

- Providing an assessment of whether any proposed development is likely to be affected by flooding and whether it will increase the flood risk elsewhere and of the measures proposed to deal with these effects and risks; and
- Satisfying the local planning authority that any flood risk to the development or additional risk arising from the proposal will be successfully managed with the minimum environmental effect, to ensure that the site can be developed and occupied safely.

NPPF defines flood zones as follows:

- Zone 1 – Low Probability – less than 1 in 1000 annual probability (< 0.1%) of river or sea flooding in any year.
- Zone 2 – Medium Probability – between a 1 in 100 and 1 in 1000 annual probability (1% - 0.1%) of river flooding or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1%) in any year.
- Zone 3a – High Probability – 1 in 100 or greater annual probability (> 1%) of river flooding or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
- Zone 3b – Functional Floodplain – 1 in 20 or greater annual probability (5%) of river flooding in any year. This is land on which water has to flow or be stored in times of flood.

A Flood Risk Assessment is required for all sites in excess of 1ha within Zone 1 and all sites within Zones 2 and 3.

2.0 THE SITE

The site is located between Higham Lane and the M1 motorway, at Junction 37, Barnsley. The approximate centre of the site is located at NGR 431536, 406384. The site covers an area of approximately 5.58 ha and consists of agricultural fields.

The site is bounded by the M1 motorway to the north and Higham Lane to the south. To the east is the existing Capitol Park and to the west is Higham Lane, beyond which is woodland.

The site slopes from the southeast to the northwest. Levels range typically from 165.0m on Higham Lane to 145.0m in the northern corner adjacent to the motorway.

A topographic survey is provided in Appendix B.

3.0 EXISTING DRAINAGE AND SEWER NETWORK

A Yorkshire Water sewer record plan is provided in Appendix C and this indicates the following public sewers in close proximity to the site:

- A 150mm foul sewer recorded in Capitol Close.
- A 600mm surface water sewer recorded in Capitol Close.

The law regarding responsibility for drains and sewers changed on the 1 October 2011. From this date the Government transferred the majority of drainage pipes that are either outside a property's boundary or are shared with other buildings to the sewage/water companies. The sewer records may not show all of the transferred sewers.

The nearest recorded watercourse is to the west of Higham Lane. Barnsley Council has confirmed that the watercourse is part of the reclaimed colliery tip drainage system.

4.0 DEVELOPMENT PROPOSALS

It is proposed to redevelop the site for commercial use. A proposed layout plan for the site has been made available, referenced below, and is presented in Appendix D.

- The Harris Partnership drawing – Proposed Site Plan, Proposed Industrial Development, Drawing No. 11138A-002 A.

5.0 FLOOD RISK ASSESSMENT

Publicly available information on flooding obtained from the Environment Agency and from their website database is provided in Appendix E.

The site is located within Flood Zone 1. Flood Zone 1 comprises land assessed as at a low risk of flooding from a watercourse and/or sea with less than a 1:1000 annual probability of river or sea flooding.

NPPF Technical Guidance states that residential use is appropriate in Flood Zone 1.

NPPF Technical Guidance states that flood risk should be considered from all sources, including:

- Adjoining land.
- Groundwater.
- Flooding from sewers.
- Flooding from reservoirs, canals and other artificial sources.

5.1 Flooding from Adjoining Land

Review of the Environment Agency Risk of Flooding from Surface Water mapping indicates that the majority of the site is in an area of very low risk of surface water flooding.

There is a small localised area of low to medium risk in the northern part of the site. There are no overland flow paths shown passing through the site.

The risk of flooding from adjoining land is low.

Refer to Appendix E for surface water flood risk mapping.

5.2 Flooding from Groundwater

The Barnsley Metropolitan Borough Council Strategic Flood Risk Assessment Level 1 September 2010, states that the Coal Authority were consulted as part of the SFRA preparation, with respect to the possibility of flooding caused by the re-emergence of minewaters from the cessation of minewater pumping.

Maps provided by the Coal Authority for the SFRA, that identified areas where minewaters could re-emerge, indicated that 6 proposed development sites/areas could be affected.

This site is not in the vicinity of the potentially affected sites.

The risk of flooding from groundwater is considered to be low.

5.3 Flooding from Sewers

The sewers in Capitol Close are public sewers maintained by Yorkshire Water and will be subject to regular inspection and maintenance, therefore blockage of these sewers is unlikely.

If a sewer were to fail in Capitol Close, flood waters would follow local topography, i.e. south east, along Capitol Close, away from the site.

The risk of flooding from sewers is considered to be low.

The measures to mitigate the risks of flooding from new drainage are as detailed in Section 6.0.

5.4 Flooding from Reservoirs, Canals and Other Artificial Sources

Review of the Environment Agency flood risk from reservoir mapping shows that the site is not in an area at risk from failure of a reservoir.

There are no other artificial sources of flood risk in the vicinity of the site.

Flood risk from reservoirs, canals and artificial sources is considered to be low.

6.0 SURFACE AND FOUL WATER DRAINAGE

The proposed site drainage will consist of a separate surface and foul water drainage system.

The following summarises the requirements for the discharge of surface and foul water from the site.

6.1 Sustainable Urban Drainage Systems (SUDS)

Review of the nearest available BGS records, typically shows silty sandy clay and gravelly clay to approximately 3m bgl, below which is weathered Mudstone.

Given the ground conditions at the site and topography the use of infiltration techniques for the disposal of surface water run-off is not considered to be reasonably practicable.

Sustainable Urban Drainage System (SUDS) may be used in conjunction with conventional drainage systems to improve water quality as well as manage surface water discharge. This should be considered at the detailed design stage of the project.

The following audit has been carried out relating to suitability of SUDS systems:

Drainage Method	Description/Suitability	Proposal/Feasibility
1. Infiltration.	Methods not suitable due to ground conditions and topography.	Not applicable
2. Ponds and wetlands.	Suitable – subject to design and adoption strategy.	Applicable.
3. Infiltration Basins.	Methods not suitable due to ground conditions and topography.	Not applicable
4. Detention Basins.	Suitable – subject to design and adoption strategy.	Applicable.
5. Swale.	May be utilised to convey water.	Applicable.
6. French/Filter drain.	May be utilised to convey water.	Applicable.
7. Pervious/Permeable Pavement.	May be utilised - subject to detailed design.	Applicable.
8. Geocellular Systems/Tank systems.	May be utilised – subject to detailed design.	Applicable.
9. Oversized pipes.	May be used as surface water attenuation.	Applicable.
10. Box culverts.	May be used as surface water attenuation.	Applicable.
11. Purpose designed tanks.	May be used as surface water attenuation.	Applicable.

6.2 Surface Water Drainage

The disposal of surface water shall be in accordance with the Requirement H3 of Building Regulations 2000. This establishes a preferred hierarchy for surface water disposal. Consideration should firstly be given to discharge to soakaway/infiltration system, watercourse and public sewer in that priority order.

As noted in Section 6.1, the discharge of surface water drainage via infiltration methods is not considered to be viable due to ground conditions and topography.

There is no available watercourse for a connection of surface water flows.

Surface water run-off is proposed to discharge at a restricted rate to the public surface water sewer system in Capitol Close. The surface water sewer system in Capitol Close was designed with stub pipes having contributing area allowances for future development, (refer to Appendix G). Various plots at Capitol Park have now been developed and the detailed model of the existing surface water sewer system will be revisited and reanalysed for the actual connected impermeable areas and assessed to identify the allowable discharge for this site. The allowable discharge will set such that there is no increase in flood risk on the public surface water system downstream.

The detailed analysis and assessment will be undertaken as part of the detailed design of the development and submitted to Yorkshire Water for agreement. At this stage a de minimis value of 5l/s has been used to estimate the surface water storage volume required.

Given the discharge rate and current design requirements, on-plot surface water attenuation will be required. Due to the topography at the site, a surface water pumping station will be required to connect the restricted discharge to the public surface water sewer system in Capitol Close. The exact configuration of the storage will be determined at the detailed design stage.

The following provides a brief calculation of the approximate volumes of attenuation using the 'Quick Storage Estimate' element of Windes Microdrainage:

Attenuation Calculation

Design Parameters

- M5-60 = 19.0
- Ratio R = 0.351

Attenuation Volumes

- Proposed Impermeable area = 3.79 ha.
- Restricted discharge rate = 5.0 l/s.
- 1:30 Year Return Period = circa 2200m^3.
- 1:100 Year Return Period (+30% cc) = circa 3950m^3.

The proposed on-site drainage system shall be designed in accordance with the requirements of Sewers for Adoption and national non-statutory technical SuDS standards and shall demonstrate that:

- No surcharge of pipes occurs in the 1 in 2 year rainfall event.
- No surface flooding occurs in 1 in 30 year rainfall event.
- No flooding to buildings and adjacent properties occurs in 1 in 100 year rainfall event (including an allowance for the effects of future climate change), as defined in NPPF Technical Guidance.

6.3 Foul Water Drainage

Yorkshire Water has confirmed that foul flows can connect to the 150mm public foul sewer system in Capitol Close. Given the topography at the site, a foul pumping station will be required and Yorkshire Water has stated that pumped flows would be restricted to 5 l/s.

7.0 CONCLUSIONS

This assessment has looked at the drainage and flood risk issues to support a planning application for a proposed commercial development for land at Capitol Park, Higham Lane, Barnsley.

The site is located within Flood Zone 1 and NPPF Technical Guidance states that commercial use is appropriate in Flood Zone 1. Flood risk from all sources is low.

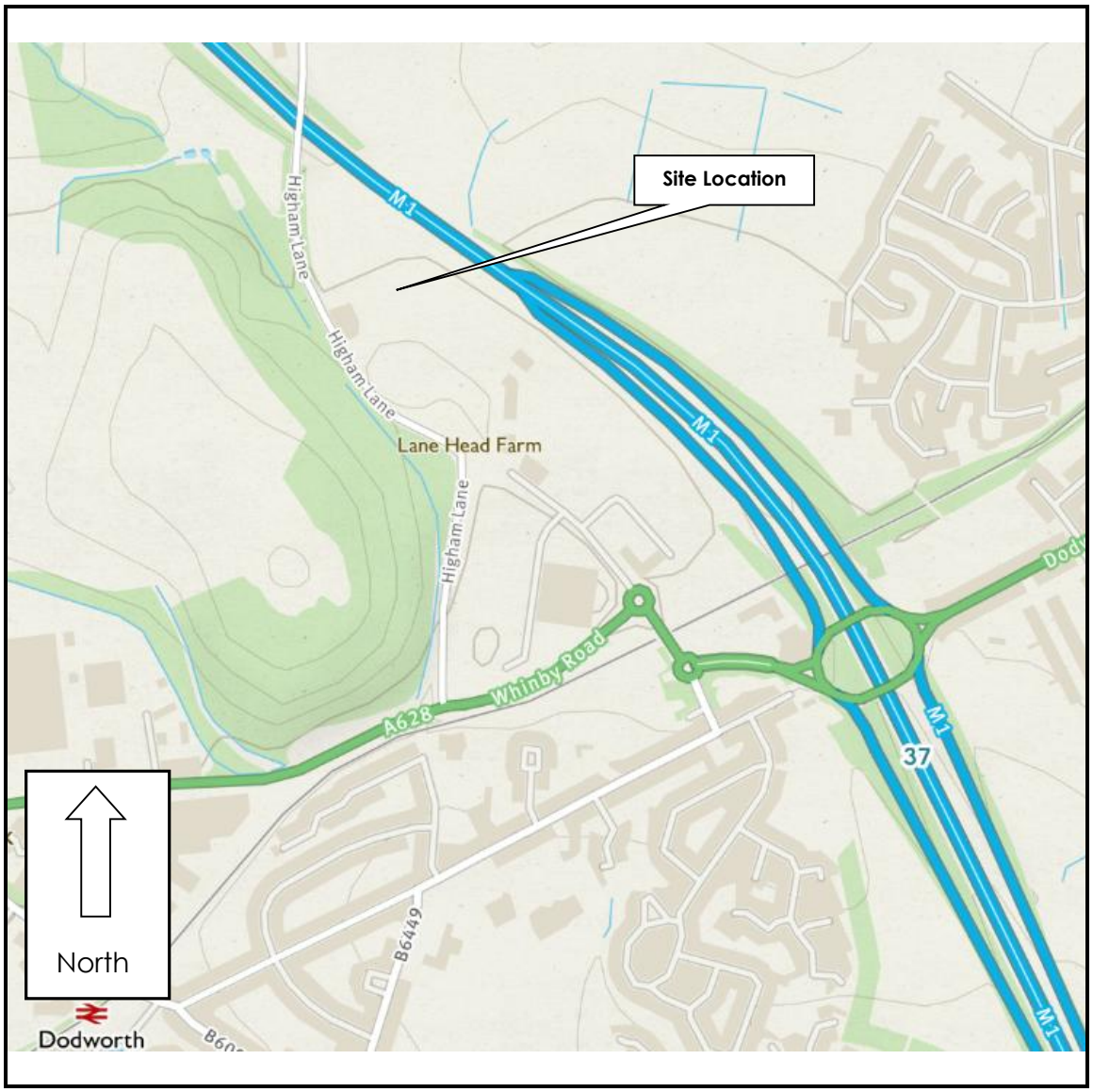
Surface water is proposed to discharge to an existing public surface water sewer in Capitol Close at a restricted rate. On plot surface water attenuation will be provided.

Foul water is proposed to discharge to the public foul sewer system in Capitol Close.

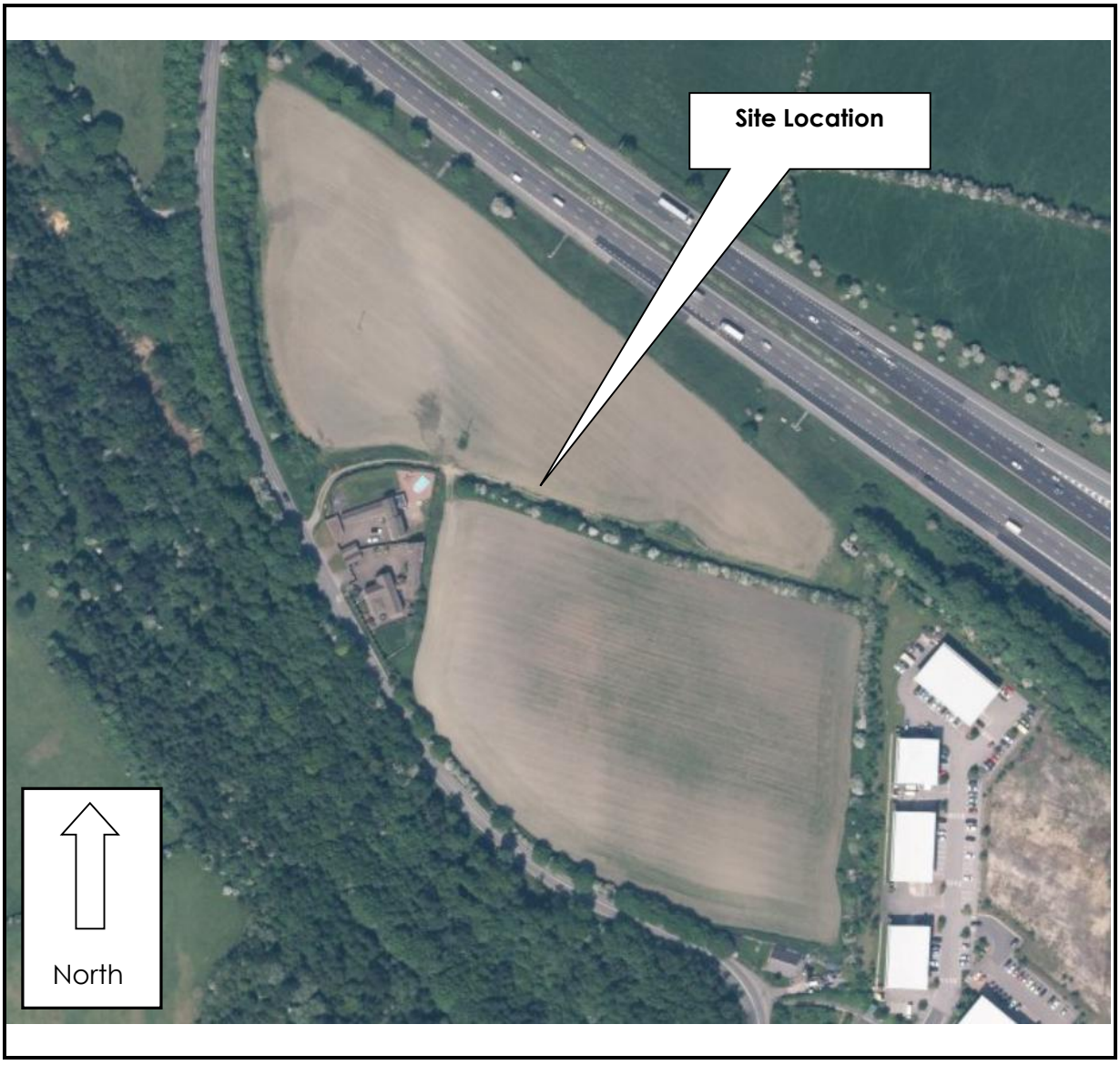
Chris Harding
For and behalf of JPG (Leeds) Limited

February 2019

Appendix A Site Location Plan and Aerial Photograph

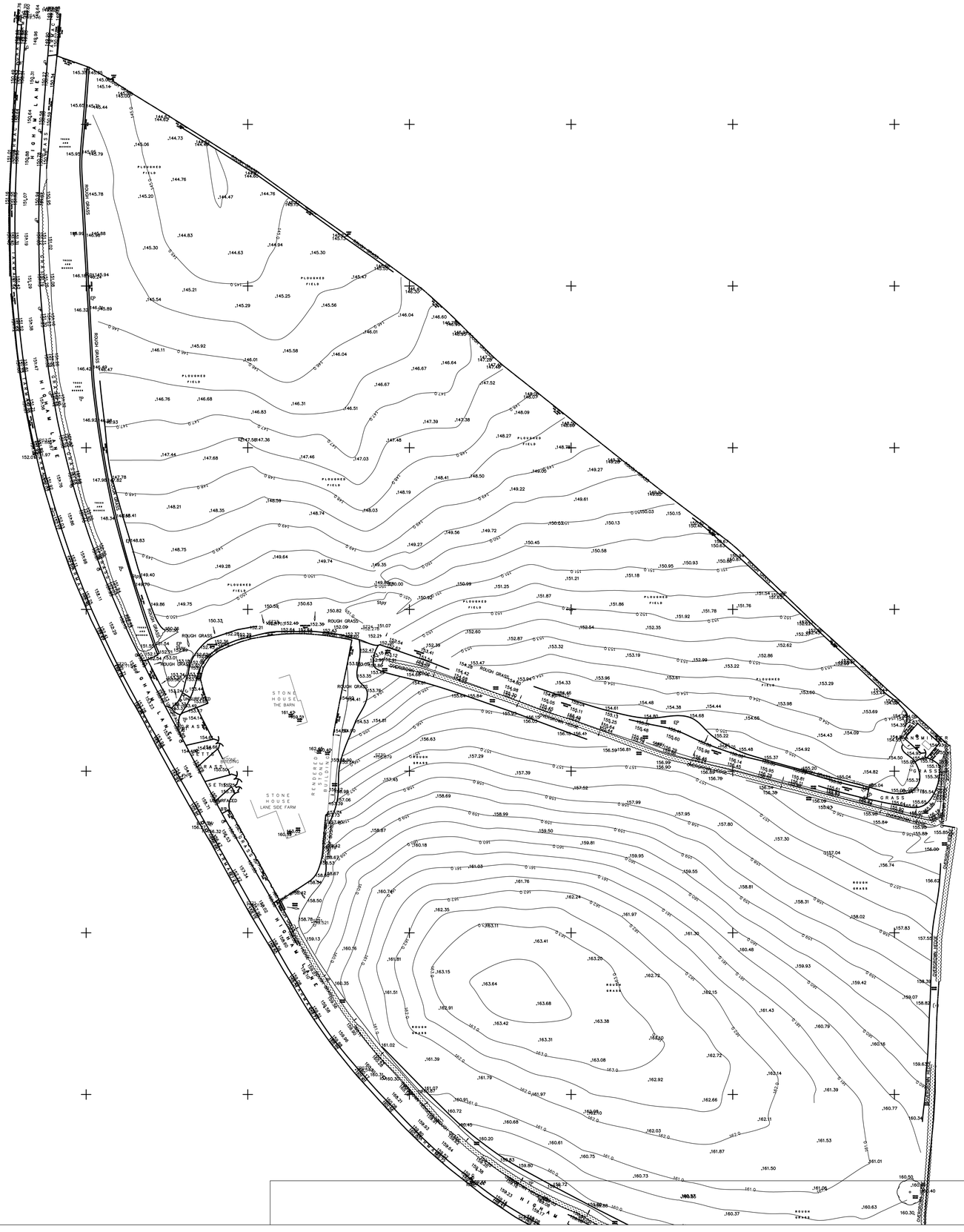


Site Location Plan	
Site	**Higham Lane, North**
Client	**Sterling Capitol PLC**
Job Number	**4173**
Scale	**NTS**



Aerial Photograph	
Site	**Higham Lane, North**
Client	**Sterling Capitol PLC**
Job Number	**4173**
Scale	**NTS**

Appendix B Topographic Survey


HIGHAM LANE
HIGHAM LANE
HIGHAM LANE

Appendix C Yorkshire Water Correspondence

YorkshireWater

Yorkshire Water Services
Developer Services
Sewerage Technical Team
PO BOX 52
Bradford
BD3 7AY

Tel: 0345 120 8482
Fax: (01274) 372 834

For telephone enquiries ring:

Jane Phillips on 0345 120 8482

9th January 2019

Mr Dave Dunn JPG (Leeds) LTD
Bremner House; 5 John Charles Way
Leeds
West Yorkshire
LS12 6QA

david.dunn@jpg.group

Your Ref: 4173
Our Ref: V000337

Dear Mr Dunn,

Capitol Park, Dodworth, Barnsley, S75 3LF - PPSE on T267903 (commercial)

Thank you for your recent enquiry. Our charge of £158.93 (plus VAT) will be added to your account with us, reference JPG 027. You will receive an invoice for your account in due course.

Please find enclosed a complimentary extract from the Statutory Sewer Map which indicates the recorded position of the public sewers. Please note that as of October 2011 and the private to public sewer transfer, there are many uncharted Yorkshire Water assets currently not shown on our records. The following comments reflect our view, with regard to the public sewer network only, based on a 'desk top' study of the site and are valid for a maximum period of twelve months:

Development of the site should take place with separate systems for foul and surface water drainage. The separate systems should extend to the points of discharge to be agreed.

Foul Water

Foul water domestic waste should discharge to the 150 mm diameter public foul sewer recorded in Capitol Close at a point approximately 29.3 (twenty nine pioint three) metres from the site.

From the information supplied, it is not possible to determine if the whole site will drain by gravity to the public sewer network. If the site, or part of it, will not drain by gravity, then it is likely that a sewage pumping station will be required to facilitate connection to the public sewer network. If sewage pumping is required foul water discharge must not exceed 5 (five) litres per second.

Foul water from kitchens and/or food preparation areas of any restaurants and/or canteens etc. must pass through a fat and grease trap of adequate design before any discharge to the public sewer network.

Please note that as a result of the Water Industry (Scheme for Adoption of Private Sewers) Regulations 2011, there are public sewers not shown on our mapping records. It may be the case that there are unmapped sewers capable of accommodating the proposed foul water discharge in the vicinity of the site. It is recommended that the developer investigates this by visiting the site to establish the location of any transferred public sewers.

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YorkshireWater

Surface Water

The developer's attention is drawn to Requirement H3 of the Building Regulations 2000. This establishes a preferred hierarchy for surface water disposal. Consideration should firstly be given to discharge to soakaway, infiltration system and watercourse in that priority order.

The local public sewer network does not have capacity to accept any additional discharge of surface water from the proposal site. If SuDS are not viable, the developer is advised to contact the Environment Agency/local Land Drainage Authority with a view to establishing a suitable watercourse (if any nearby) for discharge.

It is understood that various watercourses are located to the west and the south of the site. This appears to be the obvious place for surface water disposal (if SuDS are not viable).

Please note further restrictions on surface water disposal from the site may be imposed by other parties. You are strongly advised to seek advice/comments from the Environment Agency/Land Drainage Authority/Internal Drainage Board, with regard to surface water disposal from the site.

Surface water run-off from communal parking (greater than 800 sq metres or more than 50 car parking spaces) and hardstanding must pass through an oil, petrol and grit interceptor/separator of adequate design before any discharge to the public sewer network. Roof water should not pass through the traditional 'stage' or full retention type of interceptor/separator. It is good drainage practice for any interceptor/separator to be located upstream of any on-site balancing, storage or other means of flow attenuation that may be required.

Other Observations

An off-site foul sewer may be required which may be provided by the developer and considered for adoption under Section 104 of the Water Industry Act 1991. Please telephone 0345 120 84 82 for advice on sewer adoptions. Alternatively, the developer may in certain circumstances be able to requisition off-site sewers under Section 98 of the Water Industry Act 1991 for which an application must be made in writing. For further information, please telephone 0345 120 84 82.

Prospectively adoptable sewers and pumping stations must be designed and constructed in accordance with the WRc publication "Sewers for Adoption - a design and construction guide for developers" 6th Edition as supplemented by Yorkshire Water's requirements, pursuant to an agreement under Section 104 of the Water Industry Act 1991. An application to enter into a Section 104 agreement must be made in writing prior to any works commencing on site. Please contact our Developer Services Team (telephone 0345 120 84 82) for further information.

The public sewer network is for domestic sewage purposes. This generally means foul water for domestic purposes and, where a suitable surface water or combined sewer is available, surface water from the roofs of buildings together with surface water from paved areas of land appurtenant to those buildings. Land and highway drainage have no automatic right of connection to the public sewer network. No land drainage to be connected/discharged to public sewer.

Any new connection to an existing public sewer will require the prior approval of Yorkshire Water. You may obtain an application form from our website (www.yorkshirewater.com) or by telephoning 0345 120 84 82.

YorkshireWater

All the above comments are based upon the information and records available at the present time. The information contained in this letter together with that shown on any extract from the Statutory Sewer Map that may be enclosed is believed to be correct and is supplied in good faith. Please note that capacity in the public sewer network is not reserved for specific future development. It is used up on a 'first come, first served' basis. You should visit the site and establish the line and level of any public sewers affecting your proposals before the commencement of any design work.

Yours faithfully



Developer Services Team

Path (

Ponds

Drain

Pond

The Barn

Track

Mast

Lane Side Farm

159.6m

HIGHAM LANE

Drain

156.0m

Lane Head Farm

ESS

6

7

5

3

2

1

CAPITOL CLOSE

1.85

1.82

1.43

1.9

1.57

1.23

1.77

1.63

1.06

2.01

2.54

3.27

3.28

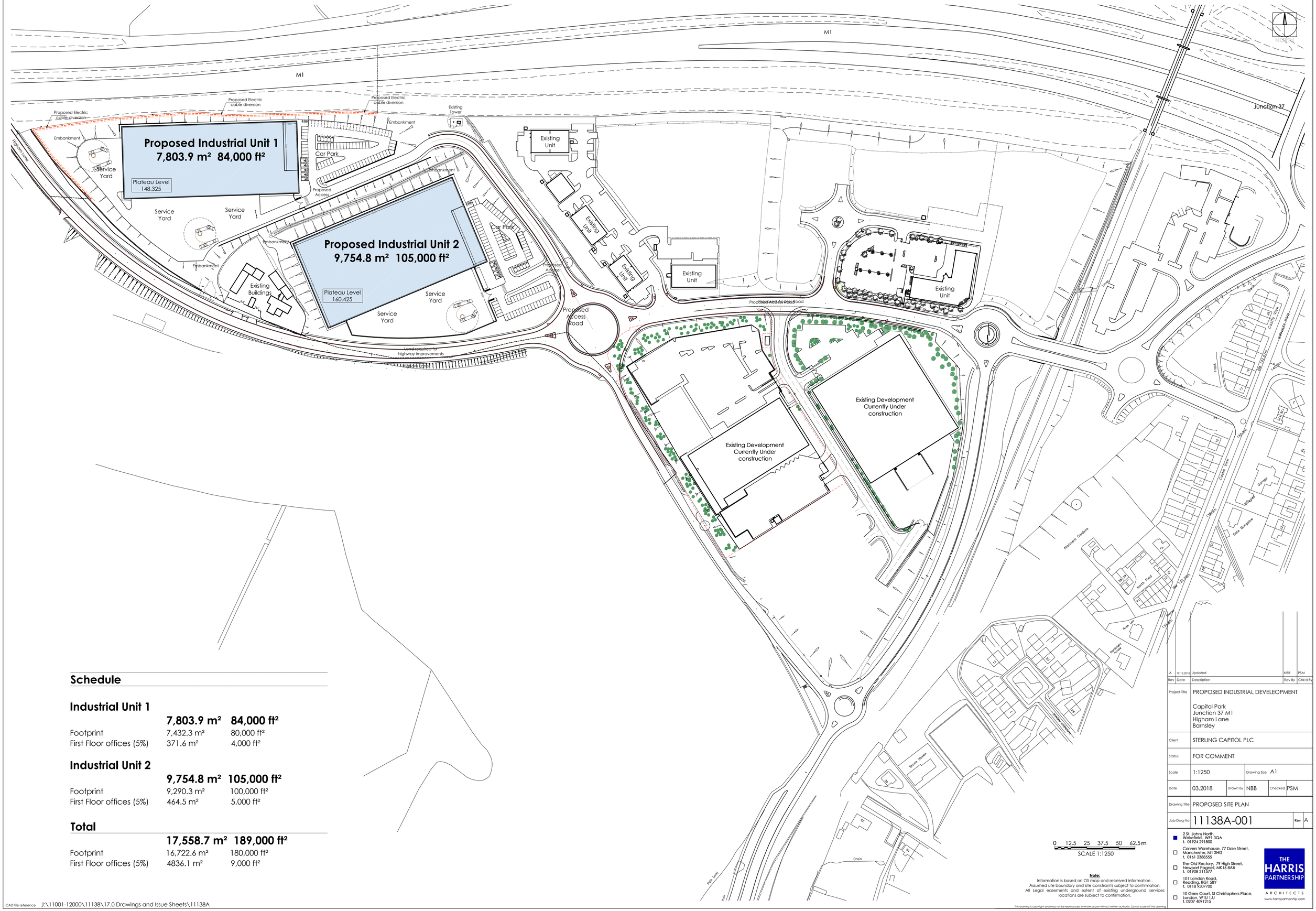
431305 : 406227	Map Name : SE3106SW	Title	Partial Key
Yorkshire Water, PO Box 500, Halifax Road, Bradford BD6 2LZ Contact Name : - Jane PHILLIPS Contact Tel : 75 728		Notes	Foul Sewer = F Combined Sewer = C Surface Water Sewer = SW Trade Sewer = TD Partially Separate = PS
		(Ody) COPYRIGHT STATEMENTS: Reproduced by permission of Ordnance Survey on behalf of HMSO © Crown copyright and database 2014. All rights reserved Ordnance Survey Licence number 100022432	Date Req : 09/01/2019, 16:45:06
			Source : Sewer Network Enquiry

This plan is furnished as a general guide only and no warranty as to its correctness is given or implied. This plan must not be relied upon in the event of excavations or other works made in the vicinity of public sewers. No house or property connections are shown.

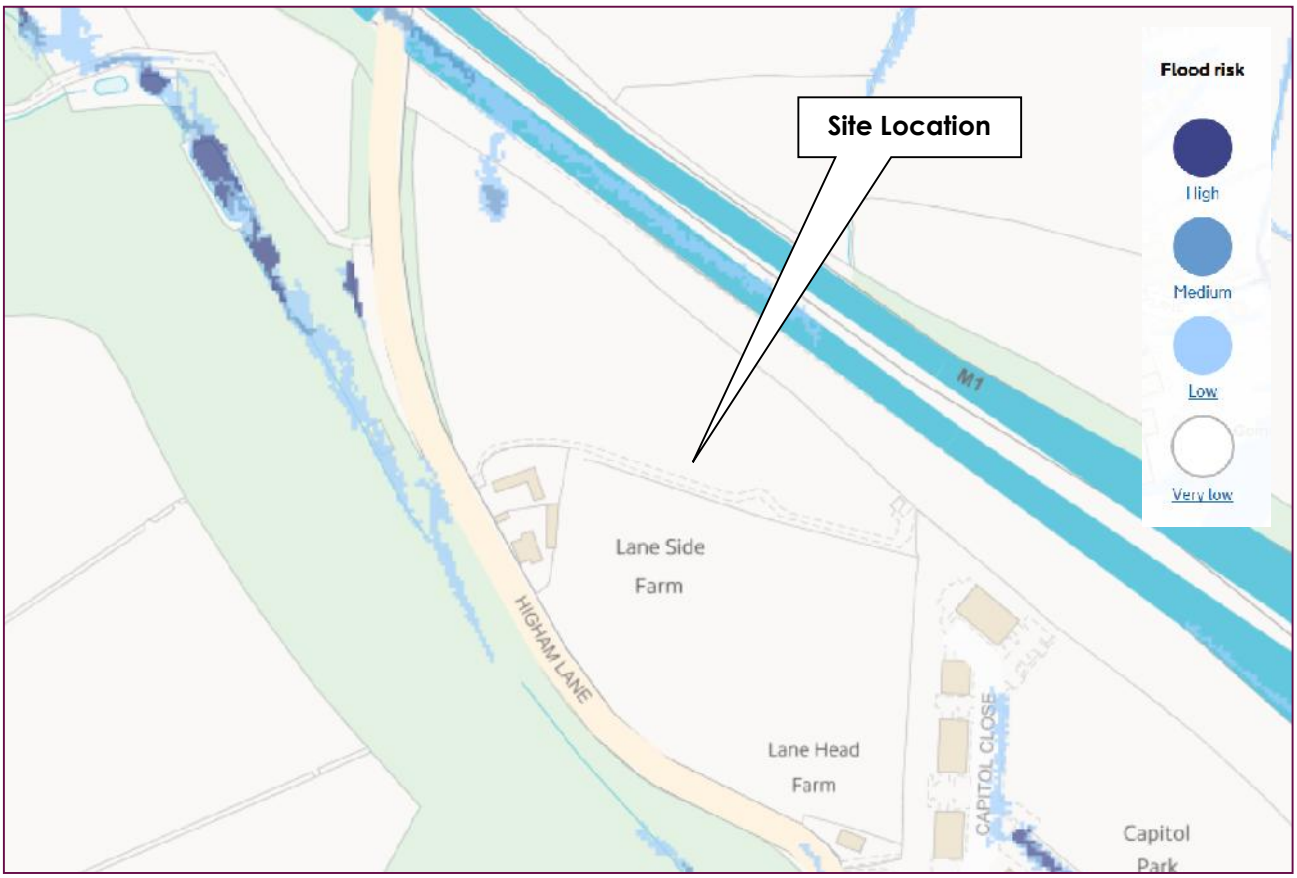
Date Gen : 09/01/2019, 16:45:20

UPN: Undefined Originator: Jane PHILLIPS, Developer Services, 75 728

Appendix D Proposed Site Layout Plan


M1
M1
Junction 37
Proposed Industrial Unit 1
7,803.9 m² 84,000 ft²
Plateau Level
148.325
Proposed Industrial Unit 2
9,754.8 m² 105,000 ft²
Plateau Level
160.425
Service Yard
Service Yard
Service Yard
Service Yard
Car Park
Car Park
Proposed Access
Proposed Access
Proposed Access Road
Proposed Access Road
Existing Buildings
Existing Unit
Existing Unit
Existing Unit
Existing Unit
Existing Unit
Existing Development Currently Under construction
Existing Development Currently Under construction
Existing Tower
Proposed Electric cable diversion
Proposed Electric cable diversion
Proposed Electric cable diversion
Embankment
Embankment
Embankment
Embankment
Embankment
Embankment
Land required for highway improvements
Highway Lane
Public Path
Drain
Drain
Stone Haven
Stone Haven
Allotment Gardens
Nurse Field
Rose Lee
Nettified House
Castle View
Garage
Gate Bungalow
Track
Track
Track
Track
Bridleway
Bridleway
Bridleway

Appendix E Environment Agency Mapping



Risk of Flooding from Surface Water mapping – Extent from Environment Agency website (February 2019)

Appendix F Barnsley Council Correspondence

David Dunn

From: HighwayDrainage <HighwayDrainage@barnsley.gov.uk>
Sent: 17 January 2019 08:44
To: David Dunn
Cc: HighwayDrainage
Subject: RE: 4173 - Higham Lane North, Surface Water

David,

There are issues with the ditch on the opposite side of Higham Lane. Both ditches are drainage ditches for the old colliery spoil heap not natural watercourses therefore there is no formal right to connect flows. The ditch running in a northerly direction outfalls into the ponds shown on your plan which also receive leachate from the tip and enter a reedbed which removes heavy metals etc. from the leachate.

The ditch running south causes flooding on Higham Lane due to the porous nature of the ground and that the ditch is at a higher level than the road.

Before any connection to these ditches would be considered I would require proof that all other avenues have been explored and discounted including soakaways and pumping to the adjacent public sewers.

Regards

Wayne Atkins
Principal Engineer – Drainage
Environment & Transport
Place Directorate
Barnsley Metropolitan Borough Council

Telephone: 01226 772182
E-mail: wayneatkins@barnsley.gov.uk

From: Highway Maintenance
Sent: 15 January 2019 15:32
To: HighwayDrainage
Subject: FW: 4173 - Higham Lane North, Surface Water

From: David Dunn [mailto:David.Dunn@jpg.group]
Sent: 15 January 2019 15:26
To: Highway Maintenance
Subject: 4173 - Higham Lane North, Surface Water

Good Afternoon

We are looking a proposal for a new site on Higham Road, Dodworth.

This is an extension of Capitol park but the surface water from the site cannot connect to the previous site unlike the foul as stated by Yorkshire Water (Please see attached).

If you look at the plan there is an open drain opposite side of the road which historically where used for the large collier.

Could these be used?

There is an existing building already in place (Lane Side Farm), I was wondering where this building connections are?

Kind regards

Dave Dunn – Drainage Design Engineer

E: david.dunn@jpg.group
T: +44 (0)113 263 1155
W: www.jpg.group

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Leeds: 0113 263 1155
London: 0207 947 4148
Birmingham: 0121 222 4280
Website: www.jpg.group
QMS ISO 9001 REGISTERED
QMS ISO 14001 REGISTERED
Acclaim Accreditation
Constructionline

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Appendix G Preliminary Surface Water Storage Calculations

SURFACE WATER ATTENUATION ESTIMATE

Date: 19 February 2019
Initial: DMD

Design Parameters

M560	19.0
R	0.351
Impermeable Area	3.790 Ha
Discharge rate	5 l/s

Attenuation Volumes

1:30 Year	2000m3
1:100 Year	
1:100 Year + 30 cc	3950m3
1:200 Year	
1:200 Year + 30 cc	

5 John Charles Way
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