DRAINAGE & FLOOD RISK STATEMENT

Unit D Capitol Park
Junction 37, M1
Barnsley

Reference	**RJW/2450 Unit D.v1**
Date	**July 2017**
Version	**1**

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CONFIDENTIALITY STATEMENT

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

Commercial Developments Projects Ltd
Huddersfield Road
Elland
West Yorkshire
HX5 9BW

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	July 2017

1.0 INTRODUCTION

JPG (Leeds) Limited (JPG) has been instructed by Commercial Development Project Limited to carry out a drainage and flood risk statement for a proposed commercial/industrial development at the site of Junction 37, M1, 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. 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. 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 to the west of junction 37 on the M1, Barnsley. The approximate centre of the site is located at NGR SE 3168106069. A site location plan and aerial photograph are provided in Appendix A.

The site has an area of approximately 1.98ha.

Access to the site is via Capitol Close to the north.

Beyond the northern and eastern boundaries are existing positively drained commercial and industrial buildings. Beyond the southern boundary is Whinby Road and railway tracks. Beyond the western boundary is Higham Lane and a densely wooded area beyond the road.

The existing site has been prepared for future construction previously with plateaus. However, in general the site slopes form north to south towards Whinby Road.

A site topographic survey is provided in Appendix B.

3.0 EXISTING SEWER NETWORK

A foul and surface water drainage system was installed in 2006 and adopted by Yorkshire water. The as built drainage information can be seen in Appendix C.

The existing adopted drainage briefly comprises the following:

Surface Water
An existing surface water attenuation tank running approximately from north to south sized to accommodate the completed proposed site. The tank has a flow control and discharges into the sewer network within Whinby Road. The surface water system starts at the top of and runs down Capitol Close before turning into the proposed development and entering the attenuation tank. 8 No. Tails have been included on the surface water network to allow for connection. Each of the tails has a restriction in the form of an allowable catchment area included as shown in appendix C.

Foul Water
The existing foul network begins at the top of and runs down Capitol Close before turning into the proposed development and discharging into the sewer network within Whinby Road. 9 No. Tails have been included on the foul network to allow for connection.

4.0 DEVELOPMENT PROPOSALS

The development is shown to comprise of one industrial/commercial unit with an associated car park to the north and service yard to the south.

A proposed layout plan for Unit D has been provided, this is referenced below and a copy is presented in Appendix D.

- The Harris Partnership architects. Proposed Site Plan. Drawing 14120 – 110 Rev B.

5.0 FLOOD RISK ASSESSMENT

Publicly available information on flooding obtained from the Environment Agency (EA) website database is provided in Appendix E.

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

NPPF Technical Guidance states all uses of land are appropriate in Flood Zone 1.

5.1 Fluvial/Tidal Flooding

The publicly available flood map provided by the EA, shows the development plot is located within Flood Zone 1 and at low risk of flooding from Rivers and/or Sea. NPPF Table 1 states that all uses of land are permitted in this flood zone; this includes commercial development as proposed here.

5.2 Flooding from Adjoining Land

There is an existing adopted road (Capitol Close)and commercial/industrial units along the northern and eastern boundaries of the site. As the existing commercial/industrial units and Capitol Close are positively drained, the risk posed is considered to be minimal.

5.3 Flooding from Groundwater

The site has been prepared and developed previously with no ground water being recorded. The site is also elevated approximately 6.0m above the M1 motorway which, to date, has not had any issues with flooding from ground water. Therefore, the risk of flooding from groundwater is considered to be minimal.

5.4 Flooding from Existing Sewers

The existing adopted drainage running along Capitol Close and adjacent the proposed site is owned by Yorkshire Water and therefore will be subject to regular maintenance and inspection therefore blockage of these sewers is unlikely. In the unlikely event of failure of the adopted drainage, surface water would follow the gradient to the south away from the development site. The risk of flooding associated with existing sewers is therefore considered to be low.

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

6.0 SURFACE AND FOUL WATER DRAINAGE

The proposed site drainage will comprise 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)

An intrusive ground investigation was carried out prior to the previous works by Sirius in 2005. The report identifies that the existing ground conditions are generally sandy gravelly clay over stiff clay and not typically suitable for soakaways.

Considering the above the disposal of surface water by infiltration methods is considered unfeasible, however, this would need to be confirmed by onsite soakaway tests undertaken in accordance with BRE Digest 365.

The following audit has been carried out relating to suitability of SUD's systems.

Drainage Method	Description/Suitability	Proposal/Feasibility
1. Infiltration	Not suitable following ground investigation	Not applicable
2. Ponds and wetlands	Not suitable due the site location in a built up area	Not applicable
3. Infiltration Basins	Not suitable due the site location in a built up area	Not applicable
4. Detention Basins	Not suitable due the site location in a built up area	Not applicable
5. Swale	May be utilised convey water	Applicable
6. French drain	May be utilised convey water	Applicable
7. Pervious/Permeable Pavement	Not suitable following ground investigation	Not applicable
8. Geocellular Systems/Tank systems	May be used as surface water attenuation	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 feasible.

No existing watercourses have been noted close to the site boundary.

The proposed drainage will discharge from Unit D into the existing adopted drainage system through the existing tails provided as shown in Appendix C. The existing tails have a restriction in the form of a maximum contributing area for each of the tails. The allowable discharge areas are in excess of the required proposed discharge areas given on the current architect's site plan shown in Appendix D.

The proposed on site drainage system shall be designed in accordance with the requirements of Sewers for Adoption 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 of 20% for the effects of future climate change), as defined in NPPF Technical Guidance.

6.3 Foul Water Drainage

Foul water drainage will discharge into the existing adopted foul network and tails as provided and shown in appendix C. The proposed development Unit D will require a drainage network to connect the existing foul water tails.

7.0 CONCLUSIONS

This assessment has looked at the drainage and flood risk issues to support a planning application for a proposed commercial/Industrial unit development on the existing Capitol Park site at Junction 37, M1, Barnsley.

The site lies within Flood Zone 1 and is therefore at low risk of flooding from river or sea. NPPF Technical Guidance states all uses of land are appropriate in Flood Zone 1.

NPPF Technical Guidance states all uses of land are appropriate in Flood Zone 1.

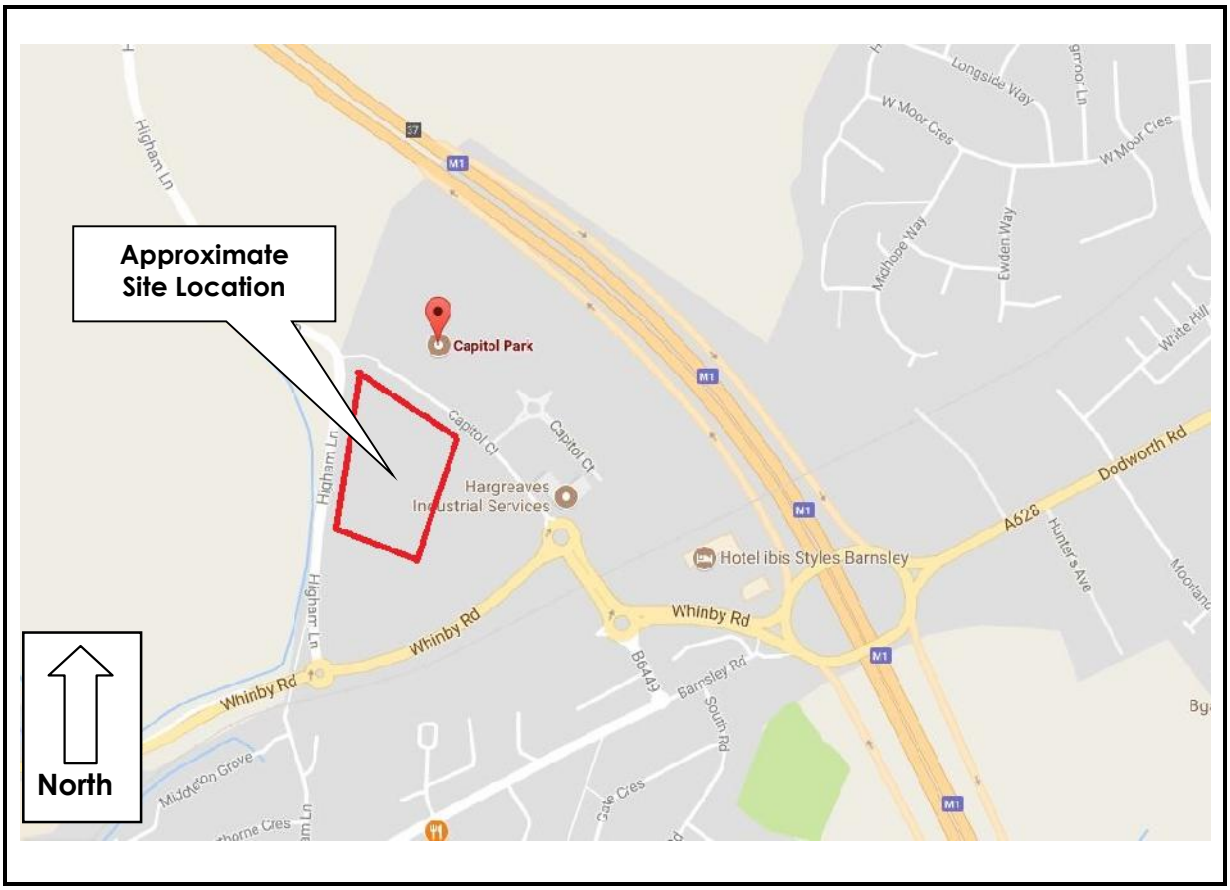
Surface water is to discharge via the existing tails provided into the existing adopted drainage network running adjacent to the site.

Foul water domestic waste should discharge to the existing adopted sewer network currently running adjacent to the site.

Richard Wheatley
For and behalf of JPG (Leeds) Limited

July 2017

Appendix A Site Location Plan and Aerial Photograph



Site Location Plan	
Site	**Unit D Capitol Park, Junction 37 (M1), Barnsley**
Client	**Commercial Development Projects**
Job Number	**2450**
Scale	**NTS**

Aerial Photograph	
Site	**Unit D Capitol Park, Junction 37 (M1), Barnsley**
Client	**Commercial Development Projects**
Job Number	**2450**
Scale	**NTS**

Appendix B Topographic Survey

LAND SURVEYS
Civil Engineering & Building Surveys

STOCKHOUSE, DYNSDALE MILLS, THORPEWOOD, ROAD, DODWORTH, BARNSLEY
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E-mail: XXXX@XXXX.co.uk

DRAWING
LAND AT WHINBY ROAD, DODWORTH

CLIENT
JPG

ALL SERVICES TO BE FIELD VERIFIED
All dimensions are in millimetres unless otherwise stated
Ordnance Survey Datum (OSD) is used for all levels

SCALE	1:500	DATE SURVEYED	14/08/2019
DRAWN	DD/MM/YY	DATE DRAWN	16/08/2019
CHECK	DD/MM/YY	DRAWING NO.	5610/1

Appendix C Existing Drainage layout

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DO NOT SCALE

NOTES

Y.W. REF:

1. ALL GULLY CONNECTIONS TO BE 150 DIA WITH CONCRETE SURROUND.

2. ALL FUTURE STUBS TO BE SEALED WITH CIRCULAR PLY CUT TO SIZE AND CONCRETE IN.

3. ALL COVER LEVELS TO MANHOLES ARE APPROXIMATE & ARE TO SUIT ARCHITECTS FINISHED LEVEL SCHEME.

4. ALL LEVELS RELATE TO OSBM ON RAILWAY BRIDGE OVER HIGHAM LANE, VALUE 134.78m AOD

5. REFER TO BARNSLEY METROPOLITAN BOROUGH COUNCIL (B.M.B.C.) DRAWINGS FOR DETAILS OF DRAINAGE TO BYPASS

YORKSHIRE WATER NOTES:

1. ALL ADOPTABLE SEWER WORKS & MATERIAL TO BE IN ACCORDANCE WITH "SEWERS FOR ADOPTION" 5th EDITION & YORKSHIRE WATER'S REQUIREMENTS.

2. MANHOLE COVERS SHALL HAVE A CLEAR OPENING OF 600mm & SHALL BE CLASS D400 TO BS EN 124 WITH 150mm DEEP FRAMES IN HIGHWAYS.

3. FILLED GROUND MUST BE FILLED & CONSOLIDATED UNDER THE SUPERVISION & TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.

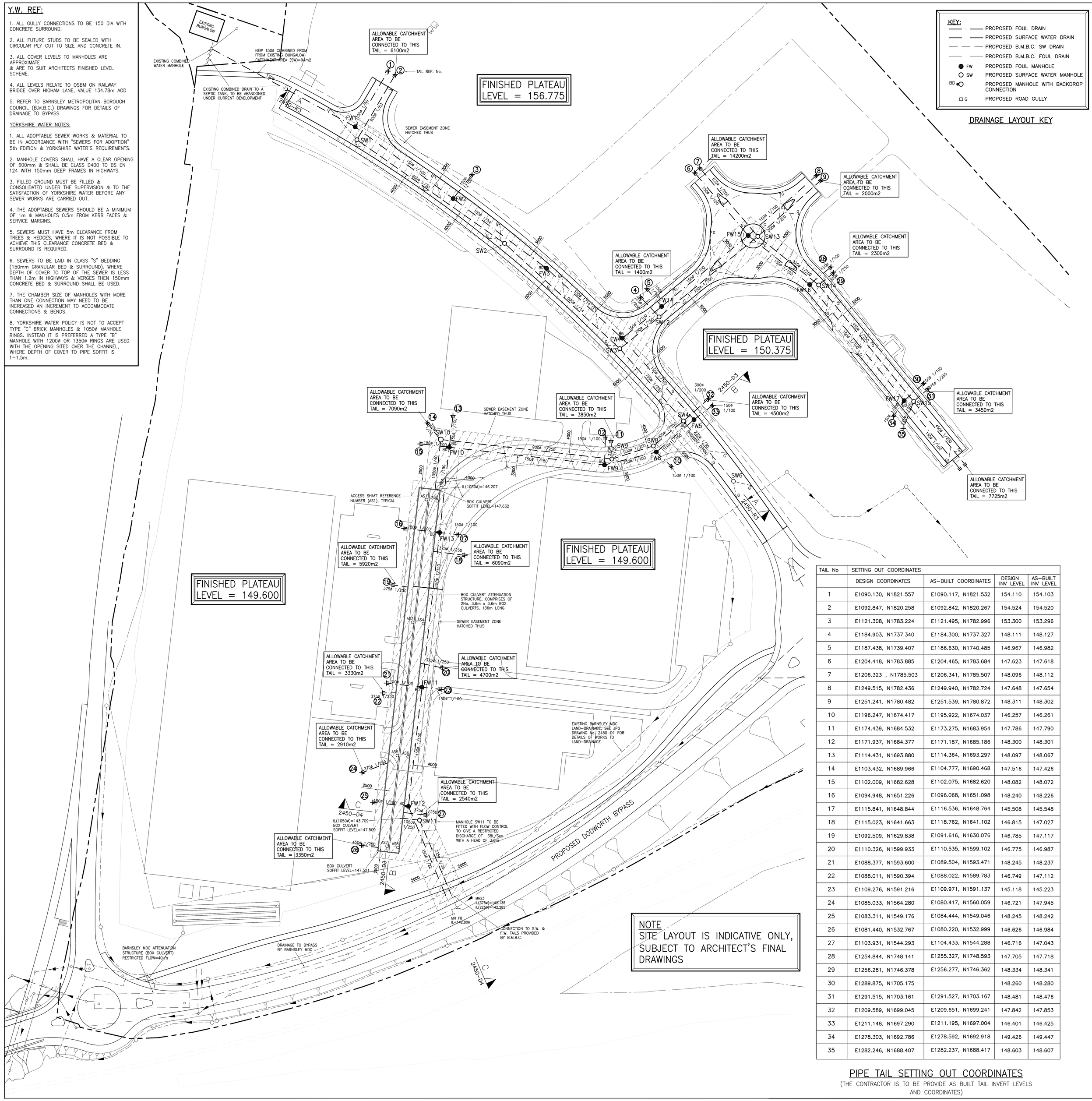
4. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1m & MANHOLES 0.5m FROM KERB FACES & SERVICE MARGINS.

5. SEWERS MUST HAVE 5m CLEARANCE FROM TREES & HEDGES, WHERE IT IS NOT POSSIBLE TO ACHIEVE THIS CLEARANCE CONCRETE BED & SURROUND IS REQUIRED.

6. SEWERS TO BE LAID IN CLASS "S" BEDDING (150mm GRANULAR BED & SURROUND). WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2m IN HIGHWAYS & VERGES THEN 150mm CONCRETE BED & SURROUND SHALL BE USED.

7. THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE CONNECTIONS & BENDS.

8. YORKSHIRE WATER POLICY IS NOT TO ACCEPT TYPE "C" BRICK MANHOLES & 1050ø MANHOLE RINGS, INSTEAD IT IS PREFERRED A TYPE "B" MANHOLE WITH 1200ø OR 1350ø RINGS ARE USED WITH THE OPENING SITED OVER THE CHANNEL, WHERE DEPTH OF COVER TO PIPE SOFFIT IS 1–1.5m.



KEY:

- PROPOSED FOUL DRAIN
- PROPOSED SURFACE WATER DRAIN
- PROPOSED B.M.B.C. SW DRAIN
- PROPOSED B.M.B.C. FOUL DRAIN
- FW PROPOSED FOUL MANHOLE
- SW PROPOSED SURFACE WATER MANHOLE
- BD PROPOSED MANHOLE WITH BACKDROP CONNECTION
- G PROPOSED ROAD GULLY

DRAINAGE LAYOUT KEY

TAIL No	SETTING OUT COORDINATES			
	DESIGN COORDINATES	AS–BUILT COORDINATES	DESIGN INV LEVEL	AS–BUILT INV LEVEL
1	E1090.130, N1821.557	E1090.117, N1821.532	154.110	154.103
2	E1092.847, N1820.258	E1092.842, N1820.267	154.524	154.520
3	E1121.308, N1783.224	E1121.495, N1782.996	153.300	153.296
4	E1184.903, N1737.340	E1184.300, N1737.327	148.111	148.127
5	E1187.438, N1739.407	E1186.630, N1740.485	146.967	146.982
6	E1204.418, N1783.885	E1204.465, N1783.684	147.623	147.618
7	E1206.323 , N1785.503	E1206.341, N1785.507	148.096	148.112
8	E1249.515, N1782.436	E1249.940, N1782.724	147.648	147.654
9	E1251.241, N1780.482	E1251.539, N1780.872	148.311	148.302
10	E1196.247, N1674.417	E1195.922, N1674.037	146.257	146.261
11	E1174.439, N1684.532	E1173.275, N1683.954	147.786	147.790
12	E1171.937, N1684.377	E1171.187, N1685.186	148.300	148.301
13	E1114.431, N1693.880	E1114.364, N1693.297	148.097	148.067
14	E1103.432, N1689.966	E1104.777, N1690.468	147.516	147.426
15	E1102.009, N1682.628	E1102.075, N1682.620	148.082	148.072
16	E1094.948, N1651.226	E1096.068, N1651.098	148.240	148.226
17	E1115.841, N1648.844	E1116.536, N1648.764	145.508	145.548
18	E1115.023, N1641.663	E1118.762, N1641.102	146.815	147.027
19	E1092.509, N1629.838	E1091.616, N1630.076	146.785	147.117
20	E1110.326, N1599.933	E1110.535, N1599.102	146.775	146.987
21	E1088.377, N1593.600	E1089.504, N1593.471	148.245	148.237
22	E1088.011, N1590.394	E1088.022, N1589.783	146.749	147.112
23	E1109.276, N1591.216	E1109.971, N1591.137	145.118	145.223
24	E1085.033, N1564.280	E1080.417, N1560.059	146.721	147.945
25	E1083.311, N1549.176	E1084.444, N1549.046	148.245	148.242
26	E1081.440, N1532.767	E1080.220, N1532.999	146.626	146.984
27	E1103.931, N1544.293	E1104.433, N1544.288	146.716	147.043
28	E1254.844, N1748.141	E1255.327, N1748.593	147.705	147.718
29	E1256.281, N1746.378	E1256.277, N1746.362	148.334	148.341
30	E1289.875, N1705.175		148.260	148.280
31	E1291.515, N1703.161	E1291.527, N1703.167	148.481	148.476
32	E1209.589, N1699.045	E1209.651, N1699.241	147.842	147.853
33	E1211.148, N1697.290	E1211.195, N1697.004	146.401	146.425
34	E1278.303, N1692.786	E1278.592, N1692.918	149.426	149.447
35	E1282.246, N1688.407	E1282.237, N1688.417	148.603	148.607

PIPE TAIL SETTING OUT COORDINATES

(THE CONTRACTOR IS TO BE PROVIDE AS BUILT TAIL INVERT LEVELS AND COORDINATES)

MH REF.	INVERT LEVELS	COVER LEVELS	DEPTH TO SOFFIT	TYPE	SIZE	COVER TYPE	SET–OUT COORDINATES
SW1	① 153.993	157.270	2.677	A	1500ø CONC.	D400	E1076.069, N1797.706
SW2	① 151.753	155.617	3.264	A	1500ø CONC.	D400	E1133.579, N1757.372
SW3	① 147.474 ② 147.624	152.667	4.443	A	1800ø CONC.	D400	E1176.215, N1718.504
SW4	① 147.182 ② 147.332 ③ 147.782 ④ 148.632(BD)	151.475	3.393	A	2100ø CONC.	D400	E1200.243, N1691.173
SW5	OMITTED						
SW6	① 149.595	151.320	1.500	B	1200ø CONC.	D400	E1214.638, N1673.324
SW7	① 147.649 ② 147.874	OMITTED	1.238	2.989	B	1500ø CONC.	D400	E1207.586, N1682.351
SW8	① 147.128	149.600	1.572	B	2100ø CONC.	D400	E1189.053, N1681.859
SW9	① 147.064 ② 147.589	149.600	1.636	B	2100ø CONC.	D400	E1173.579, N1676.983
SW10	① 146.671 ② 146.821 ③ 147.346	149.600	1.879	B	2400ø CONC.	D400	E1109.816, N1684.254
SW11	① 143.684	149.600	4.866	A	2100ø CONC.	D400	E1101.895, N1542.360
SW12	① 147.550 ② 148.075	152.315	4.015	A	1800ø CONC.	D400	E1191.181, N1729.938
SW13	① 147.740 ② 147.965 ③ 148.190	151.558	3.068	A	2100ø CONC.	D400	E1228.011, N1759.955
SW14	① 148.081 ② 148.156 ③ 148.306	151.141	2.535	B	1500ø CONC.	D400	E1250.701, N1741.829
SW15	① 148.378 ② 148.453 ③ 148.603	150.831	2.003	B	1500ø CONC.	D400	E1286.117, N1698.389

SURFACE WATER SCHEDULE

MH REF.	INVERT LEVELS	COVER LEVELS	DEPTH TO SOFFIT	TYPE	SIZE	COVER TYPE	SET–OUT COORDINATES
FW1	① 153.643	157.340	3.547	A	1200ø CONC.	D400	E1080.531, N1799.367
FW2	① 153.193	155.700	2.357	B	1200ø CONC.	D400	E1114.445, N1774.036
FW3	① 150.885 ② 152.385(BD)	153.985	2.950	B	1200ø CONC.	D400	E1149.256, N1748.035
FW4	① 146.711 ② 148.211(BD)	152.625	5.764	A	1200ø CONC.	D400	E1177.915, N1721.519
FW5	① 146.311	151.375	4.914	A	1200ø CONC.	D400	E1204.231, N1691.650
FW6	① 147.451	OMITTED	1.352	3.751	A	1200ø CONC.	D400	E1206.355, N1689.025
FW7	① 147.605	OMITTED	2.206	4.451	A	1200ø CONC.	D400	E1215.879, N1676.959
FW8	① 146.185	149.600	3.265	A	1200ø CONC.	D400	E1190.183, N1679.594
FW9	① 146.052 ② 148.204(BD)	149.600	3.398	A	1200ø CONC.	D400	E1170.842, N1674.779
FW10	① 145.666 ② 147.972(BD)	149.600	3.784	A	1500ø CONC.	D400	E1113.004, N1681.375
FW11	① 145.060 ② 148.100(BD)	149.600	4.390	A	1500ø CONC.	D400	E1102.818, N1591.953
FW12	① 144.760 ② 148.100(BD)	149.600	4.690	A	1200ø CONC.	D400	E1097.758, N1547.529
FW13	① 145.450 ② 148.100(BD)	149.600	4.000	A	1500ø CONC.	D400	E1109.383, N1649.580
FW14	① 146.901	152.234	5.183	A	1200ø CONC.	D400	E1192.162, N1733.841
FW15	① 147.321	151.566	4.095	A	1500ø CONC.	D400	E1224.450, N1760.287
FW16	① 147.610	151.198	3.438	A	1200ø CONC.	D400	E1247.326, N1742.012
FW17	① 148.165 ② 149.360(BD)	150.779	2.464	B	1200ø CONC.	D400	E1282.600, N1698.747

FOUL WATER MANHOLE SCHEDULE

NOTE:
THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWING:
2450–D3 – DRAINAGE LONG–SECTON
2450–D4 – DRAINAGE LONG–SECTION
2450–D5 – S.W. MANHOLE DETAILS
2450–D6 – FOUL WATER MANHOLE DETAILS
2450–D7 – DRAINAGE CONSTRUCTION DETAILS
2450–D8 – S.W. STORAGE STRUCTURE DETAILS
2450–D9 – G.A. OF MANHOLE SW11 (FLOW CONTROL CHAMBER)
2450–D10 – BOX CULVERT ACCESS LADDER
2450–D11 – MANHOLE DETAIL (PIPES > 900mm)
2450–R3 – ACCESS ROAD – LONG–SECTION

REV	DESCRIPTION	DATE	BY
F	AS BUILT TAIL CO–ORDINATES AND LEVELS ADDED	01.06.06	RAK
E	CONSTRUCTION ISSUE	08.11.05	AMF
D	SCHEDULE UPDATED TO SUIT REVISED SITE ROAD ALIGNMENT	26.10.05	PY
C	HIGHWAY DRAIN NOTE ADDED (SW4–SW6).	20.10.05	AMF
B	EASEMENT ZONES UPDATED TAIL COORDS 28–33 ADDED	03.10.05	AMF
A	DRAINAGE ADDED TO OFFICE PLOT	30.09.05	AMF

Job Title
PROPOSED DEVELOPMENT
JUNCTION 37, M1
BARNSLEY

Drawing Title
DRAINAGE LAYOUT

Architect
THE HARRIS PARTNERSHIP LTD

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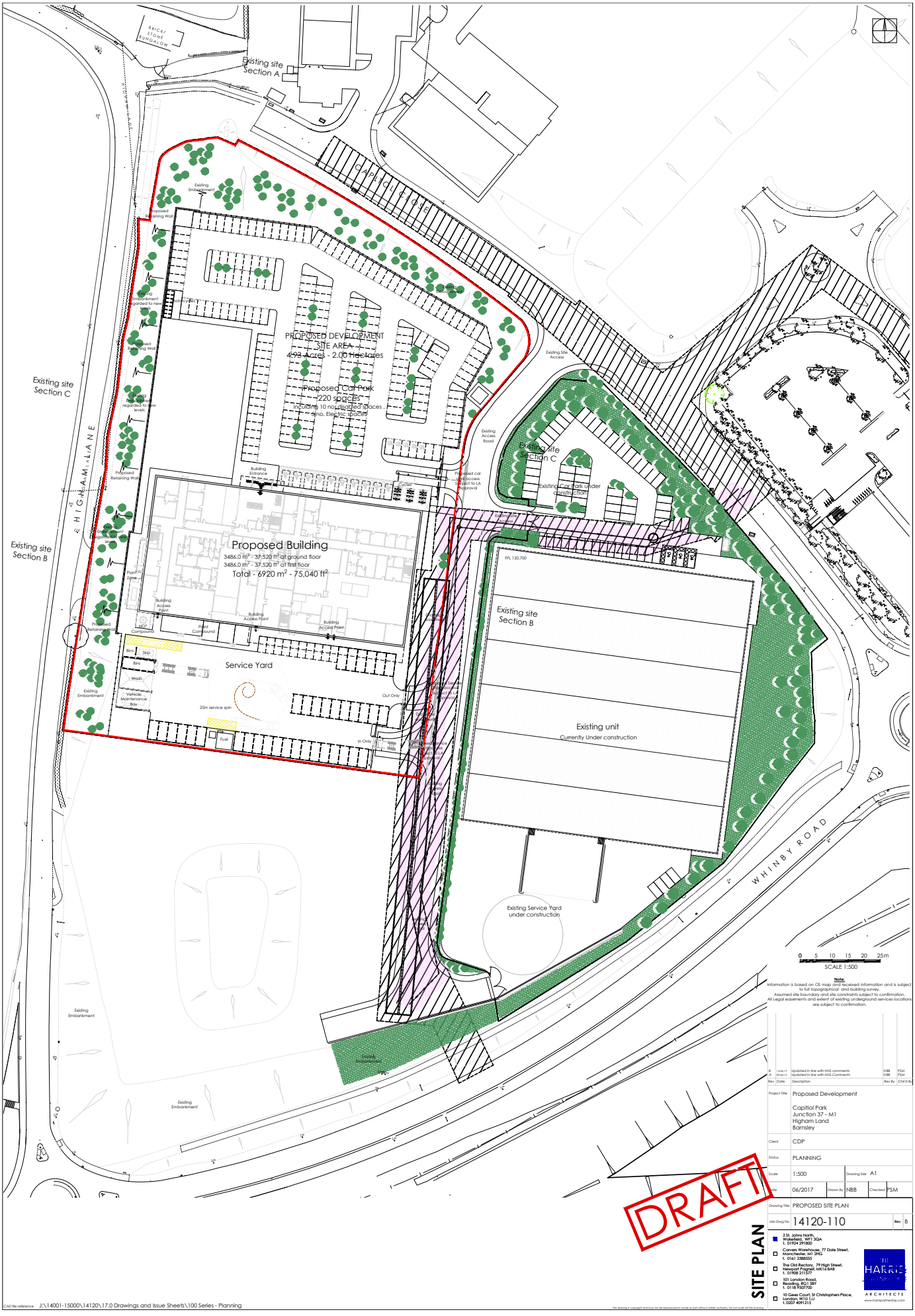
Checked	Date	Scale		Drawn
	21.08.05	1:500		PY

Drawing No 2450–D2 F

Appendix D Proposed Site Layout Plan



Note:
Information is based on OS map and received information and is subject to full topographical and building survey.
Assumed site boundary and site constraints subject to confirmation.
All Legal easements and extent of existing underground services locations are subject to confirmation.

Rev	Date	Description	Rev By	Chkd By
B	13.06.17	Updated in line with NHS comments	NBB	PSM
A	29.06.17	Updated in line with NHS Comments	NBB	PSM

Project Title	Proposed Development Capitol Park Junction 37 – M1 Higham Land Barnsley
Client	CDP
Status	PLANNING
Scale	1:500
Drawing Size	A1
Date	06/2017
Drawn By	NBB
Checked	PSM
Drawing Title	PROPOSED SITE PLAN
Job-Dwg No	14120-110
Rev	B

SITE PLAN

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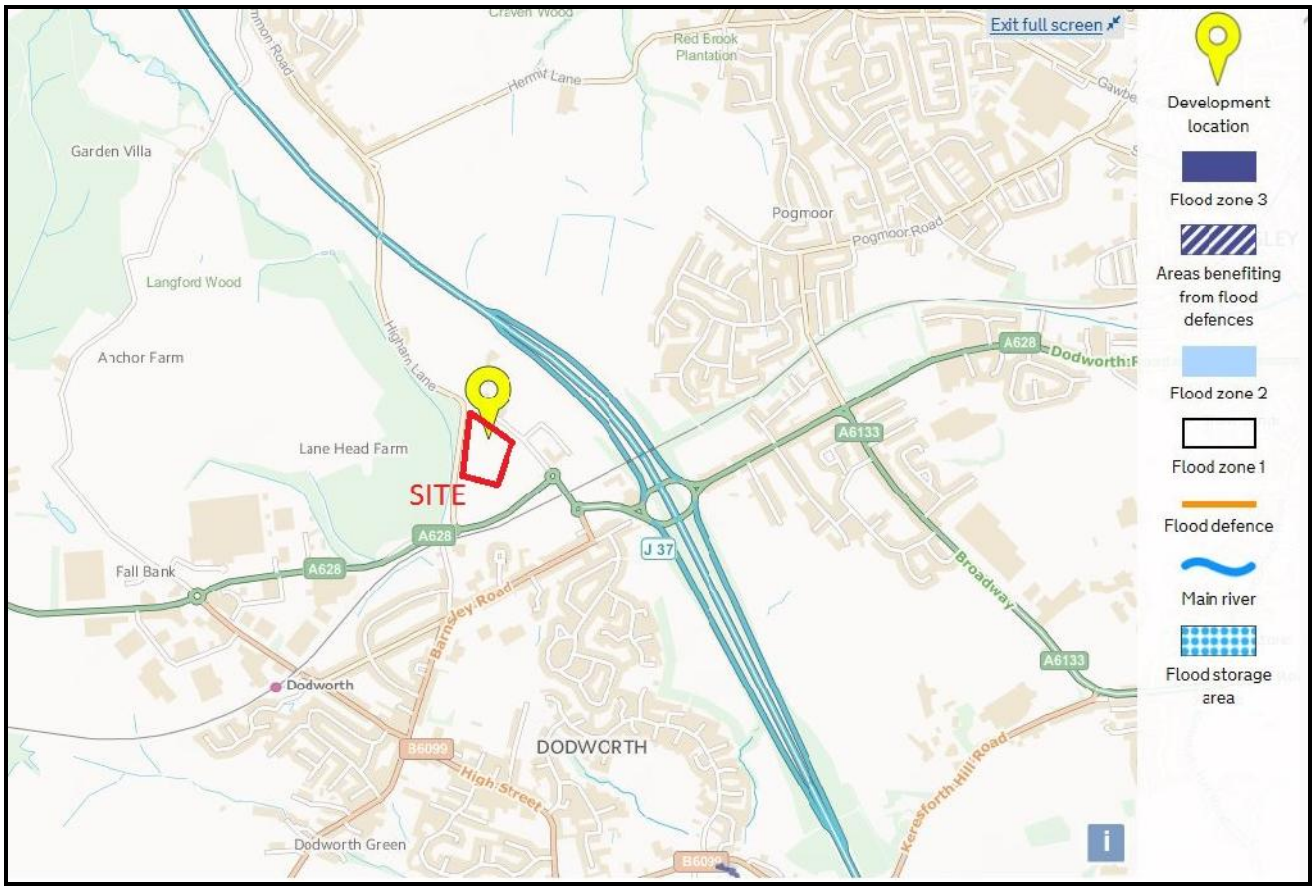
Appendix E Environment Agency Flood Map



Flood Planning Map obtained from Government Website (July 2017)

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