

Appendix D

Topographical Survey



LEGEND		
Topographic Linework Features		
Air-Con Unit (ACU)	Hand Rail	Sky Light
Barrier	Hedge	Slope Bottom
Beam Line	Hoarding	Slope Top
Bench	Kerb Bottom	Slat Drain
Bin	Kerb Drop	Speed Bump
Bollard Illuminated	Kerb Top	Steel Cladding
Bollard	Lake	Steel Structure
Bridge	Land Drain	Step Line
Building Facade	Lift	Surface Change
Building	Opening - Slab	Tank
Bus Stop Shelter	Overhang	Telephone Box (TB)
Cable Trough	Overhead Cables	Ticket Machine(TVM)
Canopy	Parapet	Toilet
Ceiling Line	Platform Train/Tram	Top of Fence Line
Centre Line	Parking Meter (PM)	Top of Wall Line
Column	Pipe Line	Track
Column Bottom Line	Plinth	Traffic Ctrl Box(TCB)
Column Top Line	Plinth	Tree Drip Line
Concrete Base/Slab	Post-box	Tree Line
Contour Major	Rail	Trial Pit
Contour Minor	Ramp	Vegetation Line
Cycle Lane	Red Line Dashed	Vent
Ditch	Red Line Solid	Verge Line
Door	Red Line Double	Wall Line
Duct	River Edge	Window
Electric Box (EBOX)	Road Scar Line	Window Glazing
Fence	Road Text	White Line Dashed
Fixture	Sanitary	White Line Double
Flowerbed	Service	White Line Solid
Footpath		Yellow Line Dashed
Grating		Yellow Line Double
Grid Line		Yellow Line Solid

Topographic Point Features		
AY Air Valve	IC Inspection Cover	RS Road Sign
APIX Apex Building	IC - CATV	RE Rodding Eye
BL Bed Level	IC - Comms	SA Sector Antenna
BB Belisha Beacon	IC - Electric	SIGN Sign (General)
Bollard	IC - Round	SOF Soffit Level
BOLT Bolt	IC - Telecom	SH Spot Height
BH Borehole	IC - Traffic	SC Stop Cock
Bush	Invert Level	ST Telegraph Pole
CCTV Camera Pole	Lamp Post	T12 Top of Fence Level
Ceiling Elevation	Manhole	T12 Top of Tree Level
CIP	MH - Foul	T12 Top of Wall Level
12.24 Dipole	MH - Round	TL Traffic Light
12.24 Earth Rod	MH - Surface Water	Tree (TXXX SX-XX)
12.24 Eave	Marker Post	Tree Trunk
12.24 MH	MW Microwave Dish	Valve General
12.24 Electrical Pole	Pipe - Down	WL Water Level
12.24 Fire Hydrant	POLE Pole	WM Water Meter
12.24 Floor Level	POST Post	WV Water Valve
12.24 Gas Meter		
12.24 Gate		
12.24 Gully		
12.24 Gully Round		

Special Features		
DATUM Datum Point	E=XXXXXXX	Survey Station
12.24 Photo Point	N=YYYYYYY	Scan Target
Panoramic Photo Point	H=ZZZZZZZ	
Fence Types		
B/W Barbed Wire	CH Chain Link	OB Open Boarded
CB Close Boarded	H Heras	P/W Post and Wire
CI Corrugated Iron	IR Iron Railings	P/R Post and Rail

Murphy Geospatial Disclaimer

All reasonable endeavours have been used to capture the required data in the survey to the agreed standards of accuracy. Where features have been distorted due to a lack of access, the areas will be annotated as 'UTS' (Unable To Survey). The Company shall not be liable for any damages or consequential losses arising from the reliance on survey information beyond its specified scale and accuracy, or survey information used for purposes other than that stated in the Contract of Works.

Any concerns with the survey should be raised with Murphy Geospatial, who will endeavour to promptly provide a remedy. The Client shall not seek recourse through any third party until such time as Murphy Geospatial have had the opportunity to redress any concerns raised.

For full terms and conditions visit [Terms and Conditions](#) [www.murphygsg.com](#)

Location Plan		
	1	2
	3	4
	5	6
7	8	9
10	11	12
13	14	15

Revisions				
Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	CC - 28/05/21	CS - 06/12/21	AO - 06/12/21

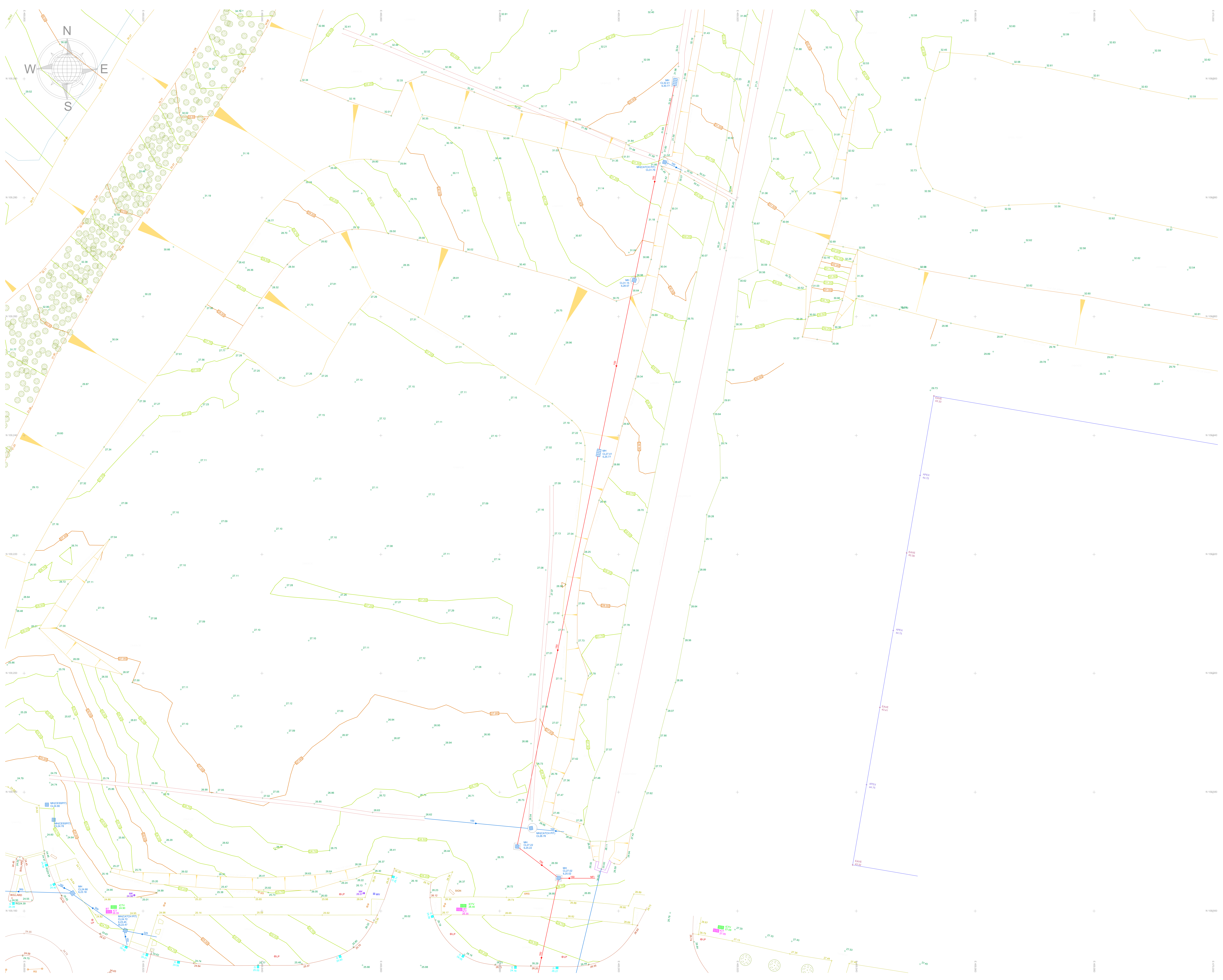


Geospatial certainty you can trust [murphygsg.com](#)

UK Head Office
39-41 North Road
London
N7 9DP
Phone: (+44) 0203 598 3775
Email: info@murphygsg.com

London **Manchester** **Glasgow** **Belfast** **Cork** **Kildare**

Client	Portsmouth City Council
Project	Dunsbury Park
Site Address	Fitzwygram Way Havant PO9 4EE
Description	Topographical Survey
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:200 @ A0
Drawing Number	MGS44680-T-10



LEGEND		
Topographic Linework Features		
— Air-Con Unit (ACU)	— Hand Rail	— Sky Light
— Barrier	— Hedge	— Slope Bottom
— Beam Line	— Hoarding	— Slope Top
— Bench	— Kerb Bottom	— Slat Drain
— Bin	— Kerb Drop	— Speed Bump
— Bollard Illuminated	— Kerb Top	— Steel Cladding
— Bollard	— Lake	— Steel Structure
— Bridge	— Land Drain	— Step Line
— Building Facade	— Lift	— Surface Change
— Building	— Opening - Slab	— Tank
— Bus Stop Shelter	— Overhang	— Telephone Box (TB)
— Cable Trough	— Overhead Cables	— Ticket Machine(TVM)
— Canopy	— Parapet	— Toilet
— Ceiling Line	— Partition	— Top of Fence Line
— Centre Line	— Parking Meter (PM)	— Top of Wall Line
— Column	— Pipe Line	— Track
— Column Bottom Line	— Platform Train/Tram	— Traffic CRT Box(TCB)
— Column Top Line	— Plinth	— Tree Drip Line
— Concrete Base/Slab	— Pond	— Tree Line
— Contour Major	— Post-box	— Trial Pit
— Contour Minor	— Ramp	— Vegetation Line
— Cycle Lane	— Rail	— Vent
— Ditch	— Red Line Dashed	— Verge Line
— Door	— Red Line Solid	— Wall Line
— Duct	— Red Line Double	— Window
— Electric Box (EBOX)	— River Edge	— Window Glazing
— Fence	— Road Edge	— White Line Dashed
— Fixture	— Road Scar Line	— White Line Double
— Flowerbed	— Road Text	— White Line Solid
— Footpath	— Roof	— Yellow Line Dashed
— Grating	— Sanitary	— Yellow Line Double
— Grid Line	— Service	— Yellow Line Solid

Topographic Point Features		
— AVE	— Air Valve	— Inspection Cover
— APLX	— Apex Building	— Roding Eye
— BL	— Bed Level	— IC - CATV
— B	— Belisha Beacon	— IC - Comms
— BOLL	— Bollard	— IC - Electric
— BOLT	— Bolt	— IC - Round
— BH	— Borehole	— IC - Telecom
— BUSH	— Bush	— IC - Traffic
— CCTV	— CCTV Camera Pole	— Invert Level
— CE	— Ceiling Elevation	— Lamp Post
— DIP	— Dipole	— Manhole
— E	— Earth Rod	— MH - Foul
— EAVE	— Eave	— MH - Round
— E	— Electrical Pole	— Fire Hydrant
— F	— Floor Level	— MH - Surface Water
— G	— Gas Meter	— Marker Post
— G	— Gate	— Microwave Dish
— G	— Gully	— Pipe - Down
— G	— Gully Round	— Pole
— POST	— Post	— Scan Target

Special Features		
— DATUM	— Datum Point	— E=XXXXXXX
— ID	— Photo Point	— N=YYYYYYY
— ID	— Panoramic Photo Point	— H=ZZZZZZZ
— ID	— Scan Target	— E=XXXXXXX
— ID	— Scan Target	— H=ZZZZZZZ

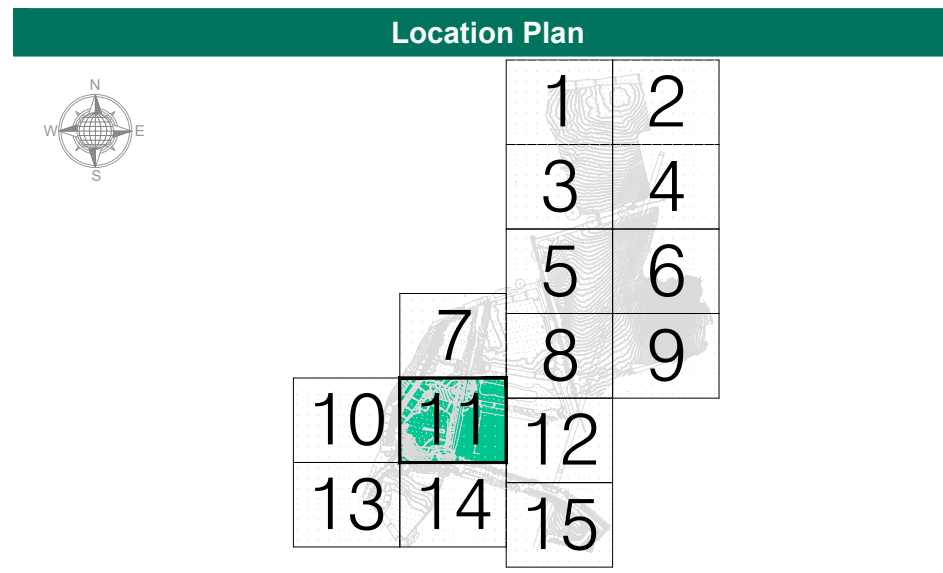
Fence Types			
— B/W	— Barbed Wire	— O/S	— Open Boarded
— C/B	— Close Boarded	— H	— Heras
— C/I	— Corrugated Iron	— P/W	— Post and Wire
— I/R	— Iron Railings	— P/R	— Post and Rail

Murphy Geospatial Disclaimer

All reasonable endeavours have been used to capture the required data in the survey to the agreed standards of accuracy. Where features have been omitted due to a lack of access, the areas will be annotated as 'UTS' (Unable To Survey). The Company shall not be liable for any damages or consequential losses arising from the reliance on survey information beyond its specified scale and accuracy, or survey information used for purposes other than that stated in the Contract of Works.

Any concerns with the survey should be raised with Murphy Geospatial, who will endeavour to promptly provide a remedy. The Client shall not seek recourse through any third party until such time as Murphy Geospatial have had the opportunity to address any concerns raised.

For full terms and conditions visit [Terms and Conditions](#) [www.murphygsg.com](#)



Revisions			
Rev	Description	Surveyed by	Drawn by
A	First Issue	CC - 280621	CS - 06/12/21



Geospatial certainty you can trust [murphygsg.com](#)

UK Head Office
39-41 North Road
London
N7 9DP
Phone: (+44) 0203 598 3775
Email: info@murphygsg.com

Glasgow **Belfast** **Cork** **Kildare**

Client	Portsmouth City Council
Project	Dunsbury Park
Site Address	Fitzwygram Way Havant PO9 4EE
Description	Topographical Survey
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band F
Drawing Scale	1:200 @ A0
Drawing Number	MGS44680-T-11

Special Features

	Datum Point	ID #	E=XXXX.XXX N=YYYYY.YYY E=Zzzz.zzz	Survey Station
	Photo Point			
	Panoramic Photo Point	ID #	E=XXXX.XXX N=YYYYY.YYY E=Zzzz.zzz	Scan Target

Location Plan

		1	2
		3	4
		5	6
	7	8	9
10	11	12	
13	14	15	



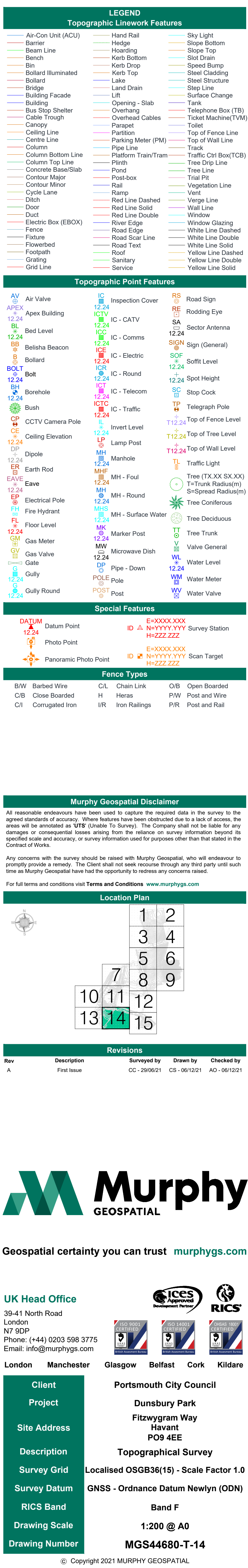
Murphy
GEOSPATIAL

Geospatial certainty you can trust murphygs.com



London Manchester Glasgow Belfast Cork Kildare

© Copyright 2021 MURPHY GEOSPATIAL



Appendix E

Borehole Logs



SU60NE

ONE-INCH N.S. MAP NOS.

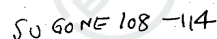
REGISTER OF BOREHOLES AND SHAFTS

NATIONAL GRID 6" MAP

U.G.S. Record number	One-Inch Map	If confidential mark 'C'	Name and Number of Borehole or Shaft	National Grid Reference	Symbol used for site	Depth in feet (metres)	Additional Notes
99	316		Purbrook Way Extension BH5	6952 0773	⊙	6ft	
100	"		" BH6	6972 0779	⊙	6ft	
101	"		Crookhorn Sewer Investigation BH1	6852 0746	⊙	17ft	
102	"		" BH2	6852 0759	⊙	40ft	
103	"		" BH3	6852 0768	⊙	45ft	
104	"		" BH4	6845 0775	⊙	40ft	
105	"		" BH5	6843 0789	⊙	40ft	
106	"		" BH6	6842 0800	⊙	15ft	
107	"		Birches Crest BH1-4	6950 0945	⊞	12.5m	
108	"		Hulleart Rd Relief Sewer BH1	6891 0927	⊙	19.5ft	
109	"		" BH2	6915 0926	⊙	7ft	
110	"		" BH3	6936 0926	⊙	7ft	
111	"		" BH4	6949 0920	⊙	10ft	
112	"		" BH5	6960 0916	⊙	14ft	
113	"		" BH6	6978 0900	⊙	11ft	
114	"		" BH7	6996 0866	⊙	12ft	
115	"		Cowplain & Waterworks Drainage Phase II BH28	6938 0993	⊙	50ft	
116	"		" BH29	6938 0984	⊙	45ft	
117	"		" BH30	6939 0974	⊙	50ft	
118	"		" BH31	6939 0966	⊙	50ft	

Symbols— ⊙ —B.H., accurate site; ⊞ —shaft; Δ —B.H., approximate site

⊞ —box site (several B.H. in close proximity)





ION ENGINEERING

Ltd.

BOREHOLE LOG

SU 60NE/113

LOCATION : HAVANT

BOREHOLE No. : 6 NGR 46978 0900

BOREHOLE DIA. : 6" HAND AUGER

GROUND LEVEL :

DATE (Start) : 25 . 3 . 65

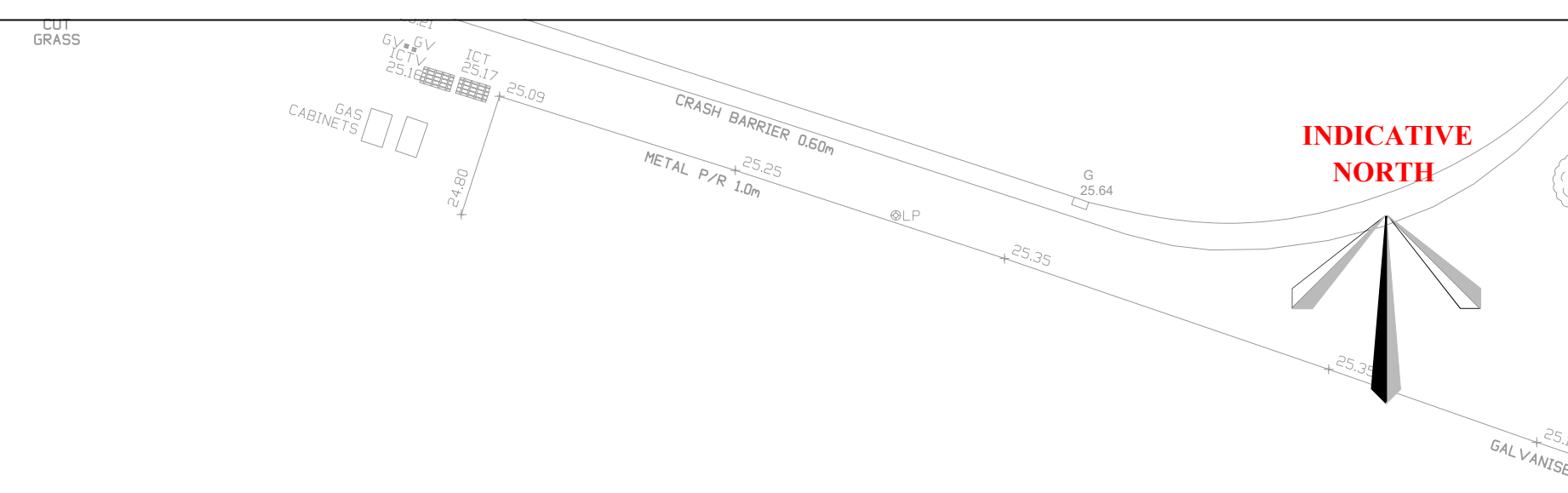
WATER LEVEL : Water entered
borehole at 8'-0"
6'-6" B.G.L.

Description	Thickness	Depth	Sample	Remarks
Brown sandy CLAY	2'-0"	0'-0"	1	
		2'-0"	2	HEAD
Mottled grey silty sandy CLAY	5'-0"			
Grey organic clayey SILT	1'-0"	7'-0"		
Silty sandy GRAVEL f.m.	+	8'-0"	3 4 5	BOGNER SAND MEMBER ? TOUCHED
BOREHOLE COMPLETE				

Appendix F
Ground Investigation Report
(Full report available upon request)

Appendix G

CCTV Survey



Appendix H

HR Wallingford

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	06/11/2025
Calculated On	AS
Reference	W24084
Model Version	2.2.2

Location

Site Name	Plot 100 Dusbury Park
Site Location	Dunsbury Park



Site Easting British National Grid	469833
Site Northing British National Grid	109065

Site details

Total Site Area ha	0.780
--------------------	-------

Greenfield runoff

Method

Method

IH124

IH124

SAAR mm^3

My value

779

mm

Map value

779

How should SPR be derived?

WRAP soil type

WRAP soil type

4

4

SPR

0.47

QBar $\text{m}^3 \text{ s}^{-1}$

4.3

l/s

Growth curve factors

Hydrological Region

My value

7

Map value

7

RYear Growth factor

0.85

SYear Growth factor

0.88

RJYear Growth factor

1.62

VJYear Growth factor

2.3

RJJYear Growth factor

3.19

SJJYear Growth factor

3.74

Results

Method

IH124

Flow rate 1 year l/s^3

3.6

l/s

Flow rate 2 year l/s^3

3.8

l/s

Flow rate 10 years l/s^3

6.9

l/s

Flow rate 100 years l/s^3

9.8

l/s

Flow rate 1000 years l/s^3

13.6

l/s

Flow rate 2500 years l/s^3

16.0

l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.2) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Appendix I

Peter Brett Consultant 'Surface Water Drainage and SuDS Strategy' Report

Page5- 6

(Full report available upon request)

3.3.3 The ES, 2012, concludes that:

'Assuming appropriate maintenance of SuDS installations, the effects relating to changes in the surface water quality and quantity on aquatic ecology and geomorphological quality of the Hermitage Stream including the proposed restored section and Park Lane Stream is assessed as permanent adverse of neutral significance.'

3.4 Proposed Surface Water and SuDS Strategy

- 3.4.1 The proposed surface water and SuDS strategy which has been developed based on the Dunbury Hill Farm Masterplan Option F (Ref: 4330/ARCH/1006/Rev B, 17th October 2014, BAM) and is divided into three parts; Access Road, Strategic Site Wide and On-Plot.

Access Road

- 3.4.2 The access road is served over four catchments by a standalone drainage system which restricts the off-site discharge rate to 3.4 l/s/ha and utilises SuDS to provide two levels of treatment to the runoff prior to discharge.
- 3.4.3 Further details of this strategy are provided within Surface Water Drainage Strategy Technical Note (Ref: TN001-PB2348-310055-Egha, 28th January 2015, Royal HaskoningDHV) contained in **Appendix B**.

Strategic Site Wide Strategy and Infrastructure

- 3.4.4 The Strategic Site Wide Strategy utilises pipes laid within the road network to convey flows from the development plot boundaries to the development's discharge point via a regional detention basin. The basin provides attenuation, and water quality and amenity benefits while restricting the final off-site discharge to the agreed discharge rate of Q_{bar} (3.4 l/s/ha).
- 3.4.5 In order to mitigate for the increase in volume of runoff generated by the development and the site geology's unsuitability for infiltration drainage techniques, a discharge rate of Q_{bar} has been selected in accordance with Rainfall Runoff Management for Developments (Ref: SC030219, October 2013, Environment Agency):

'Where compliance to the 100 year volumetric criterion is not provided.....the limiting discharge for any return period up to the 100 year event shall not be greater than the mean annual peak rate of runoff for the greenfield site (referred to as Q_{bar} in IoH report 124) or 2 l/s/ha, whichever is the greater.'

- 3.4.6 A copy of the proposed drainage strategy drawing 30142/2001/001 is contained in **Appendix C**.
- 3.4.7 The allowable discharge rate and estimated attenuation requirements for each development plot prior to discharge into the Strategic Site Wide infrastructure have been calculated based on the size of the plots, as shown on the Dunsbury Hill Farm Below Drainage Strategy (Ref: 4330/SERVE/5000/Rev P3, 10th October 2015, BAM) and an allowable discharge rate of 5 times Q_{bar} ($5 \times 3.4 \text{ l/s/ha} = 17.0 \text{ l/s/ha}$). The remaining attenuation requirements to meet the overall restricted site discharge (approximately 7300m³) is provided in the regional detention basin.

Plot	Impermeable Area (ha)	Allowable Discharge Rate (l/s)	Minimum Recommended On-Plot Storage
1	0.546	9.29	304
2	1.656	28.15	931
3	1.933	32.86	1,040
4	0.477	8.11	246
5	2.278	38.72	1,278
6	0.624	10.61	335
7	0.776	13.20	402
8	1.785	30.34	985
Total	10.075	N/A	5,521

Table 3.1: Plot Allowable Discharge Rates and Minimum Recommended On-Plot Storage Provision

- 3.4.8 As each plot is taken forward for development the developer will use the proposed drainage strategy drawing which includes a copy of Table 3.1 to determine the allowable discharge rate. Also provided on the drawing is an estimate of the quantum of on-plot storage required to meet the agreed design standards. To aid developers the indicative volume of on-plot attenuation required for each plot is also shown on proposed drainage strategy drawing 30142/2001/001 contained in **Appendix C**.
- 3.4.9 MicroDrainage modelling demonstrating that the on-plot discharge rates, minimum recommended on-plot storage volumes and regional detention basin can achieve the required discharge rate at the development boundary in the 1 year, 30 year, 100 year and 100 year + 30% climate change rainfall events (10.075ha x 3.4 l/s/ha = 34.25 l/s) is contained in **Appendix D**. This modelling, when read in conjunction with the proposed drainage strategy drawing 30142/2001/001 contained in **Appendix C**, confirms that the proposed surface water drainage strategy is deliverable within the site boundary.
- 3.4.10 The detailed design of the regional detention basin taking into account the developments landscape proposals will be undertaken in accordance with The SuDS Manual (C697, CIRIA) at the detailed design stage. The construction phasing of the strategic site wide surface water drainage infrastructure will be specified at the detailed design stage and will follow the principles for protecting waterbodies and water quality as set out in the ES, 2012, and The SuDS Manual (C697, CIRIA).

On-Plot Strategy

- 3.4.11 In accordance with the site specific FRA, 2012, and The SuDS Manual (C697, CIRIA) the On-Plot strategy has been developed to provide source control measures which manage both the quantity and quality of surface water as close to the source as possible. Both these documents in conjunction with the ES, 2012, have been used to determine the number of surface water treatment stages required prior to discharge off-site into the Hermitage Stream.
- 3.4.12 Table 3.2 overleaf details the minimum number of treatment stages required for each type of land use currently proposed on the Dunsbury Hill Farm site.

PEREGA

Unit 1B, 55-59 High Street
Antrim
Northern Ireland BT41 4AY
T: 028 9457 9425
E: belfast@perega.co.uk

Quarry Court, Lime Quarry Mews
Guildford
Surrey GU1 2RD
T: 01483 565 886
E: guildford@perega.co.uk

12 United Business Park
Lowfields Road, **Leeds**
West Yorkshire LS12 6UB
T: 0113 245 1282
E: leeds@perega.co.uk

528 High Road
Leytonstone
London E11 3EE
T: 020 8988 5820
E: london@perega.co.uk

30 East Street
Southend-on-Sea
Essex SS2 6LH
T: 01702 618 266
E: southend@perega.co.uk

Studio 302, The Print Rooms
164-180 Union Street
London SE1 0LH
T: 07760 823 911
E: waterloo@perega.co.uk