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Flood Risk Assessment

Salterns House,

Salterns Close,

Hayling Island,

Hampshire

PO11 9PL

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1.0 Introduction

1.1 Scott White and Hookins have been instructed by Murray Planning to undertake a flood risk assessment and provide a drainage strategy as part of the planning submission for the Salterns House development in Hayling Island, Hampshire.

1.2 This report considers the flood risk to the proposed development and the impact that the development will have in relation to flooding of adjacent areas and watercourses. It considers any limits relating to flooding that are likely to be imposed to allow the development to be undertaken.

1.3 This report is based on information received from the Environment Agency, the Havant and PUSH Strategic Flood Risk Assessments, in addition to a desk top study. Scott White and Hookins cannot accept liability for the accuracy or otherwise of any information derived from third party sources.

1.4 This report is for the private and confidential use of Murray Planning and its agents and may not be copied in whole or in part without the written permission of Scott White and Hookins.

2.0 Government Policy on Flood Risk and Drainage of Development

2.1 The frequency and severity of river flooding is perceived to have increased in recent years and this is addressed within The National Planning Policy Framework and its supporting technical guidance. This document outlines the importance of the effective management and reduction of flood risk in the land use planning process and ensures the design incorporates the issue of climate change. This guidance updated the previous Planning Policy Statement Note 25: Development and Flood Risk (PPS25).

2.2 Traditionally surface water runoff from developments has been conveyed by pipe systems to the nearest watercourse or sewer. This tends to increase the rate and volume of the run off often leading to flooding downstream of the new development. Latest policy promotes the use of sustainable urban drainage systems (SUDS) whereby the control of run off is to be as close to source as possible. This can be achieved by utilizing techniques which mimic the natural drainage processes, the use of direct infiltration for example. The Environment Agency will, in general, seek to restrict the allowable discharge from a new development to that previously expected from the undeveloped land.

2.3 The requirements of the revised Building Regulations which came into force on 1st April 2002 are that adequate provision should be made for dealing with rainwater from the roofs of buildings and certain paved areas providing access to the buildings. Run off from such drainage systems are to be discharged to one of the following systems listed in order of priority:-

- A soakaway or other infiltration system
- A watercourse
- A sewer or drain

2.4 The revised Building Regulations were drafted to address the requirements for SUDS and this has been further reinforced by the Flood and Water Management Act 2010

which places a duty on Hampshire County Council as Lead Local Flood Authority to manage and advise on surface water management.

2.5 The Requirements of a Flood Risk Assessment

2.5.1 A Flood Risk Assessment is required in order to ascertain whether a development will exacerbate the risk of flooding elsewhere in the catchment or is at risk of flooding itself.

3.0 Development Site

3.1 The proposed development is located at Salterns House, Salterns Close, in Hayling Island, Hampshire.

3.2 The development area is an existing residential site comprising a dwelling, outbuilding and associated gravel driveway. The remainder of the site is laid to lawn and soft landscaping. The site is accessed from Salterns Close and is bounded by existing dwellings to the south, east and west of the site, with the sea located at the rear of the site on the north side. See Appendix 1 for site aerial photographs.

3.3 The nearest watercourse to the site is the sea which is located on the northern boundary of the development site, approximately 20m metres north of the building.

3.4 Ground Conditions

3.4.1 The geology of the area is shown on British Geological Survey map which indicates the site is primarily underlain by London Clay Formation with Clay, Silt and Sand.

3.4.2 The cohesive nature of the London Clay Formation is typically associated with poor infiltration, however this should be investigated further.

3.4.3 Due to the proximity of the adjacent watercourse, it is likely the existing site discharges to the sea or via traditional rubble soakaways which ultimately will discharge to the sea by percolation through the soil. We would recommend soakage test are carried out during the construction stage in accordance with BRE Digest 365 to inform the surface water strategy and finalise soakaway sizes.

4.0 Development Proposals

4.1 The proposed development will involve the construction of a new residential dwelling on the development site situated to the east of the existing dwelling. The existing dwelling has a plan area of approximately 225m^2 and the outbuilding is 82.2m^2. The area of the new dwelling and garage will be approximately 262m^2. See Appendix 3 for the proposed site plan.

4.2 It is understood that the remainder of the site will remain as existing, replicating the existing gravel driveway for the new dwelling. The remainder of the garden area is to be retained as soft landscaping as per the existing situation.

4.3 The proposed dwelling will seek to replicate the drainage connections of the existing dwelling. As the proposed development increases the impermeable area of the site via the addition of a new dwelling, additional provision should be incorporated to mitigate the additional surface water flow through SUDs techniques.

4.4 With reference to National Planning Policy Framework (NPPF): Table 2, as residential buildings used for dwellings, the flood risk vulnerability classification of the site will remain as 'More Vulnerable'.

5.0 Flood risks

5.1 River Catchment and Flooding

5.1.1 Based on the Environment Agency flood map shown in Appendix 2, the overall site area is located in Flood Zone 1. The existing and proposed dwelling appears to be predominantly located in Flood Zone 1, with parts of the wider development site along the north-west perimeter of the existing dwelling being located in Flood Zone 2/3. The driveway and access to the site are all located in Flood Zone 1. Flood Zone 2 indicates the area has an annual flooding probability of 1 in 1000 (0.1%) and Flood Zone 3 indicates an annual flooding probability of 1 in 100 (1%).

5.1.2 With reference to Section 4 and NPPF: Table 3, a development classified as 'More Vulnerable' is deemed appropriate within Flood Zones 1 and 2. The new proposed dwelling is located within Flood Zone 1.

5.1.3 The PUSH SFRA states that due to the coastal frontages of Hayling Island, it has experienced flooding caused by wave overtopping; however also notes that Hayling Island is generally defended to a higher level than other frontages in the sub-region. The PUSH and Havant SFRAs have not recorded incidents of fluvial flooding at or near the development site.

5.1.4 The development site also has a sea wall located to the rear of the garden to the north of the site. From the sea wall the garden rises sharply by approximately 750mm to a level where the proposed dwelling is located. The sea wall and natural topography will act as a form of defence to the proposed development site.

5.1.5 Plotting the Environment Agency flood zones on the topographical survey, the extent of Flood Zone 2 on the site of the existing dwelling is approximately 3.4AOD. It is proposed the ground floor level of the new dwelling is set at 3.7AOD which ensures the dwelling is set above the Flood Zone 2 level and provides a minimum 300mm freeboard. See Appendix 4 for the topographical survey.

5.1.6 Flood risk mitigation is discussed in more detail in Section 6.0. Based on the evidence detailed above and the proposals set out in Section 6.0 we would conclude the proposed dwelling is not at risk of flooding, and the risk to the overall site is very low.

5.2 Overland flow from surface water

5.2.1 The existing site has been visually assessed for overland flows. Due to the nature and topography of the existing site and building, although not calculated, the depth of potential flow across the site is thought likely to be very small, and the general velocity over the ground will be minor. The majority of the site is broadly level with the ground, sloping down to the sea wall on the northern edge.

5.2.2 With reference to the information provided in Appendix 2, the Environment Agency provide maps to indicate the risk of flooding from surface water. This map indicates the proposed development and the majority of the site is located in an area considered to be at very low likelihood of flooding from surface water.

5.2.3 Although the proposed dwelling results in an increase on the impermeable area, the remainder of the site will remain as predominantly soft landscaping and the overall drainage characteristic of the site will remain as existing.

5.2.4 The new development should incorporate SUDs measures to deal with surface water flow at source, thus replicating the existing condition and not increasing the flood risk of the site or surrounding areas.

5.2.5 We recommend infiltration tests are conducted on site to BRE Digest 365 to determine the site infiltration rate. We recommend the use of cellular crate soakaways located in the rear garden to deal with surface water from the proposed dwelling.

5.2.6 Final design and volume of soakaway will depend upon the site infiltration rate. If the site is found to be poor for infiltration we would recommend still providing the soakaway, but with an overflow pipe discharging to the nearby sea. In this situation the proposal will replicate the existing situation as far as technically feasible, not increasing the flood risk for the site. It is assumed permission can be obtained to install a discharge pipe to the sea.

5.2.7 With reference to Defra document "Non-statutory technical standards for sustainable drainage systems" dated March 2015, surface water discharge to a large body of water is considered acceptable and will not impact upon the flood risk of the body of water or surrounding area.

5.3 Local flooding of surface water sewer

5.3.1 The SFRA identifies that the site is located in an area of low risk of sewer flooding, and although there are some occurrences of sewer flooding on Hayling Island, none are recorded within the vicinity of the development site.

5.3.2 The new development will connect to new sustainable drainage and it is therefore not deemed to be at risk of this type of flooding or will increase the risk of flooding for surrounding areas.

5.4 Groundwater flooding

5.4.1 The SFRA notes that occurrences of groundwater flooding have occurred within the East Hampshire district where highly permeable geological formations meet areas of lower permeability, and is generally associated with the chalk geology in this area. The SFRA identifies that London Clay bedrock formation, on which the development site is based, has a 'Low' relative permeability. There are however no records of groundwater

flooding occurring at or near the development site. It is therefore concluded that the site is at low risk of groundwater flooding.

6.0 Flood Mitigation Proposals

6.1 Proposed floor levels

6.1.1 As discussed above, the ground floor of the proposed development is to be set at 3.7m AOD.

6.2 Safe access and egress

6.2.1 Consideration should be given, in the event of a flood, to safe access and egress routes from the site to an area of dry land. As the proposed dwelling and access to the dwelling from the road is located in Flood Zone 1, the occupants are safely able to access and exit the property in the event of flooding to the adjacent road.

7.0 Summary

7.1 Based on the Environment Agency map the proposed new dwelling is located in Flood Zone 1, although Flood Zone 2 is present on the northern boundary of the site.

7.2 The ground floor level of the proposed dwelling should be set at 3.7m AOD to ensure it is above the potential flood level.

7.3 With reference to section 5.1.2, the proposed development is considered appropriate for Flood Zone 1. The proposed dwelling is considered to be at low risk from all sources of flooding.

7.4 The proposed dwelling will result in an increase of impermeable area on the site and the proposed works should incorporate SUDs measures to deal with surface water at source, thus replicating the existing situation. Infiltration tests in accordance with BRE Digest 365 should be carried out on site to inform the strategy.

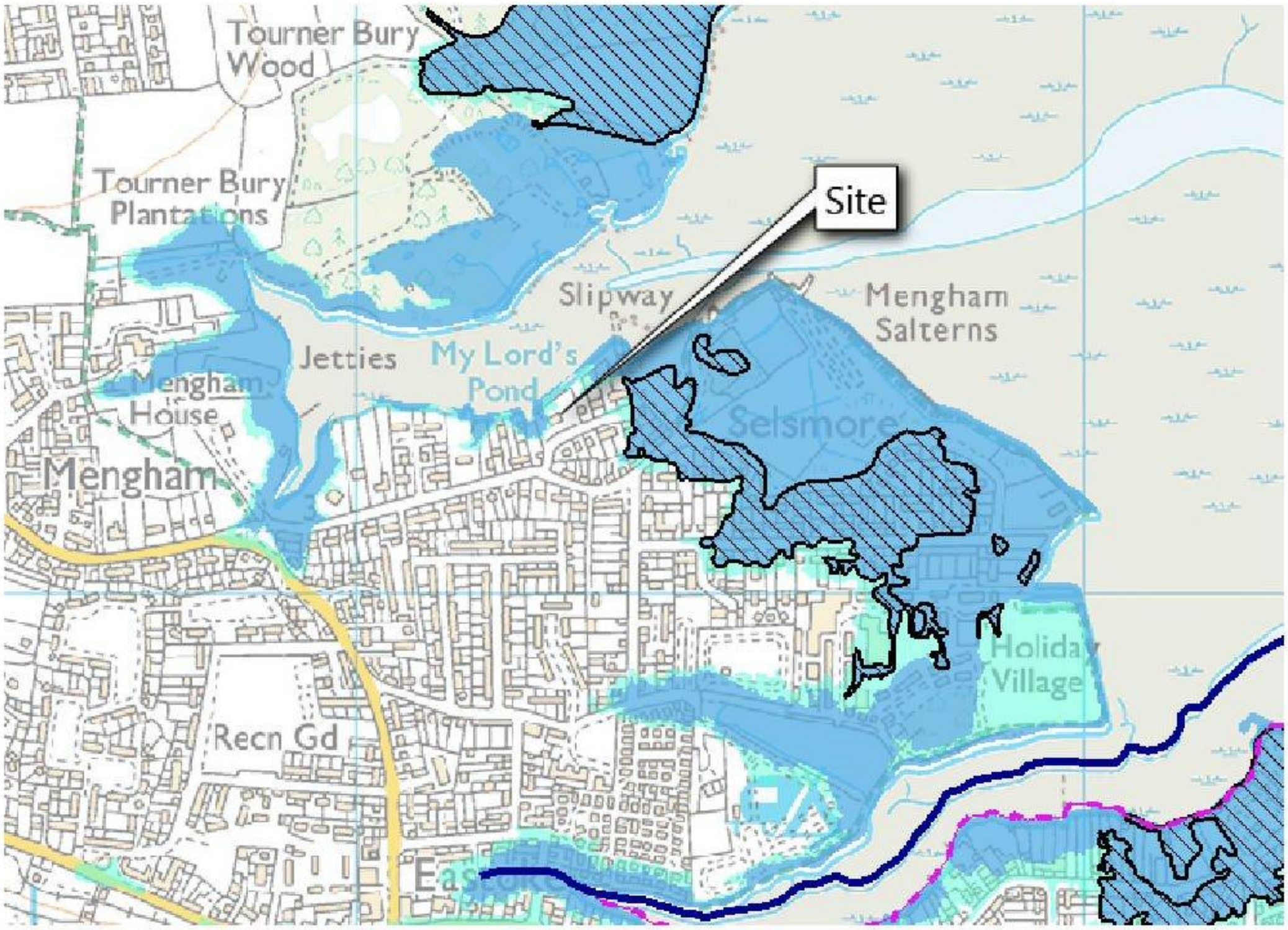
7.5 The proposed development and access to the dwelling are all located in Flood Zone 1 and therefore provides safe access and egress from the proposed dwelling.

Appendix 1

Photograph 1:

Aerial View of Site Boundary

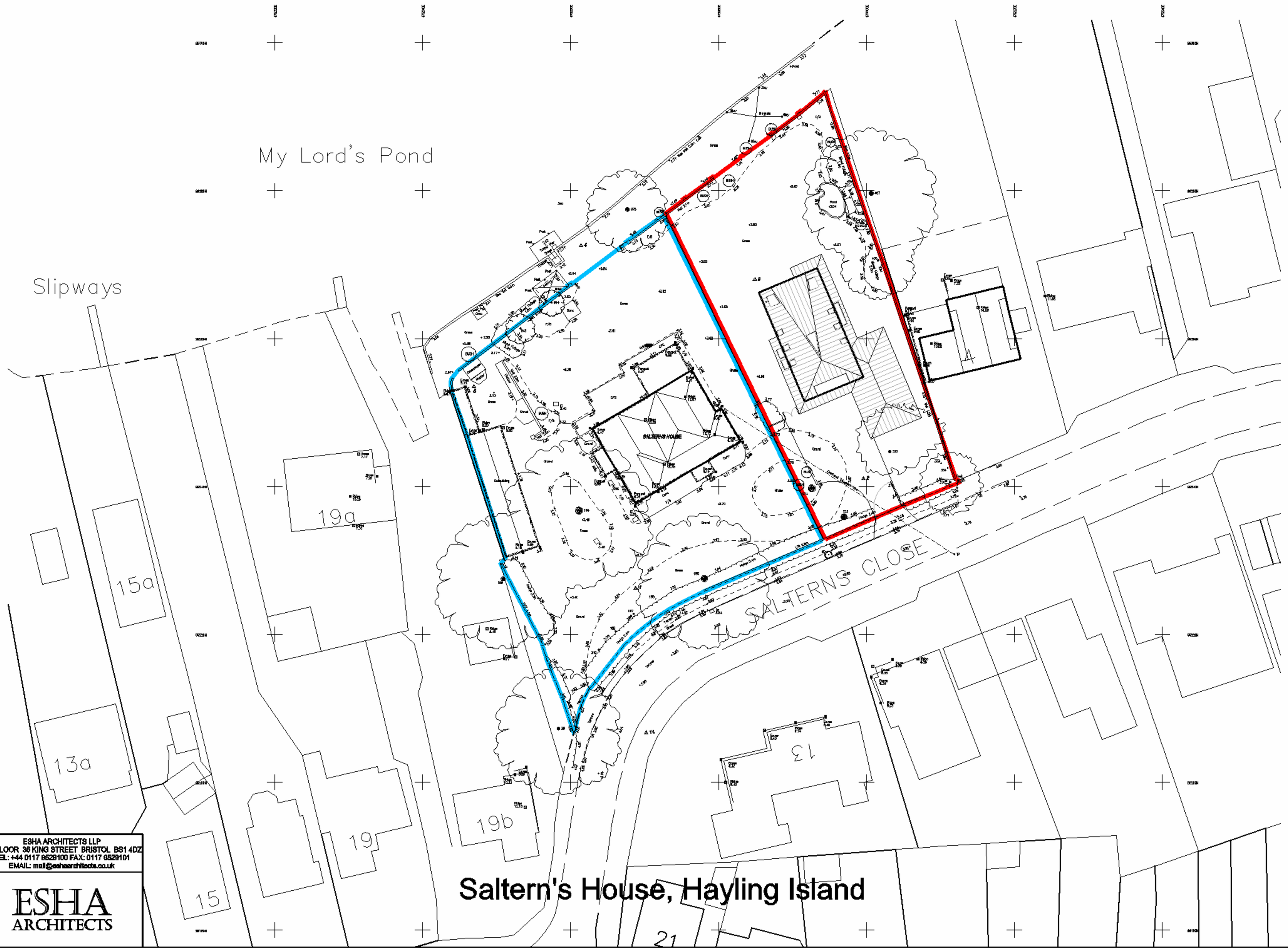
Appendix 2



Environment Agency Flood Maps and data

Appendix 3

Proposed Site Plan



Saltern's House, Hayling Island

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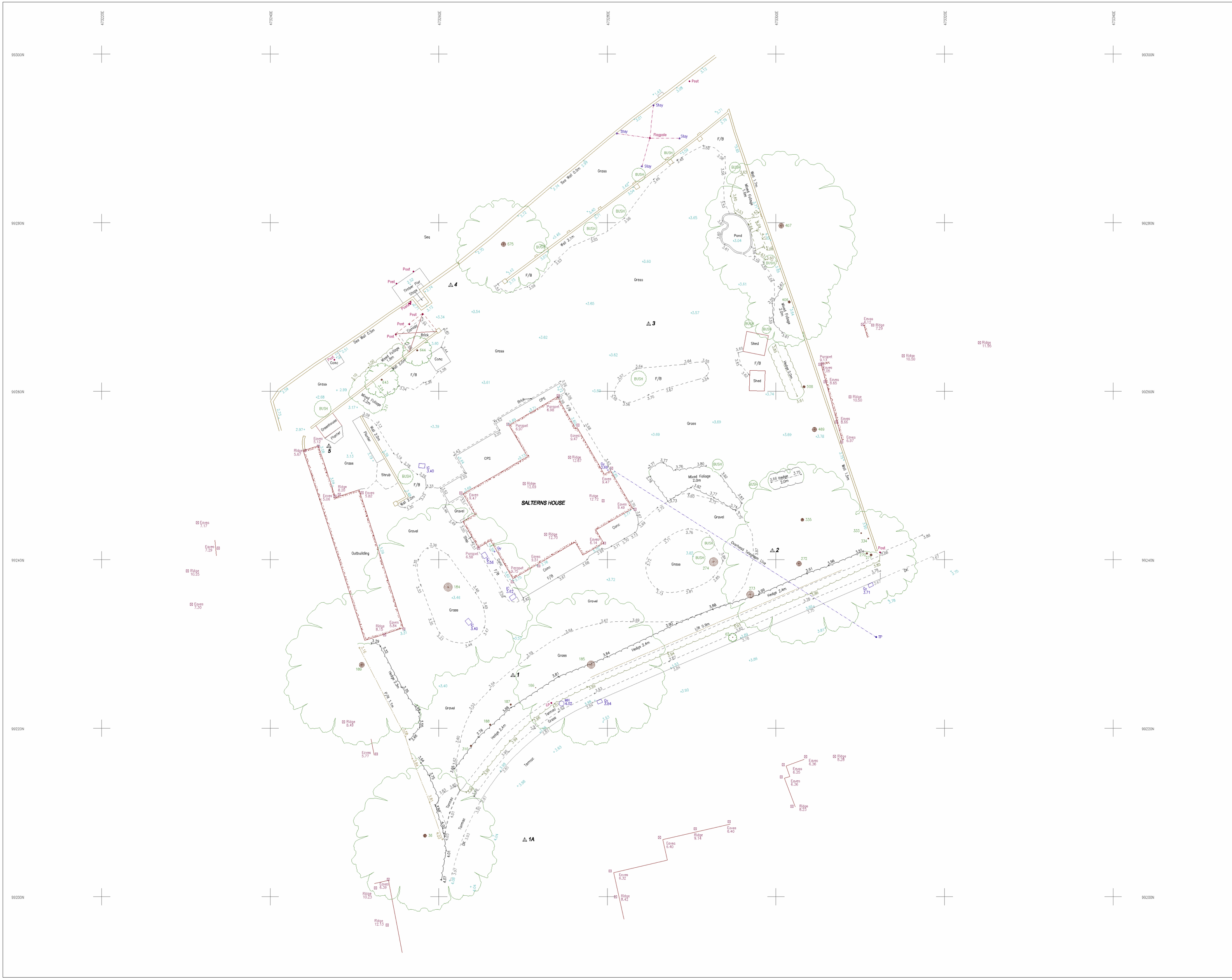
Drawing Title	Site Plan
Drawing Number	P-SP-A3
Rev	
Job No	15/014
Date	01.04.2015
Scale	1:500
	A3

Appendix 4

Topographical Survey



Important Information:

We advise that an arborologist be appointed to correctly determine the species and condition of all trees surveyed prior to any design work.

All information contained in this drawing (including digital data) should be checked and verified prior to any fabrication or construction.

Survey Legend

FENCES

BARBED WIRE FENCE	BW	Trees	
CORRUGATED IRON FENCE	CI		
CLOSE BOARD FENCE	CB		
CHESTNUT PALING FENCE	CP	Hedges	
IRON RAILING FENCE	IR		Privet 1.2
POST AND CHAIN FENCE	P/C		
POST AND RAIL FENCE	P/R	Walls	Wall 2.0m (Width to Scale)
POST AND WIRE FENCE	P/W		
CHAIN LINK FENCE	CL		
LARCH LAP FENCE	LL	Fences	C/B 1.8m
INTERWOVEN FENCE	I/W		
WIRE MESH FENCE	W/M		

ABBREVIATIONS

BOLLARD	Bo	MARKER	Mk
BRITISH TELECOM KIOSK	BT	NOTICE BOARD	NB
CONCRETE PAVING SLABS	CPS	PARKING METER	PM
COVER LEVEL	CL	ROAD NAME PLATE	RNP
DROP KERBS	DK	ROAD SIGN	RS
ELECTRIC INSPECTION COVER	EC	RODDING EYE	RE
ELECTRICITY POLE	EP	RETAINING WALL	Rtw
FIRE HYDRANT	FH	RAINWATER PIPE	RWP
FLOWER BED	FB	STOP VALVE	SV
FOOTPATH	FP	TELEGRAPH POLE	TP
GAS VALVE	GV	TELEPHONE CALL BOX	TCB
GULLY	Gy	TRAFFIC LIGHT	TL
INSPECTION COVER	IC	UNABLE TO LIFT	UTL
PIPE INVERT LEVEL	IL	UNKNOWN	Unk
KERB OUTLET	KO	VENT PIPE	VP
MANHOLE	MH	WATER METER	WM
THRESHOLD	TH	DIAMETER	Ø

Tree Schedule

Pt No	Spread	Bole	Height	Feature
36	17.0	0.40	11.0	TREEUNK
62	1.0	0.08		SAPLING
184	20.0	1.00	17.0	FIR
185	18.0	0.90	19.0	OAK
186	1.0	0.08		SAPLING
187		0.20		STUMP
188		0.20		STUMP
189	18.0	0.60	18.0	TREEUNK
270	10.0	0.22	15.0	TREEUNK
271	11.0	0.27	15.0	TREEUNK
272	18.0	0.60	18.0	TREEUNK
273		0.86		STUMP
274		1.00		STUMP
310		0.23		STUMP
333	2.0	0.15	2.5	TREEUNK
334	2.0	0.15	2.5	TREEUNK
335	14.0	0.35	7.0	FIR
406	10.0	0.30	8.0	TREEUNK
407	18.0	0.60	23.0	TREEUNK
489		0.55		STUMP
508		0.30		STUMP
643	4.0	0.20	2.5	TREEUNK
644	3.5	0.20	3.4	TREEUNK
675	11.0	0.55	10.0	TREEUNK

North:

Indicative

Grid: OS GPS

Levelling: OS GPS

Drawing Title:

Topographical Survey

Site Address:

Salterns House
Salterns Close
Hayling Island

Client:

Murray Planning Associates

Surveyor	MM	Drawn By	AH	Verified By	AMF	Date	18.02.16

CM No: CM/16122/T

Rev:

Scale: 1:200m @ A1

Date: February 2016

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