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LAKESIDE COUNTRY PARK, EASTLEIGH

FLOOD RISK ASSESSMENT

OCTOBER 2014



Ref: 14138/1

Constructionline

INVESTORS IN PEOPLE | Gold

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Client : Eastleigh Borough Council
Eastleigh House
Upper Market Street
Eastleigh
SO50 9YN

Prepared by	Checked by	Approved by
ANDREW KEEN	RYAN HOFMAN	ANDREW KEEN

1.0 INTRODUCTION

1.1 Hemsley Orrell Partnership (HOP) has been instructed by RH Partnership Architects on behalf of Eastleigh Borough Council, to produce a Flood Risk Assessment (FRA) for the redevelopment of the Lakeside Country Park Watersports Centre in Eastleigh, Hampshire.

1.2 The site is located adjacent to former gravel pits, that are now used for water based activities and the area around the lake is classified by the Environment Agency (EA) as being in Flood Zone 2. Therefore, a site specific FRA is required to accompany the planning application submission for the proposed development.

1.3 This report has been undertaken in accordance with guidance and information provided by the EA and Eastleigh Borough Council and is in line with the guidance on Development and Flood Risk as laid out in the National Planning Policy Framework (NPPF) and its Technical Guidance. Site details and proposals have been provided by the Architect to show the extent of the development and to confirm the existing site layouts.

1.4 The information in this report has been received from a number of external parties and HOP does not accept liability for the accuracy of this information, should there be a material change to the development proposals or a change in end use, this report will need to be revised accordingly.

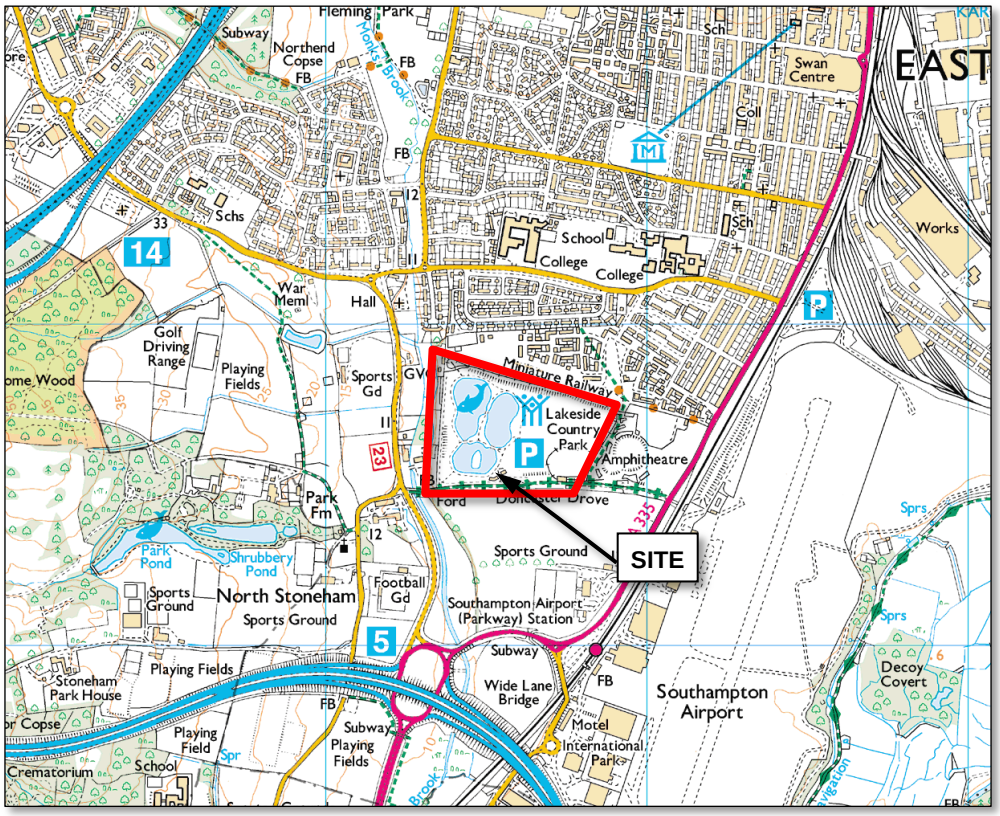


Fig.1.1 Location Plan.

2.0 SITE DESCRIPTION AND LOCATION

2.1 A topographical survey of the existing site is included in Appendix I with a Site Location Plan and extract shown in Figure 1.1. As can be seen, the development site comprises two main buildings, located south of the Lakeside Country Park lakes, with access provided from Doncaster Drove which joins the main road network at Wide Lane some 500metres to the east. The Lakeside Country Park comprises a total of 22.3 hectares, and contains three lakes with a total surface area of 4.7 hectares. These lakes are man-made, having been excavated for mineral extraction with groundwater allowed to fill the former pits.

2.2 Levels on Doncaster Drove are shown to be generally flat at around 12.0m above Ordnance Datum (AOD), with the parkland to the north set lower than the access road at around 9.0mAOD. The site slopes further down towards the lakes which are shown on the topographic survey to have a level of 8.3mAOD at the water's edge.

2.3 The current buildings are aligned on a broadly east-west axis and comprise storage areas; toilets and showers; and social areas that are used primarily by watersports groups and park visitors. Existing topographic data shows that the existing finished floor level (FFL) of the main western building is set at 10.33metres AOD with the smaller eastern block FFL set at 9.35metres AOD.

2.4 The watersports buildings currently link to the raised car park area via a series of steps and ramps, with the main access located between the buildings.

2.5 Approximately 250metres to the west of the watersports centre, running north to south, is the Monks Brook watercourse into which the lakes within the park currently drain via a culverted channel in the south-west corner of the site.

2.6 As can be expected from a county park location, the majority of the surfacing is soft landscaping with gravel car parking and pathways. There are a number of trees located around the existing development with associated wetlands vegetation and habitat.

2.7 The wider area of Eastleigh surrounding the park is predominantly residential to the north and west, with Southampton Airport located on the eastern side of Wide Lane to the east. To the south of Doncaster Drove are University of Southampton sports pitches.

3.0 DEFINITION OF THE FLOOD HAZARD AND PROBABILITY

3.1 Detailed flood risk data has been purchased from the EA and is included in Appendix II, with an extract of the EA online flood map shown in Figure 3.1. The EA data confirms that the site is located partially within Flood Zone 2; this zone is described in the NPPF as being an area which may have a 0.1% chance of annual flooding (1:1000). The Technical Guidance to the NPPF shows that buildings associated with commercial use are classified as 'Less Vulnerable', with 'Water Compatible Development' being the classification for outdoor sports and recreation including changing rooms.

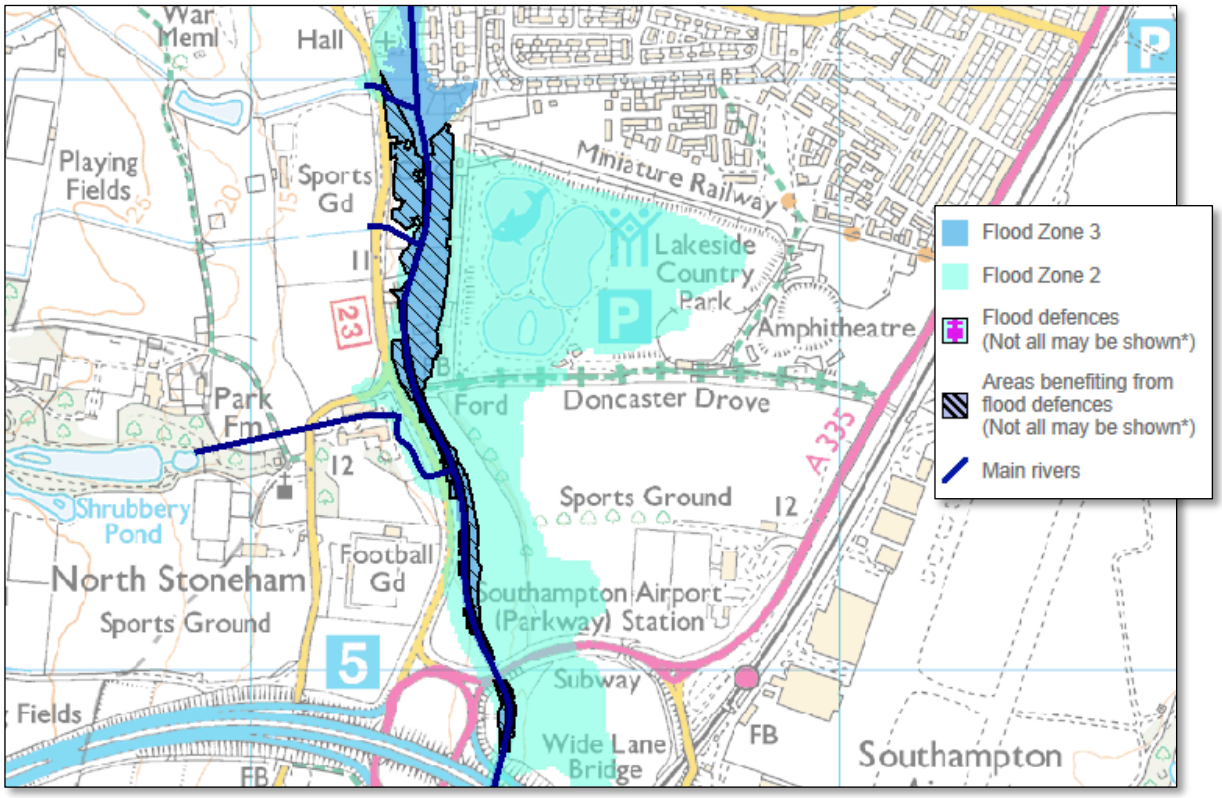


Fig.3.1 EA online Flood Zone map.

3.2 Table 3 of the NPPF states that both types of Vulnerability Classification applicable to the development are appropriate for Flood Zone 2 without the Sequential or Exception tests being applied.

3.3 The EA data shows the primary risk is from fluvial flooding from the fluctuation in levels in the adjacent Monks Brook watercourse and the country park lakes. The EA data shows that the modelled flood level for the 1 in 1000 year event at 9.74mAOD. Other forms of flooding are considered below.

Surface water/sewer flooding

3.4 With the proximity of the lakes to the development and the extent of soft landscaping around the site, surface water flows generated from the development are not considered likely to cause a significant increase in the lake water level. Falls in the topography are directed towards the lake and away from buildings and do not have the opportunity to pool at low spots prior to reaching the lake. It is therefore considered that the surface water flood risk at the site is low.

3.5 Southern Water sewer records, included in Appendix III, show that a 1200mm diameter surface water sewer runs to the south of the watersports centre development. This sewer conveys surface water flows from the main town to the north around the eastern and southern boundaries of the Country Park and discharges to the Monks Brook watercourse around 250m to the west.

3.6 This sewer has been surveyed and shown to be within 5m of the existing buildings with manholes located within the car park area and access road. Should this sewer or its outfall become blocked, flows could potentially back up within the sewer and overflow at manhole locations. Surface topography at the site shows that should overland flows become established, water would be directed towards the lake through the access between the two buildings. Sewer flooding is considered to be limited to residual risk of infrastructure failure.

Groundwater flooding

3.7 The lakes have been constructed artificially through historic mineral excavation activities and these excavations have been left to fill naturally, with the groundwater level being the water level in the lake. As this level is shown on the EA data as not to impact the site outside a 1:1000 year event, the risk of groundwater flooding at the site is considered to be low. Furthermore, the risk of groundwater flooding is consistent with the risk of fluvial flooding with the proximity of the development to the lake edge.

Flooding from artificial sources

3.8 As with the groundwater and fluvial flooding, the primary risk of flooding from man-made sources is considered to be from the lakes themselves. This has been addressed previously and the risk of flooding outside of a 1:1000 year event is shown to be negligible, therefore the risk of flooding from artificial sources is considered to be low.

Climate Change

3.9 Increased rainfall intensity over the lifetime of the development, is anticipated to increase due to global climate change. It is estimated that a 30% increase in rainfall intensity can be expected over a 100 year period to the year 2115. EA flood data included in Appendix II incorporates climate change into the calculated flood level data for the 1 in 100 year event. Additionally, on-site drainage should be designed to accommodate the 1:100 year plus climate change storm event, as required by the BREEAM assessment.

4.0 DETAILED DEVELOPMENT PROPOSALS

4.1 Architectural proposals are included in Appendix IV, with an extract shown in Figure 4.1. These plans show that the new development will replicate the existing two block arrangement, the existing buildings will be cleared and new buildings constructed to cover the same footprint. These buildings are to be of single storey construction, with the eastern block accommodating meeting rooms and social areas of the Watersports Centre. The western block will be used primarily for storage of watersports equipment and will also house the toilets, showers and wash-down facilities.

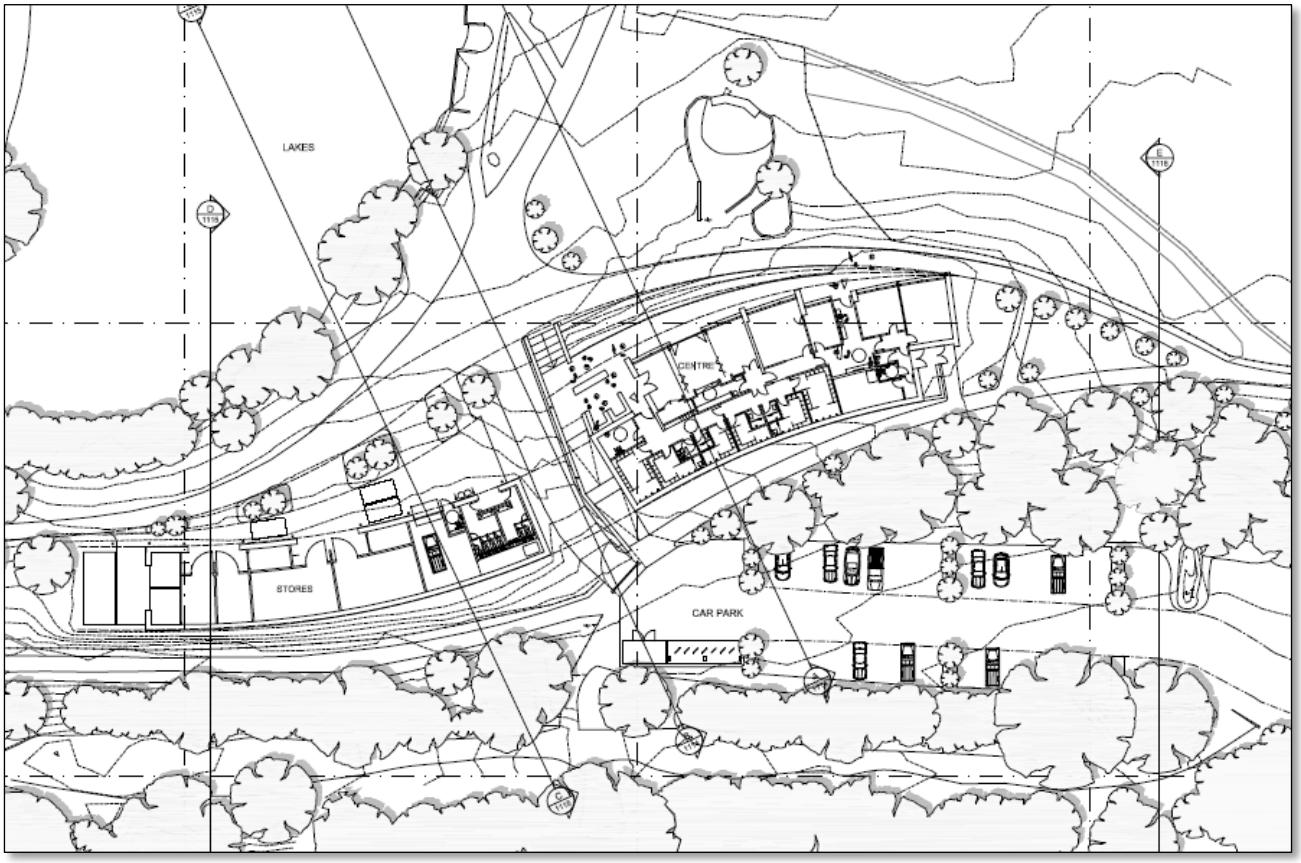


Fig.4.1 Architectural layout.

4.2 Access and parking will be arranged as existing with the main pedestrian access to the buildings provided between the two blocks. The level difference will be accommodated through reworked external levels with ramps down to the building entrances on the waterside.

4.3 Surface water runoff from the roof areas is proposed to be collected in a rainwater harvesting tank located to the front of the western stores building with an overflow from this directed into the lake via a new outfall. This formalises the existing situation where downpipes are open ended and runoff flows overland through the site to the lake. Rainwater harvesting provides the development with additional sustainability credentials.

4.4 Existing roof areas have been calculated at 450m² with the new building providing 880m² of roofs. New external areas are proposed to be of a permeable construction.

4.5 This increase in hardstanding at the site and the positive drainage that is proposed is not considered to present any adverse effects on flood risk to the site or downstream properties as the rainfall is proposed to be collected at source and conveyed to the lake via underground pipes. The current situation is that rainfall is unmanaged, eventually finding its way to the lake via overland pathways from both the roof runoff and surrounding external areas.

4.6 With the proposals for surface water disposal, these overland pathways should be removed from the site creating an improved environment for the site users. The additional catchment form the increased roof area is mitigated partly through the use of rainwater harvesting and also through the proximity of the outfall to the existing catchment.

4.7 Foul water from the site is currently collected in cesspools which are emptied periodically when required. Foul water disposal from the proposed development is yet to be finalised with options including:-

i) Direct discharge via pumped riser main to the nearest public foul water sewer.
ii) Foul water treated via package treatment plant unit and discharged directly to the lake via a headwall.
iii) Treated foul water discharge connected to the adjacent public surface water sewer via a pumped rising main and discharge chamber.
iv) Treated effluent discharging via a separate dedicated rising main and outfall to the Monks Brook Watercourse.

4.8 Further consultation with the Environment Agency and Southern Water is required to determine the most appropriate foul water discharge system for the site.

4.9 On site foul drainage is to be collected via waste stacks and gullies directed to the underground drainage and inspection chambers. These will flow by gravity towards the front (north) of the watersports stores building where the location of the treatment plant and/or package pump station is likely to be located.

4.10 An existing 1200mm diameter surface water public sewer is aligned east-west to the south of the water sports centre and its proximity to the proposed development is subject to build over/near to agreements which have been applied for with Southern Water. The sewer has been traced and surveyed using CCTV and these details have been passed on to the sewerage undertaker for consideration with the build over applications.

4.11 Previous correspondence with Southern Water has concluded that the new building should provide a minimum clear distance of 2m to the existing sewer and with an eccentric easement for the extent of the sewer where the proposed building would be within 5m of the sewer. Additionally, foundations within 5m of the sewer are to be 150mm deeper than the invert of the sewer and no services should be laid within 2m of the sewer.

5.0 FLOOD RISK MANAGEMENT MEASURES

5.1 As discussed in Section 3, development for watersports activity and commercial/ recreational use is confirmed in the NPPF to be appropriate development within Flood Zone 2. Furthermore, the flood data from the EA shows that there is no predicted flooding for the 1 in 100 year plus climate change event at the site and that flood levels at the site during an extreme event (1 in 1000 year) are shown to be at 9.74m AOD.

5.2 Given that the proposed finished floor levels of the stores building and main watersports building are both to be set at 10.35m AOD, it can be seen that the buildings and adjacent ground can be considered to be at low risk from an extreme event as floor levels are to be set at 600mm higher than the EA modelled extreme flood level.

5.3 External levels should be set so that falls are directed away from the building towards the lake to ensure that any overland flows that may be established through extreme rainfall are directed away from internal areas.

5.4 Surface water runoff is currently unmanaged at the site with rainwater downpipes discharging directly to ground. Through the proposed development, this will be addressed through a managed system of rainwater collection, recycling and discharge to the lake which should provide an improvement over the existing situation of unmanaged rainwater discharge. Given the proximity of the development to the lake, existing runoff rates from roofs and external areas are not likely to increase as runoff from these areas is conveyed reasonably quickly to the body of water in the locality.

5.5 With the extreme event of a 1 in 1000 year storm considered to be the extent of Flood Zone 2, such an event would likely be well forecast and predicted giving the centre management ample time in which to employ a potential evacuation procedure and/or protection to the main building. Future users should be signed up to the EA's Floodline Warnings Direct service which aims to provide forewarning of potential flooding.

6.0 OFF-SITE IMPACT

6.1 Surface water runoff is to be managed through underground drainage to discharge to the lake via a rainwater harvesting tank. This is considered an improvement over the existing conditions where downpipes discharge directly to ground and are conveyed overland to the lake.

6.2 The site layout and topography shows that runoff from the surrounding external areas should follow a similar pathway around the buildings and towards the lake. The introduction of formal impermeable surfacing and threshold drains should provide additional mitigation to the risk of surface water flooding with improved drainage management at the site.

6.3 With the lake in close proximity to the development and water levels generally governed by ground water levels, the runoff volume to the lake from the new development is not expected to increase over the existing situation. By utilising rainwater harvesting to supply on site sanitary units, a sustainable approach to surface water management is proposed which should reduce the off-site impact of potential flooding.

7.0 RESIDUAL RISKS

7.1 Residual risks arise from an exceedance rainfall event or infrastructure blockage/failure. Should the drainage system become surcharged, proposed external levels should direct any overland flows to the lower levels to the south, towards the lake.

7.2 The site access road (Doncaster Drove) is formed from a raised embankment that is set at a higher level than the country park grounds to the north and the Southampton University sports pitches to the south. It is therefore considered that the catchment for any upstream runoff from the car park and access road areas is limited in size and the embankment effectively cuts off potential conveyance routes towards the watersports centre.

7.3 Residual risk from an extreme event exceeding the 1 in 1000 year flood level is mitigated through the finished floor levels of both buildings being set at 600mm higher than the Flood Zone 2 flood level.

7.4 Further mitigation of residual flood risk is demonstrated in the future management being aware of the potential flood risks at the site and the use of the EA's Floodline Warnings Direct service to assist in the implementation of possible protective and preventative measures at the centre.

8.0 CONCLUSIONS

8.1 The site lies within Flood Zone 2 and this site specific FRA is required to comply with the NPPF and its Technical Guidance concerning development and flood risk.

8.2 Flood risk is primarily concerned with the extreme 1 in 1000 year fluvial flooding event. The EA flood data shows this level predicted to be at 9.74mAOD at the Lakeside site. With floor levels for both buildings proposed to be set at 10.35mAOD it is demonstrated that the internal areas are at least 600mm above the predicted Flood Zone 2 level and therefore considered to be at low risk of flooding from fluvial sources.

8.3 Secondary risks from other sources of flooding are considered to be low as the EA data and data from Eastleigh Borough Council do not highlight any current or historical issues with groundwater, surface water or sewer flooding close to the site. Additionally, residual risk is shown to be limited to an exceedance event which may be forewarned and prepared for with future users signed up to the EA's Floodline Warnings Direct service; or through infrastructure failure where external levels should mitigate risk from internal inundation by directing potential overland flows away from building entrances towards the lake.

8.4 Surface water management proposals are considered to be an improvement over the existing situation, in terms of flood risk, as a managed system is to be introduced including rainwater harvesting and a dedicated outfall to the lake.

8.5 This report highlights the potential flood issues at the Lakeside Country Park site and how the architectural layout mitigates the risk to people and property from an extreme flood event. Consultation with the EA and the guidance in the NPPF has shown that development proposals are appropriate for the site and the designated Flood Zone.

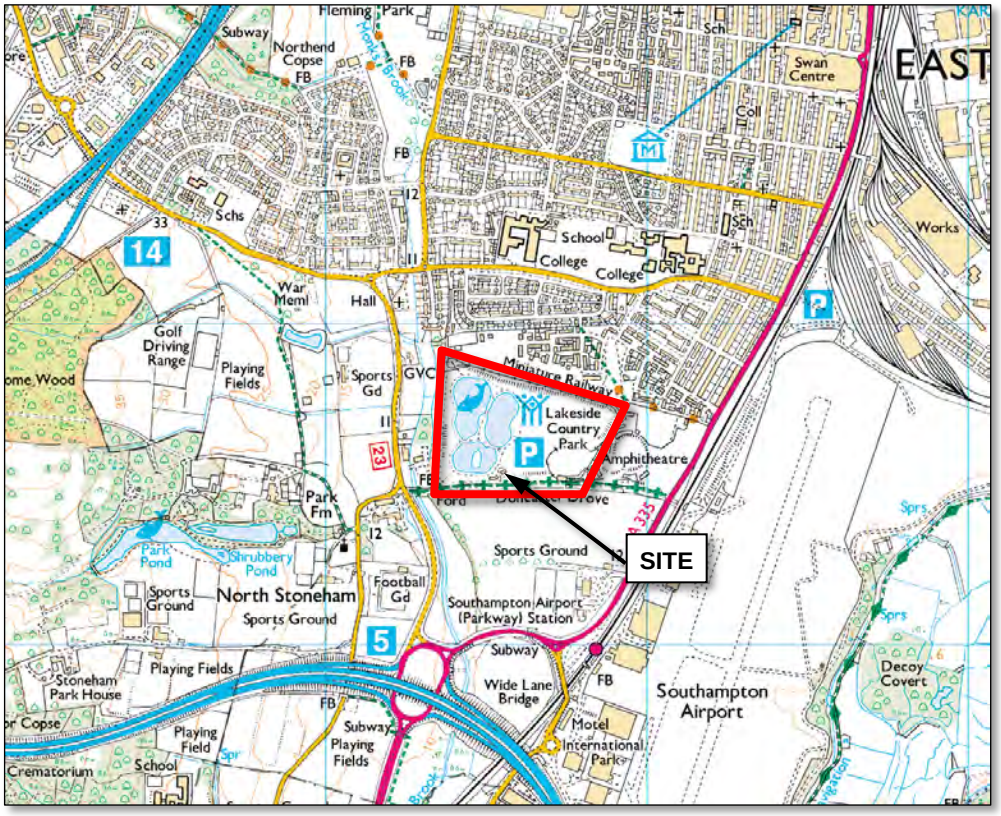
8.6 In light of the above, it is considered that the proposed development is safe and does not increase the flood risk at the site or to neighbouring or downstream properties. It has been shown that the proposals for a replacement watersports centre at the site can be successfully implemented and managed to provide comfort and safety to future staff and users in regard to flood risk for the lifetime of the development.

APPENDIX I
Location Plan and
Existing Site Survey

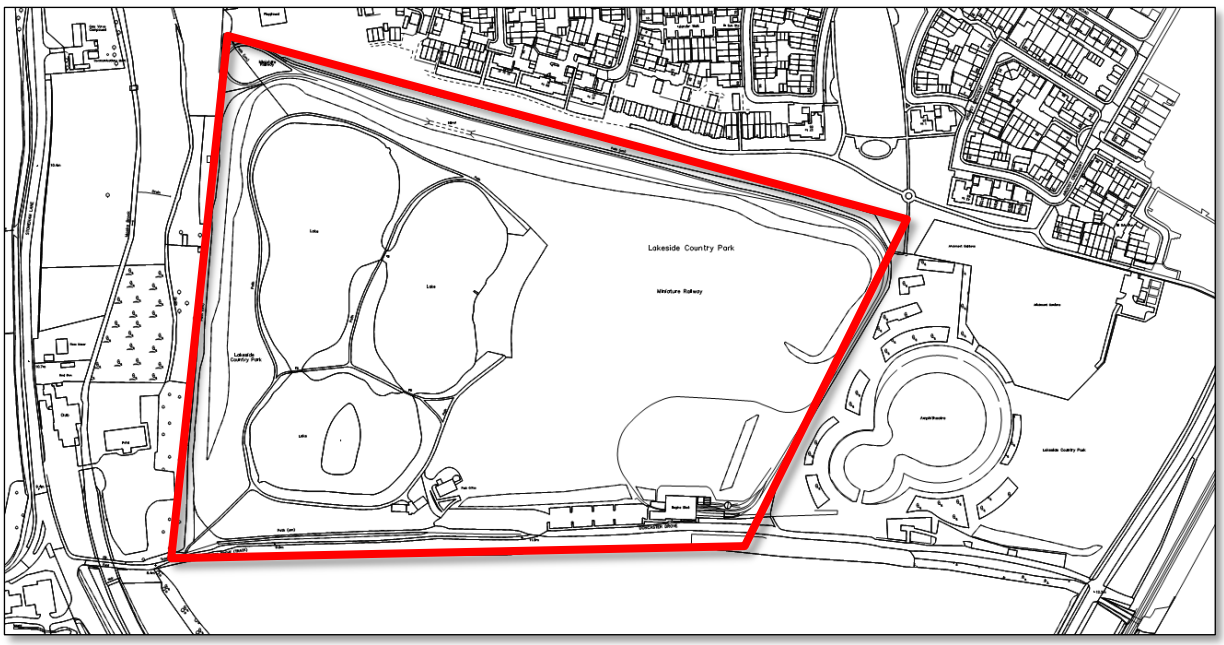
HEMSLEY ORRELL PARTNERSHIP
CONSULTING CIVIL & STRUCTURAL ENGINEERS

LOCATION MAP FOR: **LAKESIDE COUNTRY PARK, EASTLEIGH, SO50 5PE**

OS GRID REF: **444530,117515** OS LANDRANGER REF: **SU445175**

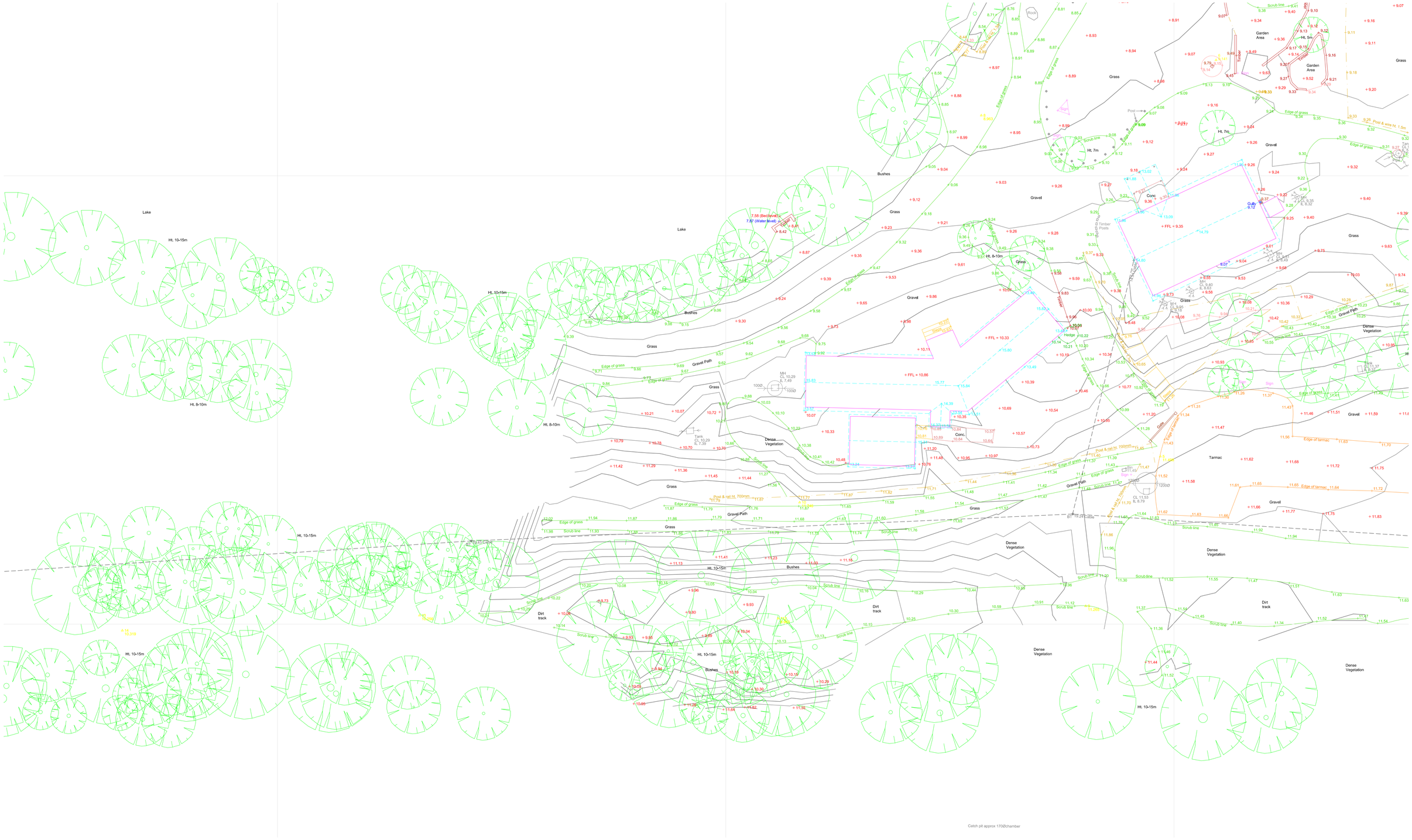


Area Map



Site Map

Indicative for information only. Not to scale. © Crown copyright 2013. All rights reserved. Licence No.100035174



NOTES
SURVEY IS RELATED TO OS GRID SYSTEM USING LEICA SMART NETWORK, ORIGINATING FROM STATION 5 @ E 444548.477, N 117518.703 RL 11.498? NO LSF APPLIED

LAYER INFORMATION

0	EMPTY
BORDER	TITLEBLOCK & BORDER
BOTTOMOFBANK	BOTTOM OF SLOPE/BANKS
BT	BRITISH TELECOM ROUTES
BUILDING	BUILDING OUTLINE.
EDGEOFCONC	EDGE OF CONCRETE SURFACE
EDGEOFROAD	EDGE OF ROAD SURFACE
ELECPOLE	ELECTRIC POLE
FENCE	LINE OF FENCES
FOOTPATH	EDGE OF FOOTPATH
GULLY	GULLIES
HV CABLES	HV CABLES ROUTES
KERBLINE	KERBLINE @ CHANNEL LEVEL
LVCABLES	LV CABLE ROUTES
MANHOLE	MANHOLES
SIGNPOST	SIGNPOST
SPOTLEVELS	SPOT LEVELS
STREETLIGHT DUCTS	STREETLIGHT DUCTS
SURVEYSTNS	SURVEY STATIONS
STORM	STORM WATER MH'S, GULLY'S ETC.
TOPBACKKERB	TOP AND BACK OF KERB
TOPOFBANK	TOP OF BANK
TREE	TREE TRUNK & FOLIAGE
UNCLASSTRUCTURE	UNCLASSIFIED STRUCTURE
WALL	WALLS
WATER MAIN	WATER MAIN ROUTE

Line types and Symbols

Building Lines
High Level Building lines — 100.34
Rooflines — 100.34
Channel Line — 100.34
Top & Back of Kerb — 100.46
Edge of Surface — 100.52
Overhead Cables
Fence
Edge of Road — 100.40

Survey Station
Man holes
Gullies
Edge of Conc
Top of bank
Bottom of bank
Sign Posts
Lamp Posts

Stn 6 ▲ 100.84
MH CP6 100.34
Gully 100.19
100.40
98.2
Sign post
Lamp Post
Trees

Control Stations

Stn No.	Easting	Northing	Level	Description
1	445045.704	117481.82	12.408	Hilti Nail
2	444886.480	117458.928	12.721	Hilti Nail
4	444613.262	117517.455	12.093	Hilti Nail
5	444548.477	117518.703	11.498	Hilti Nail
6	444554.686	117562.916	9.141	Hilti Nail
8	444528.505	117556.744	8.963	Stake
9	444540.150	117502.020	11.265	Stake
10	444508.239	117513.581	11.746	Stake
11	444595.756	117547.262	9.288	Stake
12	444584.975	117598.222	8.342	Stake
13	444465.847	117500.977	10.256	Stake
14	444432.694	117499.255	10.319	Stake
15	444401.401	117499.878	9.896	Stake
16	444366.479	117496.028	9.802	Stake
17	444340.249	117490.058	10.113	Hilti Nail

Orientation: North

Rev.	Date	Description
A	05/08/13	OS grid references added
B	09/08/13	Elevations & additional topographic survey text added
C	19/09/13	Additional manhole/chamber info added

Client: Eastleigh Borough Council

SeSurveying

Drawing Title: Topographical Survey

Job Title: Lakeside Country Park

Scale	Date	Drawn	Job No.	Drawing No.	Rev.
1/200 @ A1	04/08/13	CH	009-07/13	002	C
	Surveyed by: CH	Checked: SE			

APPENDIX II

Environment Agency Flood Data

Our ref: SSD/1813/KJ
Your ref:

Date: 22/08/2013

Andrew Keen
Civil Engineer
Hemsley Orrell Partnership

Consulting Civil & Structural Engineers
HOP House
41 Church Road
Hove
BN3 2BE

Dear Mr Keen

Provision of Product 3 for *Lakeside Country Park, Eastleigh.*

Thank you for your request of 8 August 2013 to use Environment Agency data, Product 3, in the development of *Lakeside Country Park, Eastleigh*. The information is attached.

If you have requested this information to help inform a development proposal, then you should note the detail in the attached advisory text on the use of Environment Agency Information for Flood Risk Assessments / Flood Consequence Assessments.

The site may be affected by an extreme flood. According to our published flood map, which provides a general estimate of the likelihood of flooding across England & Wales, the property is shown to be within Flood Zone 2 - an area which may have a 0.1% chance of flooding annually (1 in 1000), **ignoring** the presence and effect of any flood defences.

The Environment Agency has no record of flooding to this property/area, but not all flooding events are reported to us and further information may be available from Eastleigh Borough Council.

Information Warning

Please read the separately attached JFLOW information warning with regards to the limitations of the provided data.

This information is provided subject to the enclosed notice, which you should read.

continued

If you have any queries or would like to discuss the content of this letter further please contact the Partnership and Strategic Overview team at the Environment Agency.

Yours sincerely



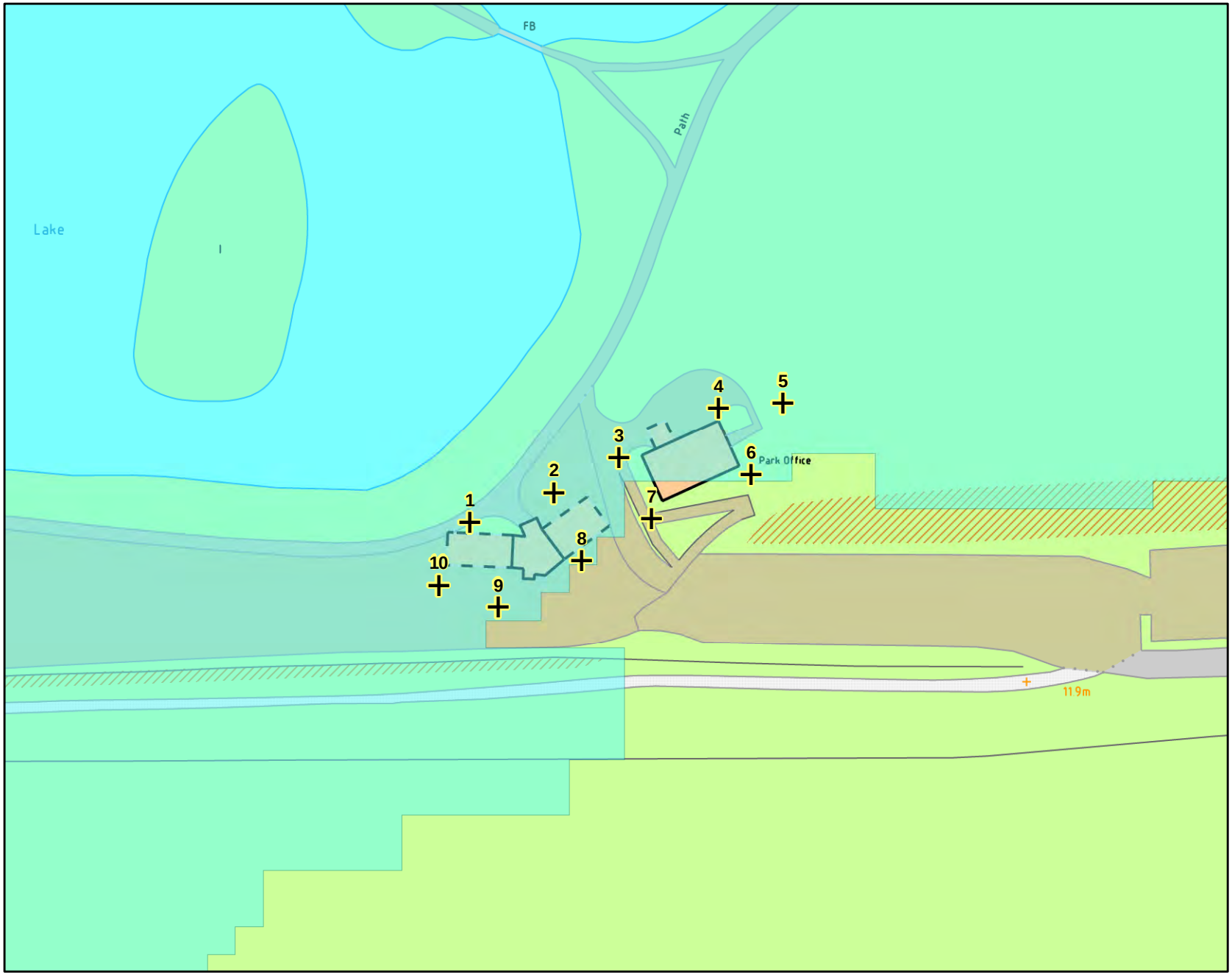
pp
Rob Sheehan
Partnership and Strategic Overview team, Hampshire and Isle of Wight
Environment Agency

Direct dial 01794 83 4595
Email psohiow@environment-agency.gov.uk

Enc. Basic FRA/FCA Map

Copyright Statement & Disclaimer / Standard Notice / JFLOW Information Warning

Flood Map Centered on Lakeside country park office, Eastleigh - Created 22/08/2013 [Ref: SSD/1813/KJ]



Environment Agency

Legend

- Data points
- Defences
- Areas Benifiting From Defences
- Flood Storage Area
- Flood Zone 3
- Flood Zone 2

Flood Map Areas (assuming no defences)

Flood Zone 3
Shows the area that could be affected by flooding:
- from the sea with an 1 in 200 or greater chance of happening each year.
- or from a river with a 1 in 100 or greater chance of happenening each year.

Flood Zone 2
Shows the extent of an extreme flood from rivers of the sea with up to a 1 in 1000 chance of occuring each year.

1:1,000 *

*when printed at A4.

N

0 25 50
Meters

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Contact Us: National Customer Contact Centre, PO BOX 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Water Depths & Levels for Lakeside Country Park Office, Eastleigh - 2004 Jflow data (SSD/1813/KJ)

	Water Depth mAOD*			Water Surface Level mAOD*			
Point	100 Year Depth (Flood	100 Year + Climate	1000YR (Flood Zone 2)	100 Year Depth (Flood	100 Year + Climate	1000YR (Flood Zone 2)	Ground Level
1	N/A	N/A	0.61	N/A	N/A	9.70	9.09
2	N/A	N/A	0.45	N/A	N/A	9.74	9.30
3	N/A	N/A	0.25	N/A	N/A	9.74	9.49
4	N/A	N/A	0.62	N/A	N/A	9.72	9.10
5	N/A	N/A	0.70	N/A	N/A	9.73	9.03
6	N/A	N/A	0.21	N/A	N/A	9.73	9.52
7	N/A	N/A	0.00	N/A	N/A	9.86	9.86
8	N/A	N/A	0.10	N/A	N/A	9.70	9.60
9	N/A	N/A	0.14	N/A	N/A	9.71	9.56
10	N/A	N/A	0.44	N/A	N/A	9.70	9.26

* Levels in meters above Ordnance Datum Newlyn

JFLOW - Appendix

- Our work to produce Flood Zones followed a 10 year programme which delivered more detailed mapping for 821 locations. However, in order to complete Flood Zones we needed national coverage, hence a generalised approach was used to provide this national coverage within the time available, to fill the gaps between the 821 locations where we had more detailed information. The Flood Zones are therefore not as accurate as we would normally specify for river modelling, but they do provide an adequate indication of the extent of flood risk such that developers can consider flooding as part of their proposals to ensure they are not unknowingly putting additional lives at risk. This is the purpose for which the Flood Zones were produced.

- Neither water depths nor water levels were outputs that were specified when we commissioned this generalised modelling for Flood Zones. Whilst the modelling process does provide some information on depth of water, it would have been possible to produce the flood extents without storing the water depth values, since water depth is only a 'by-product' of the calculation process. As the JFLOW modelling method was developed, tested and reviewed for production of the Flood Zone extents only, we currently have no information on the accuracy of the water depth data.

- The models were run using a Digital Terrain Model (DTM) with a 5m x 5m grid. However the DTM grids were generalised to between 5m and 100m (depending on the type of model and location, for reasons such as processing speed). Fluvial modelling produced depth data which can be processed using the DTM to provide water level data. However the differing grid sizes means that there is a significant potential for inaccuracy in producing level data, because of the DTM generalisation.

- Therefore because of the nature of the model and the DTM, in many cases it will not be possible to confidently assess whether or not a site is above the resulting water level. This is because there are further inherent uncertainties in the depth calculation and within the DTM itself

- Depth or level outputs from the National Generalised Modelling (JFLOW) are only suitable to be used for decision making at a broad catchment or Shoreline Management Plan coastal cell scale (or larger).

- **They are not suitable for use in site specific Flood Risk Assessments or Strategic Flood Risk Assessments and must not normally be used for these studies. However, where in exceptional circumstances Nationalised Generalised Modelling outputs are requested to be used for anything other than at a broad catchment or Shoreline Management Plan coastal cell scale further verification must be undertaken. As part of this verification the outputs must be proven to be suitable and appropriate bearing in mind the conclusions the user wishes to draw from them and this use must be agreed in writing by the local Environment Agency staff.**

- If any agreement is given by the Environment Agency in pursuance of the above, the User accepts and agrees that such agreement by the Environment Agency that that National Generalised Modelling outputs are suitable for a particular use does not imply agreement that the proposals are appropriate or that the Environment Agency has no further comment on flood risk, rather that following verification the User has proven that the outputs are suitable to help assess the flood risk in the particular circumstances.

- Any assessment of Flood Risk undertaken must be appropriate for the decisions that need to be based upon it, consider the risks and also take into account any limitations of the data used

- Please read the enclosed Notice and be aware that the Environment Agency does not guarantee that this data is suitable for your purposes.

- **The consultants employed to deliver JFLOW Flood Zones to the Environment Agency were Jeremy Benn Associates (JBA). I should make you aware that JBA will not release information that either is owned by the Environment Agency or based upon Environment Agency information as they are not licensed to do so. You will need to request any information you require from the Environment Agency.**

- Information provided relates solely to flood risk issues and is based on the best available information to date in the Environment Agency. If further information becomes available to the Environment Agency (on flood risk issues or on other environmental issues which affect a FRA) or policy changes, we reserve the right to comment further or to supply further information or to amend information sent.

- If this information is supplied in connection with a flood risk assessment of development proposals and any material amendments made thereto at any stage prior to the submission of a planning application, the User should be aware of the need to consult the Environment Agency further

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APPENDIX III

Southern Water Sewer Records

Hemsley Orrell Partnership
HOP House 41
Church Road
Hove
East Sussex
BN3 2BE

Your Ref	MB/GAW/14138
Our Ref	157758
Date	12 September 2014
Contact	searches@southernwater.co.uk Fax 01634 844514 DX:400450 Chatham 5

Attention: Max Baker

Dear Sirs

Provision of Public Sewer and Water Main Record Extracts – VAT Receipt
Lakeside Country Park, Eastleigh SO50 5PE

Further to your recent enquiry regarding the provision of Southern Water apparatus record extracts for the above location.

Please be aware that there are areas within our region in which there are neither sewers nor water mains. Similarly, whilst the enclosed extract may indicate the approximate location of our apparatus in the area of interest, it should not be relied upon as showing that further infrastructure does not exist and may subsequently be found following site investigation. Therefore actual positions of the disclosed (and any undisclosed) infrastructure should be determined on site, because Southern Water does not accept any responsibility for inaccuracy or omission regarding the enclosed plan and accordingly it should not be considered to be a definitive document.

I confirm payment of the appropriate fee in the sum of £ **48.00**

The breakdown of costs is as follows: -

- Provision of record extracts £ 40.00
- VAT @ 20.0% £ 8.00

VAT Registration Number 813 0378 56

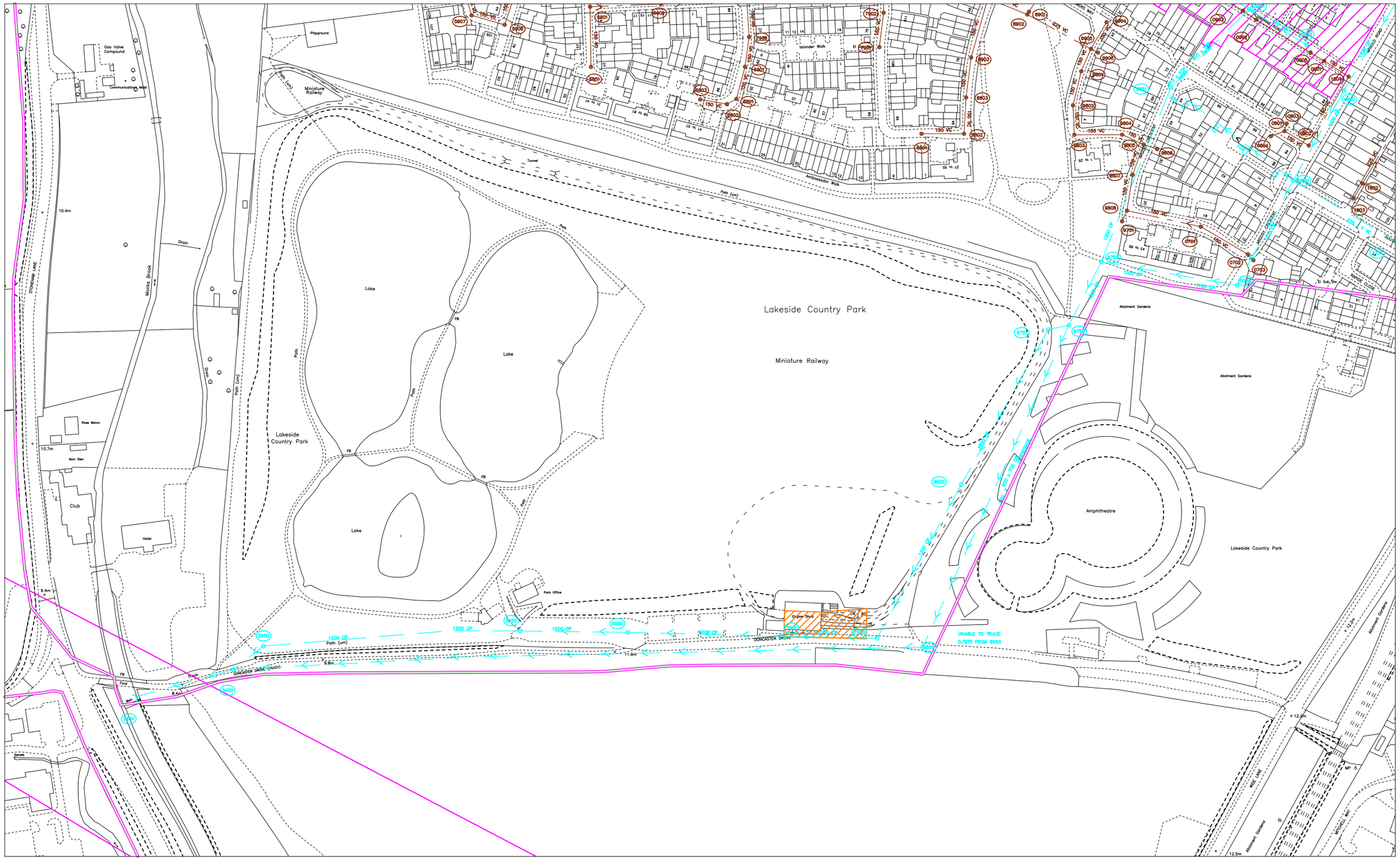
Should you require any additional information regarding this matter please contact this office at the address given at the foot of this letter.

Yours faithfully

Land Search Department

SEWER RECORDS PAGE 1 OF 2

117943


Gas Valve Compound
Communications Mast
Playground
Miniature Railway
Path (um)
Tunnel
Islander Walk
Ambassador Walk
Lake
Lakeside Country Park
Miniature Railway
Drain
Monks Brook
STONEHAM LANE
10.4m
Rose Manor
10.7m
Novi Glen
Club
Hotel
9.4m
Lakeside Country Park
Amphitheatre
Allotment Gardens
Park Office
Indoor Sport
DONCASTER DRIVE
DONCASTER GROVE (TRACK)
UNABLE TO TRACE D/STR FROM 8550
1200 CP
1200 CP
1200 CP

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape		Node	Cover	Invert	Size	Material	Shape		Node	Cover	Invert	Size	Material	Shape		Node	Cover	Invert	Size	Material	Shape	
0701X	13.05	9.474	150	VC	CIRC																					
0702X	13	9.733	150	VC	CIRC																					
0703X	12.98	9.8	150	VC	CIRC																					
0750X	13.19	10.1	1100	CP	CIRC																					
0801X	13.129	11.955	150	VC	CIRC																					
0802X	12.92	11.818	150	VC	CIRC																					
0803X	13.18	11.985	150	VC	CIRC																					
0804X	13.13	12.052	150	VC	CIRC																					
0850X	12.97	10.37	1100	CP	CIRC																					
0901X	12.99	11.29	150	VC	CIRC																					
0902X	13.14	10.93	225	VC	CIRC																					
0903X	13.11	10.74	225	VC	CIRC																					
0905X	13.04	11.18	225	VC	CIRC																					
0950X	13.1	11.91	150	VC	CIRC																					
0951X	13.21		OTHER	CP	UNK																					
1751X	12.6		225	VC	UNK																					
1802X	13.07	11.72	225	VC	CIRC																					
1803X	12.9	12.13	150	VC	CIRC																					
1804X	12.89	11.457	150	VC	CIRC																					
1850X	12.86	10.43	1100	CP	CIRC																					
3450X			UNK	UNK	CIRC																					
3550X			UNK	UNK	CIRC																					
5550X	11.54		1200	CP	CIRC																					
5801X	13	11.23	150	VC	CIRC																					
5901X	12.99	10.043	150	VC	CIRC																					
5906X	12.86	10.721	150	VC	CIRC																					
5907X	12.68	10.881	150	VC	CIRC																					
6550X	12.11	8.94	1200	CP	CIRC																					
6801X	13.05	11.578	150	VC	CIRC																					
6802X	13.366	11.598	150	VC	CIRC																					
6803X	13.413	11.543	150	VC	CIRC																					
6901X	13	11.388	150	VC	CIRC																					
6902X	13	9.808	150	VC	CIRC																					
7550X	12.39	9.26	1200	CP	CIRC																					
7551X	12.37	9.19	1200	CP	CIRC																					
7901X	13.497	11.7	150	VC	CIRC																					
7902X	13.11	11.54	150	VC	CIRC																					
7906X	12.93	11.252	150	VC	CIRC																					
8550X			UNK	UNK	CIRC																					
8650X	11.94	9.5	1200	CP	CIRC																					
8801X	12.9	11.496	150	VC	CIRC																					
8802X	12.87	11.31	150	VC	CIRC																					
8803X	13	11.14	150	VC	CIRC																					
8901X	13.24	7.652	300	VC	CIRC																					
8903X	13.1	10.96	150	VC	CIRC																					
9701X	13.11	9.525	150	VC	CIRC																					
9750Y	12.6	9.77	OTHER	CP	HORS	*																				
9750X	12.6	9.77	1200	CP	CIRC	*																				
9751X	12.22	9.77	1200	CP	CIRC																					
9752X	13.01	9.9	1200	CP	CIRC																					
9801X	13.09	8.205	150	VC	CIRC																					
9802X	13	8.361	150	VC	CIRC																					
9803X	13	8.504	150	VC	CIRC																					
9804X	13	8.708	150	VC	CIRC																					
9805X	13.13	8.83	150	VC	CIRC																					
9806X	13.13	9	150	VC	CIRC																					
9807X	13.1	8.979	150	VC	CIRC																					
9808X	13.084	9.138	150	VC	CIRC																					
9851X	13.08		1200	CP	CIRC																					
9904X	13.2	11.43	150	VC	CIRC																					
9905X	13.2	8.1	225	VC	CIRC																					
9906X	13.18	11.2	150	VC	CIRC																					

LINE STYLES / COLOURS

- Brown — Foul
- Foul Syphon Sewer
- Foul Vacuum Main
- Foul Rising Main
- Red — Combined
- Combined Syphon Sewer
- Combined Rising Main
- Lateral Drain
- Orange — Building Over Agreement Area
- Dark Blue — Treated Effluent
- Purple — Sludge
- Sewer Catchment
- Section 104 Area
- Light Blue — Surface Water
- Surface Water Rising Main
- Yellow — Private
- Green — Access Shaft
- Decommissioned

MATERIALS

AK	Alkathene
BAC	Bonded Asbestos Cement
BRC	Brick (Common)
BRE	Brick (Engineering)
CC	Concrete Box Culvert
CI	Cast Iron
CO	Concrete (In-Situ)
CP	Concrete (Pre-Cast)
CSB	Concrete Segments (bolted)
CSU	Concrete Segments (unbolted)
DI	Ductile Iron
GRC	Glass Reinforced Concrete
GRP	Glass Reinforced Plastic
MAC	Masonry in regular Courses
MAR	Masonry in random Courses
PE	Polyethylene
PF	Pitch Fibre
PP	Polypropylene
PVC	Polyvinyl Chloride
RPM	Reinforced Plastic Matrix
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
XXX	Other
ZZZ	Unknown

LEGEND - SEWERS

- Manhole (SW)
- Manhole (F&C)
- Lamp hole (SW)
- Lamp hole (F&C)
- Pumping Station (SW)
- Pumping Station (F&C)
- Side entry manhole (SW)
- Side entry Manhole (F&C)
- Blind shaft (SW)
- Blind shaft (F&C)
- Ejector station (SW)
- Ejector station (F&C)
- Watertight door (SW)
- Watertight door (F&C)
- Flushing ch. Mn-e (SW)
- Flushing ch. Mn-e (F&C)
- Flushing ch. No-e (SW)
- Flushing ch. No-e (F&C)
- Demarcation Chamber
- Washout (SW)
- Washout (F&C)
- Rodding Eye (SW)
- Rodding Eye (F&C)
- Gauging point (SW)
- Gauging point (F&C)
- Intercept chamber (SW)
- Intercept chamber (F&C)
- Storm Tank (SW)
- Storm Tank (F&C)
- Vortex chamber (SW)
- Vortex chamber (F&C)
- Label ellipse
- Dummy/S24 manhole
- Outfall
- Penstock chamber
- Damboards
- Storm Overflow
- Backdrop manhole
- Other (s)
- Other
- Change in sewer (s)
- Change in sewer
- Reflux valve
- Flap valve
- Cascade
- Anode
- Valve
- Closed Valve
- Air Valve
- Hatch box (SW)
- Hatch box (F&C)
- Direction arrow
- Emptying valve
- Catchpit
- Soakaway
- Inlet
- Balancing Pond
- Wastewater treatment works
- Marine treatment works
- Outfall headworks
- Vent
- Vent column
- Tidal storage tank
- Blank end
- Head of Public Sewer
- Micro Pumping Station

SHAPES (S)

A	Arched	R	Rectangular
B	Barrel	S	Square
C	Circular	T	Trapezoidal
E	Egg	U	U Shape
H	Horseshoe	X	Other

NODE REFERENCING SYSTEM

- 1st digit: hundred metre easting identifier
- 2nd digit: hundred metre northing identifier
- 3rd digit: sewer type identifier
  - 0-4 = Foul/Combined
  - 5-9 = Surface Water
- 4th digit: next sequential node

Drawn by:	mondalb
Title:	157758_Lakeside Country Park,
Date:	12/09/2014

Southern Water

117868

117384

444207

445174

Lakeside Country Park

Miniature Railway

Lake

Lake

Lake

Lakeside Country Park

Allotment Gardens

Allotment Gardens

Amphitheatre

Lakeside Country Park

Allotment Gardens

Rose Manor

Club

Hotel

Nov. Glen

Monks Brook

Drain

Drain

Path (um)

Path

Path

Path

Path

Tunnel

Path (um)

Ambassador Walk

STONEHAM LANE

Park Office

Engine Shed

DONCASTER DROVE

Path (um)

DONCASTER DROVE (TRACK)

Track

Ford

RISE LANE

RISE LANE

ARGOSY CRESCENT

ARGOSY CRESCENT

SOUTH STREET

ROYAL OAK PL

10.4m

10.7m

9.4m

8.4m

9.8m

11.9m

+ 12.2m

+ 13.0m

DAV

AV

WO

WOH

FB

FB

FB

FM

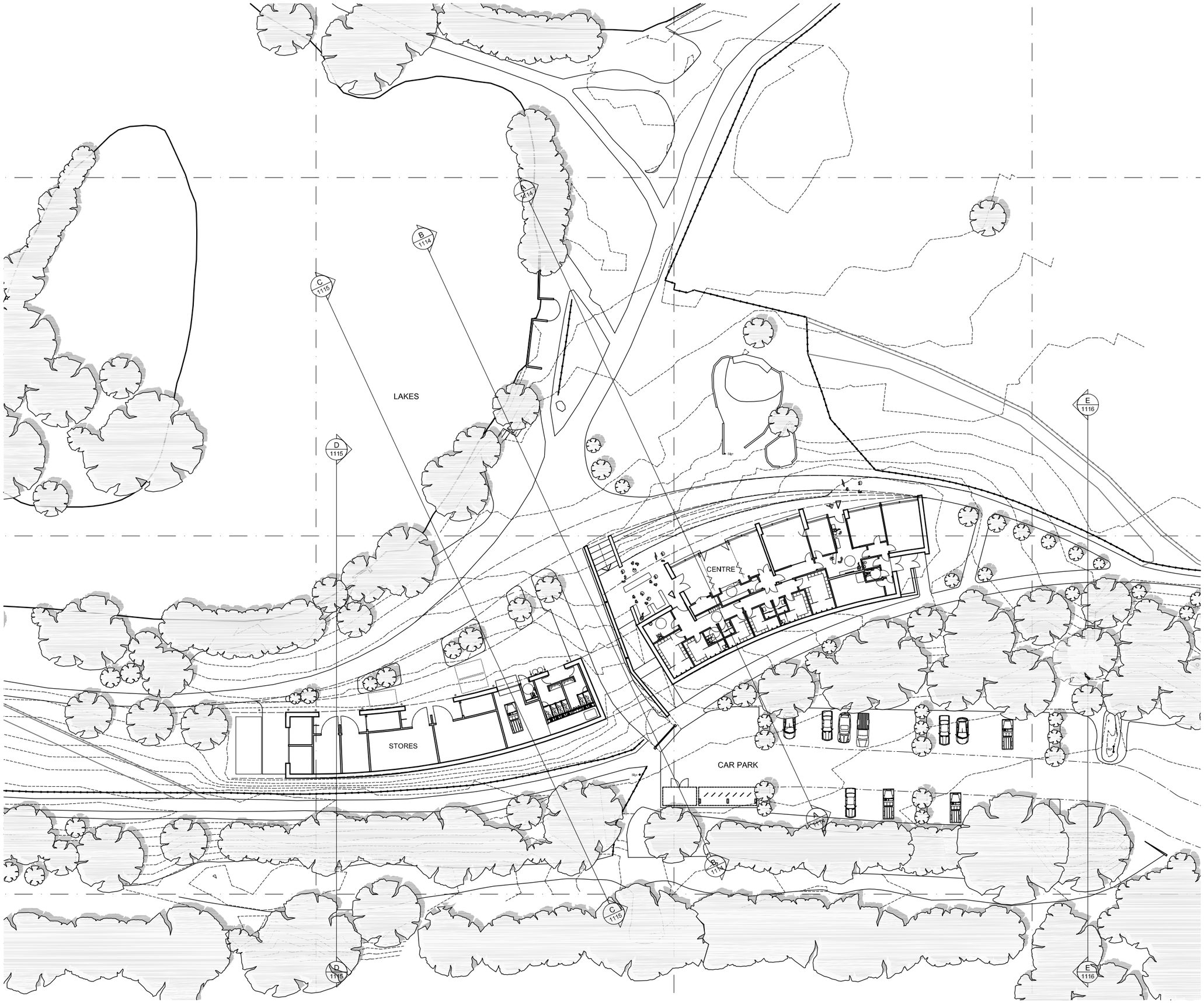
FM

SM

SM

S

APPENDIX IV
Architectural Proposals



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Notes

N

1:500 SCALE BAR

0m 10m 20m

Rev	Date + notes	Drwn	Chkd
03	17:10:2013	SR	NH
02	30:09:2013	SR	NH
01	20:09:2013 Landscape amended Issued for initial 'Passivehouse' design guidance	SR	-
0	18:09:2013 Issued for 'Secured by Design' liaisons	SR	-

r h partnership architects
30 - 31 Foundry Street Brighton BN1 4AT
T 01273 645220 F 01273 645225
www.rhpartnership.co.uk
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Project
Lakeside Country Park
Eastleigh
Hampshire

Drawing
Proposed Site Layout Plan

Job Ref	Dwg No	Revision
P0013	1100	03

Scale(s)	Size	Drwn	Chkd
1:500@A3	A3	SR	NH

Status
Preliminary

Last plotted: 17/10/2013 10:01 AM

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Notes

KEY
1 - Covered external space
2 - Meeting/training room
3 - Teapoint
4 - Office - Countryside Service
5 - Office - Partner A/B
6 - Office - Partner C
7 - WC's & cleaners store
8 - Store
9 - Reception / lobby
10 - Changing rooms
11 - External showers
12 - Plant
13 - Changing Places facility

* Division offering the flexibility to separate changing facilities for use by groups of children - 2 changing rooms (M & F) & 2 instructor rooms (M & F)
** Internal connection from Dry to Wet zones
*** Secure line
**** Internal connection - secure staff escape

1:200 SCALE BAR

0m 5m 10m

Rev	Date + notes	Drwn	Chkd
03	17:10:2013 Meeting room store relocated External entrance added to western end onto external covered area	SR	NH
02	30:09:2013	SR	NH
01	20:09:2013 Landscape amended Colour hatch added Issued for Initial 'Passivehouse' design guidance	SR	-
0	18:09:2013 Issued for 'Secured by Design' liaisons	SR	-

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Project
Lakeside Country Park
Eastleigh
Hampshire

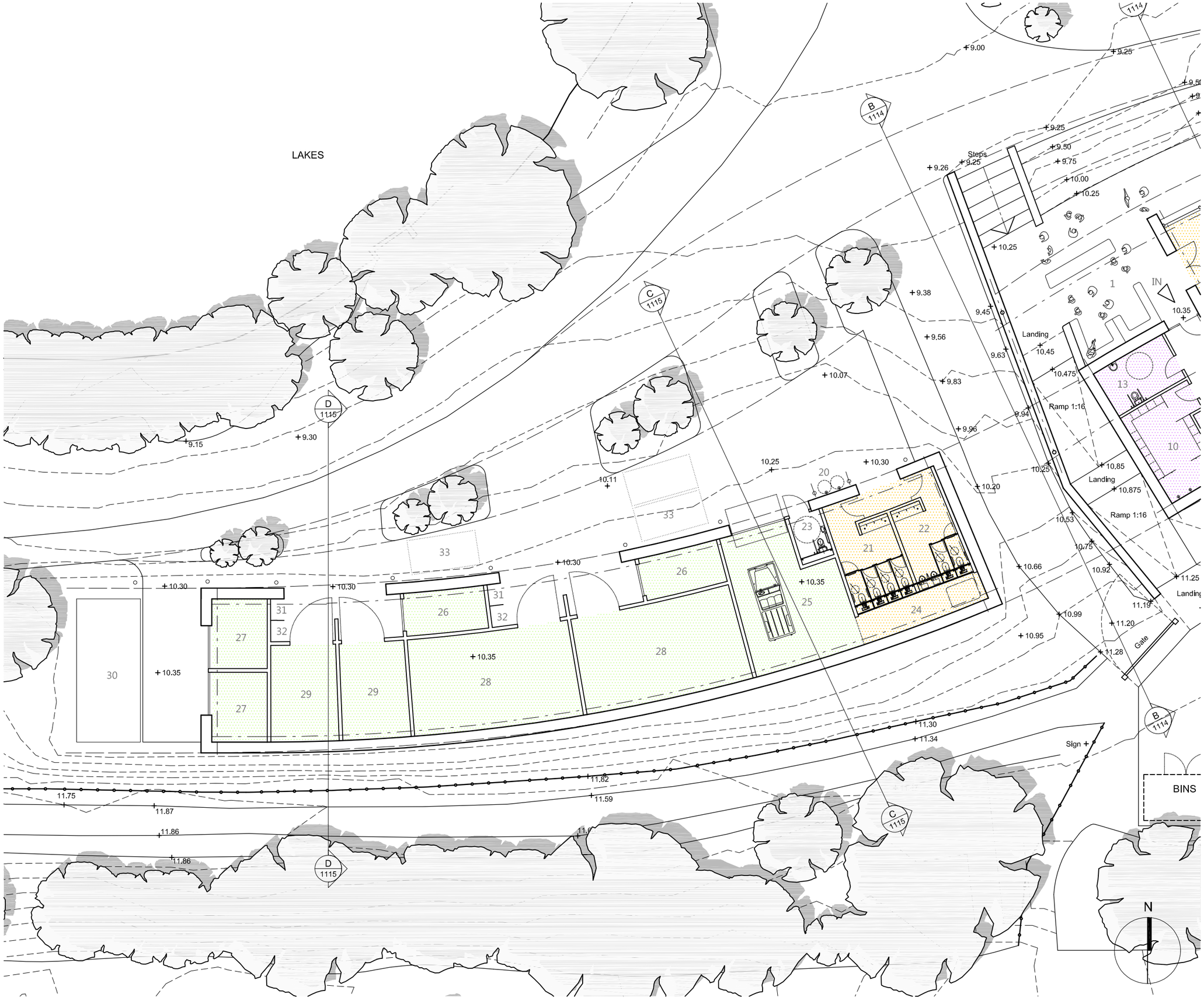
Drawing
Proposed Waterside Centre Plan

Job Ref	Dwg No	Revision
P0013	1101	03

Scale(s)	Size	Drwn	Chkd
1:200@A3	A3	SR	-

Status
Preliminary

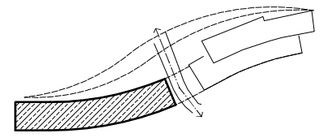
Last plotted: 17/10/2013 10:04 AM



This drawing is not to be scaled. The architect is to be informed of any errors before work proceeds. The general contractor is responsible for checking all dimensions

Notes

KEY
20 - External showers
21 - Public WC (Female)
22 - Public WC (Male)
23 - Public WC (Unisex accessible)
24 - Plant
25 - Store - Countryside
26 - Store
27 - Store
28 - Store
29 - Store
30 - Trailer park
31 - Cage lockers
32 - Cage lockers or hose cupboard
33 - Potential overflow parking (staff)



1:200 SCALE BAR

0m 5m 10m

Rev	Date + notes	Drwn	Chkd
03	17:10:2013 Female public WC provision increased by 1 cubicle External showers relocated	SR	NH
02	30:09:2013	SR	NH
01	20:09:2013 Landscape amended Colour hatch added Issued for Initial 'Passivehouse' design guidance	SR	-
0	18:09:2013 Issued for 'Secured by Design' liaisons	SR	-

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Project
Lakeside Country Park
Eastleigh
Hampshire

Drawing
Proposed Watersports Stores Plan

Job Ref	Dwg No	Revision
P0013	1102	03

Scale(s)	Size	Drwn	Chkd
1:200@A3	A3	SR	NH

Status
Preliminary

Last plotted: 17/10/2013 10:06 AM