# Appendix

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## Appendix



Robert West

Rail Buildings Infrastructure Transport & Environment



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Status	Details of Amendments	Date	Author	Checked	Approved
Draft	For Comment	30/01/15	PBT		

Project Title Rosehill Recreation Ground

Report Title Flood Risk Assessment

#### **Document Reference:** 4723/001/RP01

Prepared For London Borough of Sutton

Date February 2015

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# Robert West

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### APPENDICES

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APPENDIX B - PROPOSED DEVELOPMENT LAYOUT

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APPENDIX H – SWMP PLANS

APPENDIX J – DRAINAGE STRATEGY



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EXECUTIVE SUMMARY

I. To be finalised by RWC once liaison with the Design Team has completed

Site Location	Rosehill Recreation Ground, Rosehill, Sutton. 525709mE,165788mN
Size and Current Land Use	15.5 ha (approx.), currently used as Playing Fields and other sporting amenity
EA Flood Zone	Flood Zones 3, 2 and 1
Fluvial/Tidal Flood Risk	Medium
Surface Water Flood Risk	High
Groundwater Flood Risk	Low
Historical Flooding	None
Reservoir Flood Risk	None
Sewer Flood Risk	None
Proposed Development	A new Educational facility located to the south of the site
Flood Risk Vulnerability	More Vulnerable
Building Floor Levels	To be advised (To match existing + 300mm = 33.90m?)
Drainage Strategy (based on Indicative Layout)	Proposed peak rainfall run-off from the site will not exceed the existing, greenfield, runoff rates. The existing open channel passing through the site will receive surface water run-off as currently.
SuDS	Green Roof, Permeable parking surfaces, swales, wetland surface storage, below ground attenuation

Table 1: Summary of Assessed Flood Risk



1.0 INTRODUCTION

1.1 Robert West Consulting was appointed by London Borough of Sutton (LBS) in November 2014 to provide flood risk advice in relation to the development of new educational facilities at Rosehill Recreation Ground, Rosehill, Sutton. The location of the site is illustrated in Figure 1 below.

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#### Figure 1: Site Location Plan

#### Development description and location

- 1.2 The existing site primarily comprises open public amenity space which is mainly grass surface. The development site surrounds a tennis centre which will remain outside the boundaries of this application. A pavilion building adjacent to a bowling green exists in the south-east corner of the site. Planning permission is sought for the construction of a new school building located to the south-west of the site with associated car parking space and playing fields.
- 1.3 A topographical survey of the site is provided in Appendix A and the proposed layout of the new development is provided in Appendix B.
- 1.4 This FRA provides information regarding flood risk and details of a drainage strategy (incorporating Sustainable Drainage Systems (SuDS)) for the proposed development. The assessment and strategy has been carried out in accordance with the guidelines set out in the National Planning Policy Framework (NPPF).





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- 1.5 The aim of this FRA is to demonstrate that the site can be developed safely, without exposing the new development to an unacceptable degree of flood risk or increasing the flood risk to third party land. The objectives are to:
  - i. Identify potential sources of flooding and assess the risk they pose to the site;
  - ii. Consider the effect of predicted climate change on future flood risk to the site;
  - iii. Determine the impact of the development on flood risk to third parties;
  - iv. Determine an appropriate surface water drainage strategy;
  - v. Recommend appropriate flood risk mitigation measures.
- 1.6 This FRA provides an assessment of how the proposed development will adequately drain surface water from the site to mitigate the risk of flooding to those on the site and those downstream. It is based upon readily-available existing information that will be used to inform discussions with the Planning Authority (LBS) and the Environment Agency (EA) to support a planning application. These include, in no particular order:
  - the NPPF and the Technical Guidance to the NPPF
  - The Mayor's London Plan 2011
  - LBS's Core Strategy Document (December 2009))
  - LBS's Sustainable Design and Construction Interim Planning Guidance (IPG) adopted May 2008
  - LBS's Strategic Flood Risk Assessment Level 1 (SFRA1) published in December 2008 and the Strategic Flood Risk Assessment Level 2 (SFRA2) published in June 2009.
  - LBS's Surface Water Management Plan (SWMP) published in July 2010.
  - LBS's Preliminary Flood Risk Assessment (PFRA) published May 2011.
  - EA's flood maps

#### Planning Policy Review

1.7 The following policies relevant to mitigate flood risk are taken from The London Plan 2011 and incorporate the Revised Early Minor Alterations to the London Plan October 2013:



Policy 5.11

Green roofs and development site environs

Planning decisions

A. Major development proposals should be designed to include roof, wall and site planting, especially green roofs and walls where feasible, to deliver as many of the following objectives as possible:

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a) adaptation to climate change (i.e. aiding cooling)

b) sustainable urban drainage

- c) mitigation of climate change (i.e. aiding energy efficiency)
- d) enhancement of biodiversity
- e) accessible roof space
- f) improvements to appearance and resilience of the building

g) growing food

#### Policy 5.12

Flood risk management

Strategic

A. The Mayor will work with all relevant agencies including the Environment Agency to address current and future flood issues and minimise risks in a sustainable and cost effective way.

#### Planning decisions

B. Development proposals must comply with the flood risk assessment and management requirements set out in PPS25 over the lifetime of the development and have regard to measures proposed in Thames Estuary 2100 (TE2100 – see paragraph 5.55) and Catchment Flood Management Plans.

C. Developments which are required to pass the PPS25 Exceptions Test will need to address flood resilient design and emergency planning by demonstrating that:

- a) the development will remain safe and operational under flood conditions
- b) a strategy of either safe evacuation and/ or safely remaining in the building is followed under flood conditions
- c) key services including electricity, water etc will continue to be provided under flood conditions

d) buildings are designed for quick recovery following a flood.

D) Development adjacent to flood defences will be required to protect the integrity of existing flood defences and wherever possible should aim to be set back from the banks of watercourses and those defences to allow their management, maintenance and upgrading to be undertaken in a sustainable and cost effective way.

Rosehill Recreation Ground Flood Risk Assessment 4723/001/RP01 Page 4



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Policy 5.13

Sustainable drainage

Planning decisions

A) Development should utilise sustainable urban drainage systems (SUDS) unless there are practical reasons for not doing so, and should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible in line with the following drainage hierarchy:

1) store rainwater for later use

2) use infiltration techniques, such as porous surfaces in non-clay areas

3) attenuate rainwater in ponds or open water features for gradual release

4) attenuate rainwater by storing in tanks or sealed water features for gradual release

5) discharge rainwater direct to a watercourse

6) discharge rainwater to a surface water sewer/drain

7) discharge rainwater to the combined sewer.

Drainage should be designed and implemented in ways that deliver other policy objectives of this Plan, including water use efficiency and quality, biodiversity, amenity and recreation.

- 1.8 .The policy detailed below has been taken from LBS' Core Strategy.
  - Core Policy BP7 Flood Risk and Climate Change Adaptation

The Council will seek to avoid, manage and reduce all sources of potential flood risk to and from new development and adapt to the future impacts of climate change by:

- Steering all site allocations and development towards areas of lowest flood risk through application of the 'Sequential Test', taking the vulnerability of the proposed uses into account;
- Considering the suitability of sites within areas of higher flood risk only where it can be demonstrated that there are no reasonably available sites within Flood Zone 1 (low risk) appropriate to the type of use proposed;
- Considering flood risk in line with PPS25 by ensuring that certain classes of development located within higher flood risk areas demonstrates compliance with the 'Exception Test' according to Table D3 of PPS25 by (i) providing wider sustainability benefits that outweigh flood risks (ii) being located on previously developed land and (iii) is safe, without increasing flood risk elsewhere, and, where possible, will reduce flood risk orerall;
- Requiring developers to assess the risks of all forms of flooding and identify options to mitigate these risks, taking climate change into account, through the preparation of site-specific FRAs where appropriate; and
- Promoting the most effective adaptation to the impacts of climate change as part of new development, in accordance with the Mayor's drainage hierarchy, including SUDS, and its role in achieving wider sustainability benefits for biodiversity, water quality and local amenity.

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#### 1.9 The policy detailed below has been taken from the IPG.

#### Guideline SDC7: Sustainable Urban Drainage Systems

The Council will require all development proposals to incorporate sustainable urban drainage systems (SUDS) or rainwater holding facilities in order to minimise surface run-off from the site to natural watercourses or municipal drainage systems and therefore reduce the risk of flooding. For major developments on previously developed sites, peak run-off rates and annual volumes of run-off should be less than the previous conditions on the site and the following peak time attenuation rates should be achieved:

(i) 50% in low flooding risk areas;

(ii) 75% in medium flooding risk areas; and

(iii) 100% in high flooding risk areas.

Details of the proposed SUDS measures must be provided in sustainable design and construction statements or through submission of an appropriate scheme prior to the start of construction on site.

## 1.10 The policies referenced in this document are not intended to be an exhaustive list of applicable

local planning policies.



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#### 2.0 BASELINE CONDITIONS

2.1 This section considers the baseline conditions in and around the site with particular reference to flood risk.

#### Site Topography

- 2.2 The area of the entire school site is approximately 15.5 hectares.
- 2.3 The site topography forms a valley with the open channel stream broadly bisecting the site from east to west forming its lowest point. The north-east corner rises to 45m Above Ordnance Datum (AOD), with the stream at around 34m AOD and the southern boundary at 36m AOD.

#### Site Geology

2.4 Data from the SFRA relating to the site's geology is provided in Appendix C. The bedrock geology of the site is identified as London Clay Formation and the superficial geology is identified as River Terrace deposits.

#### Flood Risk to the Site

2.5 The EA Flood Maps are provided within the Groundsure Floodinsight report within Appendix D. This report details the risk of flooding from various sources.

#### Tidal/Fluvial flood risk

- 2.6 Section 1 of the FloodInsight report (the EA flood maps) indicates that the development site is partially within Flood Zones 3, 2 and 1 (i.e. High, Medium and Low fluvial flood risk).
- 2.7 Section 2 of the Floodinsight report identifies that the EA National Flood Risk Assessment (NaFRA) flood rating for the site is **Medium** (i.e. considered to be greater than 1 in 30 (3.3%) but less than 1 in 10 (1%) AEP in any given year).
- 2.8 Detailed flood risk data for the site has been provided by the EA to identify the modelled extents and depths of flooding within the site. This data is provided in Appendix E and is derived using the detailed fluvial Beverley Brook 2D Flood Risk Mapping Study, completed in 2008 by Royal Haskoning.

#### Historic Flood Events

2.9 Section 3 of the Floodinsight report identifies a flood event record within a very limited area to the west of the tennis centre. <Architect: Flooding occurred in 1968 at the culvert under the railway bridge. Its within LBS' land boundary, can the red-line boundary for the development be adjusted so its excluded? Nothing will be proposed at this location as part of the development.>

Pluvial flood risk

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2.10 Section 4 of the Floodinsight report identifies there is are small pockets within the northern half of the site which are identified as having a **High** risk of pluvial flooding (i.e. predicted to flood to a depth of between 0.1m and 0.3m during a 1 in 75 year (1.3%) AEP storm event).

Surface Water features

- 2.11 Section 5 of the Floodinsight report identifies that a surface water feature (the Pyl Brook East Branch) is located to the west of the development site on the opposite side of the railway embankment. The site drains to this watercourse via a culvert located near the tennis centre buildings.
- 2.12 At the west side of the culvert, the Pyl Brook is designated as a Main River. The topographical survey identifies that an open channelled stream runs east to west across the site before discharging into a 914mm diameter Thames Water surface water sewer and then onto the culvert beneath the railway embankment. Although not identified on the FloodInsight report, it is assumed that the stream is an Ordinary Watercourse.

Groundwater Flood Risk

- 2.13 Section 6 of the Floodinsight report identifies that there is a potential for groundwater flooding to occur at the surface within the site. The source of this flooding is expected to be from the superficial deposits underlying the site.
- 2.14 Section 7 of the Floodinsight report identifies the site has no geological indicators of flooding at the site.
- 2.15 Groundwater flood records taken from the SWMP are provided in Appendix F. This identifies that groundwater flooding has not been reported in the vicinity of the site. It is concluded that the risk from groundwater flooding is Low.

Reservoir Flood Risk

2.16 Section 8 of the Floodinsight report identifies the site is not at risk from flooding from canal breaks or reservoir failure.

Sewer flood risk

2.17 Thames Water (TW) has advised that the site is not located within an area considered to be at risk from sewer flooding (see Appendix G – Thames Water Response 3<sup>rd</sup> December 2014).

#### Existing Drainage Infrastructure serving the Site

2.18 The topographical survey data (Appendix A) identifies that the site is drained by a TW sewers and private drainage. The surface water drains in a westerly direction towards the Pyl Brook via two culverts.

Rosehill Recreation Ground Flood Risk Assessment



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#### Strategic Flood Risk Assessment

2.19 The site is assessed as part of SFRA1 and SFRA2. No particular risks of flooding, additional to those stated above, have been identified at the development site.

#### Surface Water Management Plan

2.20 The site is assessed as part of the SWMP. No particular risks of flooding, additional to those stated above, have been identified at the development site. Relevant plans from the SWMP identifying flood depth and flood hazard are provided in Appendix H.

#### Site Vulnerability

2.21 With reference to Table 2 of the Technical Guidance to the NPPF, the vulnerability classification of the existing site is "More Vulnerable" (existing school use). The vulnerability classification of the proposed development is also "More Vulnerable".

#### Flood Risk Considerations for the Development Site

- 2.22 From the information in this Chapter, it is concluded that the site is currently at risk from the following sources:
  - A Medium risk from extreme fluvial/tidal flooding, primarily focussed on the area occupied by the tennis centre (outside the development boundaries) and the stream.
  - ii. A Low risk of groundwater flooding due to an extended extreme flood event.
  - iii. A High risk from pluvial flooding at discrete locations within the site.
  - iv. Not at risk from sewer or reservoir flooding
- 2.23 Based upon the risks assessed above, the development of fluvial and pluvial flood events only on the development shall be assessed further in the following chapter.

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#### 3.0 MANAGEMENT OF FLOOD RISK

#### Fluvial Flood Risk Management

- 3.1 With reference to the Floodinsight report and the EA flood model data, the extents of the predicted flood extents are primarily within the tennis centre located in the western half of the Recreation Ground. The majority of the floodable area is outside the red-line development boundary for the site (see Appendix B). **<Architect:** I need a general layout plan which shows the red-line boundary and a roof level view of the development, preferably with some indication of landscaping features proposeds
- 3.2 The location of the new school will be located on the unused football pitch immediately to the south of the tennis centre. By inspection of the topographical survey, this pitch slopes from 34.20m AOD at the southern end to 33.67m AOD at its north-west corner.
- 3.3 The modelled flood level data from the EA identifies the flood level at node point 6 during a 1 in 100 year (1%) AEP (plus climate change) event to be 33.60m AOD. By inspection of the flood extents, it may be seen that flooding is not predicted to extend onto the football pitch, therefore the new school building will be wholly located within Flood Zone 1. <a href="#">KArchitect: It is recommended that the floor levels are set to at least 33.90m AOD and that no basements are proposed (at least to the north side of the building».</a>
- 3.4 An extreme flood event is predicted to extend into the development site to the north and east of the proposed school building. By inspection of the general development layout in Appendix B, it may be seen that this area is primarily car parking and circulation space, and will be designed to be resilient to an extreme flood event. The main entrance to the school will be located close to the bowling pavilion, i.e. wholly within Flood Zone 1, therefore safe access and egress to and from the site will be maintained should an extreme flood event occur.
- 3.5 The layout of the new development has been designed to utilise areas of low fluvial flood risk and to allow those areas where flooding is predicted to occur to be useable and resilient. For this reason, the risk of fluvial flooding to the development is considered to be Low.

#### Pluvial flood management

- 3.6 A high risk of pluvial flooding is predicted to occur within discrete areas in the playing fields to the north of the tennis centre. This area is expected to be used as sports pitches as part of the development proposals. **Architect:** It is recommended that adequate drainage is provided to the sports pitches to enable them to recover following rainfall events. Furthermore, advice from the local authority regarding the usage of the pitches following extended periods of wet weather should be sought. >
- 3.7 A high risk of pluvial flooding is also predicted to occur to the west of the tennis centre <a href="https://www.architect.soundary.to">https://www.architect.soundary.to</a> only identify those areas where



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development is proposed, i.e. exclude the area to the west of the tennis centre>.

- 3.8 A low risk of flooding is predicted to occur to the north and east of the new school buildings, similar in extent to that identified by the fluvial flood model. As stated above, the pluvial flood extents will not impact new buildings.
- 3.9 The layout of the new development has been designed to utilise areas of outside of pluvial flood risk areas and to allow those areas where flooding is predicted to occur to be useable and resilient. For this reason, the risk of pluvial flooding to the development is considered to be Low.



4.0 SURFACE WATER MANAGEMENT STRATEGY

- 4.1 The new development comprises the construction of a new school building to the south of the existing tennis centre. The total area of the new building is approx. 7,000m<sup>2</sup> <Architect: Please provide AutoCad plan to confirm> The development is considered to be constructed upon primarily grassed surfaces.
- 4.2 The surface water run-off from the new development is likely to increase from roofs and hardstanding surfaces. To mitigate the impact that drainage from these surfaces will have SuDS will be proposed as part of the development. Furthermore, the peak surface water run-off rate from the site will be limited to the greenfield run-off rate.
- 4.3 The surface water run-off from the new development will connect into the existing stream passing through the site and will incorporate the SuDS features explained below. A plan of the drainage strategy is provided in Appendix J. **<Engineer:** Your outline plan for the drainage layout will be inserted into this document. It should contain the features detailed below. We should discuss where storage can be achieved>.

#### SuDS Management Train

- 4.4 A range of sustainable drainage techniques has been considered for suitability as part of the design proposal for the project. However, due to the limited scope of the development and the constrained nature of the site, many of the sustainable drainage measures are not deemed applicable.
- 4.5 A brief commentary how each SuDS measure was considered is provided below.

Green/Brown Roofs

4.6 <Architect: it is recommended that a green or brown roof is added to the Main Building, it doesn't need to extend across the whole building and if there is the ability to have it visible for teaching, then it can have multiple planning benefits>.

Rainwater Harvesting

- 4.7 <Architect: It is recommended that water re-use in the toilets is achieved using water stored from the roof runoff. Advise whether this is possible? Are there BREEAM benefits in doing this (other than for Pol03?>
- 4.8 <Additionally, Interception of rainfall run-off from the roofs may be attenuated within water butts for use as irrigation within the landscaped areas. The provision of water-butts will also be instructive to pupils on how water can be captured and re-used for irrigation. Architect, please advise whether this can be included within the proposals>

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Soakaways and Infiltration direct to ground

4.9 As the site is underlain by London Clay, disposal by infiltration means is not considered to be a suitable solution for this site. However, this is dependent on the depth of the groundwater table, the thickness of the strata above the impermeable London Clay and the potential presence of contamination within the existing soils. Each of these parameters will be examined as part of the site investigation. PM: Please provide an SI report, or advise when one is to be carried out>

Swales

4.10 <Architect / Engineer: There is sufficient landscaping space within initial proposals to incorporate swales into the drainage strategy. This would be useful as conveying runoff from the building to the stream may be difficult due to the gradient required. Please advise whether swales can be considered to be suitable for the site>

Rain gardens, detention basins and ponds

4.11 Detention ponds and other depressed areas for surface water storage, provide amenity, biodiversity and water quality benefits, in addition to their attenuation function. However, due to the existing site constraints, it is unlikely that here will be sufficient space within the development to incorporate such features. However, smaller surface storage features, such as rain gardens, could be incorporated into the proposals at detailed design stage.

Permeable surfaces

4.12 The car park shall comprise a permeable surface for the parking bays with tarmac running lanes for access. Attenuation storage can be achieved within the sub-base to the car-park before discharging into the stream.

Below-ground attenuation

4.13 As noted above, the peak surface water run-off rates are to be limited to the greenfield run-off rate that exists currently. This will be achieved by managing surface water runoff throughout the site using the SuDS features described above and providing discrete areas of attenuation storage throughout the site.

#### BREEAM

<Architect: Comments relating to BREEAM won't appear in the FRA, but the document is used as evidence to achieve credits. Please advise the number of credits targeted for POL 03.

With some focussed effort, All 5 may be achievable, However, this will need to be developed in conjunction with the Civil Engineer.>

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Robert Vest



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Appendix A - Topographical Survey plan

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 This section will be completed once comments have been received from the Design Team.













































Appendix B - Proposed Development Layout



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Appendix C - Geological Maps



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> sw Aerial Photograph Capture date: 20-Apr-2013 Grid Reference: 525838,165982 Site Size: 19.70ha

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## **Overview of Findings**

For further details on each dataset, please refer to each individual section in the main report as listed.

Section 1:Environment Agency Flood Zones	
$1.1\mathrm{Are}$ there any Enviroment Agency Zone 2 floodplains within 250m of the study site?	Yes
1.2 Are there any Environment Agency Zone 3 floodplains within 250m of the study site	Yes
1.3 Are there any Flood Defences within 250m of the study site?	No
1.4 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
1.5 Are there any Proposed Flood Defences within 250m of the study site?	No
1.6 Are there any areas used for Flood Storage within 250m of the study site?	No
Section 2:National Flood Risk Assessment (NaFRA)	
2.1 What is the National Flood Risk Assessment (NaFRA) Flood Rating for the study site?	High
Section 3:Historic Flood Events	
3.1 Has the site been subject to past flooding as recorded by the Environment Agency?	Yes
Section 4:JBA Surface Water (Pluvial) Flood	
4.1 Is the site or any area within 50m at risk of Surface Water (Pluvial) Flooding?	Yes
Section 5: Surface Water Features	
$5.1\mathrm{Are}$ there any surface water features within 250m of the study site?	Yes
Section 6: Groundwater Flooding	
$6.1\mathrm{What}$ is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential at Surface
6.2 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	High
Section 7:BGS Geological Indicators of historic flooding	
$7.1\mbox{Are}$ there any geological indicators of historic flooding within 250m of the study site?	No
Section 8:JBA Reservoir and Canal Data	
8.1 Is the property located in an area identified as being at potential risk in the event of a reservoir failure?	No
8.2 Is the property located in an area identified as being at potential risk in the event of a canal break?	No



### **Additional Matters**

### **Riparian ownership**

If your land abuts a river, stream or ditch, you may have responsibility to maintain this watercourse, even if Title Deeds show the property boundary to be adjacent to the watercourse. This includes the responsibility for clearing debris and obstructions which may impede the free passage of water and fish, and also includes the responsibilities to accept flood flows through your land, even if these are caused by inadequate capacity downstream. There is no duty in common law for a landowner to improve the drainage capacity of a watercourse. Please contact GroundSure if you need further advice on riparian ownership issues relating to this property.

### Sewerage Flooding

Extreme rainfall events may overwhelm sewerage systems and cause local flooding. The water and sewerage companies within the UK are required to maintain 'DG5 – At Risk Registers' which record properties that have flooded from sewers and/or are considered to be at risk of flooding from sewers in the future. If your property is on the 'At Risk' Register, this may be recorded within a standard CON29 Drainage and Water search.

### **Using this Report**

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between GroundSure and the Client.

#### Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format-ld: 1, ld: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features used instead to represent the detures are features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.



# **1. Environment Agency Flood Map for Planning (from rivers and the sea)**





Yes

7



1.1 River and Coastal Zone 2 Flooding

Report Reference: GS-1785023

Client Reference: Rosehill\_Rec

Is the site within 250m of an Environment Agency Zone 2 floodplain?

Environment Agency Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 1 – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Туре
1	0.0	On Site	03-Nov-2014	Zone 2 - (Fluvial Models and Fluvial Events )
2	0.0	On Site	03-Nov-2014	Zone 2 - (Fluvial Models )
3	29.0	W	03-Nov-2014	Zone 2 - (Fluvial Models )
4A	30.0	W	03-Nov-2014	Zone 2 - (Fluvial Events )
5	31.0	W	03-Nov-2014	Zone 2 - (Fluvial Models )
6B	31.0	W	03-Nov-2014	Zone 2 - (Fluvial Models )
7C	32.0	W	03-Nov-2014	Zone 2 - (Fluvial Models and Fluvial Events )
8A	32.0	W	03-Nov-2014	Zone 2 - (Fluvial Events )
9B	36.0	W	03-Nov-2014	Zone 2 - (Fluvial Models )
10C	38.0	W	03-Nov-2014	Zone 2 - (Fluvial Events )
11B	39.0	W	03-Nov-2014	Zone 2 - (Fluvial Events )
12	47.0	W	03-Nov-2014	Zone 2 - (Fluvial Models )
13C	47.0	W	03-Nov-2014	Zone 2 - (Fluvial Events )
14	48.0	W	03-Nov-2014	Zone 2 - (Fluvial Models and Fluvial Events )
15B	57.0	W	03-Nov-2014	Zone 2 - (Fluvial Events )
16D	63.0	W	03-Nov-2014	Zone 2 - (Fluvial Events )
17D	66.0	W	03-Nov-2014	Zone 2 - (Fluvial Models )
18E	68.0	W	03-Nov-2014	Zone 2 - (Fluvial Events )
19D	68.0	W	03-Nov-2014	Zone 2 - (Fluvial Models )
20	75.0	W	03-Nov-2014	Zone 2 - (Fluvial Events )
21	77.0	W	03-Nov-2014	Zone 2 - (Fluvial Events )
22E	78.0	W	03-Nov-2014	Zone 2 - (Fluvial Models )



ID	Distance (m)	Direction	Update	Туре
23F	145.0	NW	03-Nov-2014	Zone 2 - (Fluvial Events )
24F	150.0	NW	03-Nov-2014	Zone 2 - (Fluvial Models )
25F	162.0	NW	03-Nov-2014	Zone 2 - (Fluvial Events )
26	169.0	NW	03-Nov-2014	Zone 2 - (Fluvial Models )
27G	179.0	NW	03-Nov-2014	Zone 2 - (Fluvial Models )
28P	181.0	NW	03-Nov-2014	Zone 2 - (Fluvial Events )
29G	182.0	NW	03-Nov-2014	Zone 2 - (Fluvial Models and Fluvial Events )
30	185.0	NW	03-Nov-2014	Zone 2 - (Fluvial Models and Fluvial Events )
31	191.0	NW	03-Nov-2014	Zone 2 - (Fluvial Events )

#### 1.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency Zone 3 floodplain?

Yes

No

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Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 1 – Flood Map for Planning.

The following floodplain records are represented as green shading on the Flood Map (1):

ID	Distance (m)	Direction	Update	Туре
65	0.0	On Site	03-Nov-2014	Zone 3 - (Fluvial Models )
66	0.0	On Site	03-Nov-2014	Zone 3 - (Fluvial Models )
67C	31.0	W	03-Nov-2014	Zone 3 - (Fluvial Models )
68F	48.0	W	03-Nov-2014	Zone 3 - (Fluvial Models )
69P	179.0	NW	03-Nov-2014	Zone 3 - (Fluvial Models )

1.3 River and Coastal Flood Defences

Are there any Flood Defences within 250m of the study site ?

This search consists only of flood defences present in the dataset provided by the Environment Agency. Any relevant data is represented on Map 1 – Flood Map for Planning.

Database searched and no data found.

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1.4 Areas benefiting from Flood Defences Are there any areas benefiting from Flood Defences within 250m of the study site? Any relevant data is represented on Map 1 – Flood Map for Planning.

1.5 Areas of Proposed Flood Defences

No

No

\* This illustrates the number of households that move from 'very significant' or 'significant' to 'moderate' or 'low' probability of flood risk bands if the proposed flood scheme is to be implemented.

Any relevant data is represented on Map 1 - Flood Map for Planning.

Are there any Proposed Flood Defences within 250m of the study site?

Guidance: This search consists only of proposed flood defences present in the dataset provided by the Environment Agency. Please note that proposed flood defence schemes will not influence the current NaFRA ratings for the site.

1.6 Areas used for Flood Storage

Are there any areas used for Flood Storage within 250m of the study site?

No

Flood Storage Areas are considered part of the functional floodplain, and are areas where water has to flow or be stored in times of flood. Technical Guidance to the National Planning Policy Framework states that only water-compatible development and essential infrastructure should be permitted within flood storage areas, and existing development within this area should be relocated to an area with a lower risk of flooding. Any relevant data is represented on Map 1 – Flood Map for Planning.



#### Notes on Flood Zone Data:

This data relates solely to flooding from rivers or the sea. The Environment Agency estimate that over 2.5 million properties are at risk of flooding within England and Wales. River flooding occurs when a watercourse cannot cope with the water draining into it from the surrounding land. This can happen, for example, when heavy rain falls on an already waterlogged catchment. Coastal flooding results from a combination of high tides and stormy conditions. If low atmospheric pressure coincides with a high tide, a tidal surge may happen which can cause serious flooding.

The GroundSure FloodInsight Report comments upon whether a property lies in proximity to Environment Agency Zone 2 and Zone 3 floodplains. The Government's Technical Guidance to the National Planning Policy Framework explains how flood risk should be considered at all stages of the planning and development process in order to reduce future damage to property and potential loss of life. The Government looks to planning authorities to ensure that flood risk is properly taken into account in the planning of developments to reduce the risk of flooding and the damage which floods cause.

Flood Zones enable planning authorities to apply the sequential test (see Technical Guidance to the National Planning Policy Framework) for development proposals and prevent inappropriate development.

Technical Guidance to the National Planning Policy Framework defines the flood zones as: -

Zone 1 - little or no risk with an annual probability of flooding from rivers and the sea of less than 0.1%

 ${\sf Zone}~2$  – low to medium risk with an annual probability of flooding of 0.1-1.0% from rivers and 0.1-0.5% from the sea.

Zone 3 – high risk with an annual probability of flooding of 1.0% or greater from rivers, and 0.5% or greater from the sea.

Flood Zone 3b/Flood Storage Areas - very high risk with the site being used as part of the functional flood plain or as a Flood Storage Area.

The flood zones are the main constraint map underpinning decisions on development and flood risk.

Existing Flood Defences

Flood defences seek to reduce the risk of flooding and to safeguard life, protect property, sustain economic activity and the natural environment. Flood defences are designed to protect against flood events of a particular magnitude, expressed as risk in any one year. For example, defences in urban areas may be built to provide protection against flood events of a size which might occur on average once in one hundred years or less.



#### Proposed Flood Defences

This information is taken from the Environment Agency's database of Areas to Benefit from New and Reconditioned Flood Defences under the Medium Term Plan (MTP). The dataset contains funding allocation for the first financial year (from April). Funding for the following four financial years is not guaranteed, being only indicative, and will be reviewed annually. Projects within the Medium Term Plan qualify for inclusion in this dataset if:

- the investment leads to a change in the current standard of protection (change projects);
- the investment is a replacement or refurbishment in order to sustain the current the current standard of protection (sustain projects);
- the project has an initial construction budget of £100,000 or more; and
- the project is included within the first five years of the MTP

The data includes all the Environment Agency's projects over £100K that will change or sustain the standards of flood defence in England and Wales over the next 5 years. It also includes the equivalent schemes for all Local Authority and Internal Drainage Boards. The number of households and areas of land contributing to DEFRA's Outcome Measures (OM) are also attributed i.e. could benefit from major work on flood defences.

These data also contain Intermittence Flood Maintenance Programme that show the annual maintenance programme of work scheduled to be carried by the Environment Agency, Local Authority or Internal Drainage Board on flood defences. Data details routine maintenance as well as intermittent work that has been funded for the coming year. The data contains a start and end coordinate defining the relevant river section where work is planned.

#### Information Warning

Please note that the maps show the areas where investment is being made to reduce the flood and coastal erosion risk and are not detailed enough to account for individual addresses. Individual properties may not always face the same risk of flooding as the areas that surround them. Also, note that funding figures are indicative and any use or interpretation should account for future updates where annual values may change.

Every possible care is taken to ensure that the maps reflect all the data possessed by the Environment Agency and that they have applied their expert knowledge to create conclusions that are as reliable as possible. The Environment Agency consider that they have created the maps as well as they can and so should not be liable if the maps by their nature are not as accurate as might be desired or are misused or misunderstood, despite their warnings. For this reason, they are not able to promise that the maps will always be accurate or completely up to date.

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#### Flood Storage Areas

Flood Storage Areas may also act as flood defences. A flood storage area may also be referred to as a balancing reservoir, storage basin or balancing pond. Its purpose is to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel. It may also delay the timing of a flood peak so that its volume is discharged over a longer time interval.

A flood storage area may take the form of a wet or dry reservoir. A wet reservoir is a water storage facility in which storage can be effected by allowing water levels to rise during flood times. A dry reservoir is typically adjacent to a river and comprises an enclosed area that accepts water only at peak times. These areas are also referred to as Zone 3b or 'the functional floodplain' and has a 5% or greater chance of flooding in any given year, or is designed to flood in the event of an extreme (0.1%) flood or another probability which may be agreed between the Local Planning Authority and the Environment Agency, including water conveyance routes. Development within Flood Storage Areas is severely restricted.



### 2. Environment Agency NaFRA Flooding Map



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High

### 2. Environment Agency National Flood Risk Assessment (NaFRA)

2.1 Environment Agency National Flood Risk Assessment (NaFRA) Flood Rating (River and Coastal)

What is the highest risk of flooding onsite?

The Environment Agency NaFRA database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

NaFRA data for the study site indicates the property is in an area with a High (1 in 30 or greater) chance of flooding in any given year.

Any relevant data within 250m is represented on the NaFRA Flood map. Data to 50m is reported in the table below.

ID	Distance (m)	Direction	NaFRA Flood Risk
1	0.0	On Site	Low
2	0.0	On Site	Low
3	0.0	On Site	Medium
4	0.0	On Site	Very Low
5	0.0	On Site	Low
6A	0.0	On Site	High
7A	0.0	On Site	Low
8	0.0	On Site	Low
9	0.0	On Site	Low
10	0.0	On Site	Medium
11	0.0	On Site	Low
12	0.0	On Site	Low
13	29.0	W	Low
14B	30.0	W	Low
15B	31.0	W	Low
16E	31.0	W	High
17	31.0	W	Low
18C	31.0	W	Medium
19	32.0	W	Low
20	33.0	W	Low
21C	36.0	W	Very Low
22	37.0	W	Low
23	39.0	W	Very Low
24	41.0	W	Low
25C	45.0	W	Low

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#### Notes on NaFRA data:

This information is based on the very latest Environment Agency National Flood Risk Assessment (NaFRA) data. This data has been created by dividing the flood plain into 50m squares, or smaller areas where a square if intersected by a river or coastline. These are called impact cells. The method then calculates the likelihood that the centre of each impact cell will start to flood using a number of different flood scenarios.

A number of insurance companies providing cover for flood risk use this data as the basis of their risk model, although they may also utilise additional information such as claims histories, which may further influence their decision. Where a high risk of flooding is identified flood risk insurance may be difficult to obtain without further work being undertaken. Property owners of sites within Low and Medium risk areas are still considered to be at risk of flooding and insurance premiums may be increased as a result. Owners of properties within Low, Medium and High risk areas are advised to sign up to the Environment Agency's Flood Warning scheme. The probability estimates for NaFRA risk bands are as follows:

Very Low - the chance of flooding from rivers or the sea is considered to be less than 1 in 1000 (0.1%) in any given year.

Low – the chance of flooding from rivers or the sea is considered to be less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) in any given year.

**Medium** - the chance of flooding from rivers or the sea is considered to be less than 1 in 30 (3.3%) but greater than 1 in 100 (1%) in any given year.

 ${\rm High}$  – the chance of flooding from rivers or the sea is considered to be greater than or equal to 1 in 30 (3.3%) in any given year.



### 3. Environment Agency Historic Flooding Events Map



\_\_\_\_\_Search Buffers (m)



### 3. Environment Agency Historic Flooding Events

3.1 Historic Flood Outlines

Has the site or any area within 250m been subject to historic flooding as recorded by the Environment Agency? Yes

This database shows the individual footprint of every flood event recorded by the Environment Agency and previous bodies.

Any records found within the search radius are displayed on Map 3 - Historic Flooding Events.

ID	Distance I	Direction	Event Name	Date of Flood	Flood Source	Flood Cause	Type of Flood
1	0.0	On Site	06SeptemberAutumn1968	Start Date: 01- 01-1968 End Date: 12-12- 1968	main river	channel capacity exceeded (no raised defences)	Fluvial
2	30.0	W	06SeptemberAutumn1968	Start Date: 01- 01-1968 End Date: 12-12- 1968	main river	channel capacity exceeded (no raised defences)	Fluvial
3	44.0	W	06SeptemberAutumn1968	Start Date: 01- 01-1968 End Date: 12-12- 1968	main river	channel capacity exceeded (no raised defences)	Fluvial
4	48.0	W	06SeptemberAutumn1968	Start Date: 01- 01-1968 End Date: 12-12- 1968	main river	channel capacity exceeded (no raised defences)	Fluvial
5	83.0	W	06SeptemberAutumn1968	Start Date: 01- 01-1968 End Date: 12-12- 1968	main river	channel capacity exceeded (no raised defences)	Fluvial
6	181.0	NW	06SeptemberAutumn1968	Start Date: 01- 01-1968 End Date: 12-12- 1968	main river	channel capacity exceeded (no raised defences)	Fluvial

Notes on Historic Flooding data:

Over 21,000 separate events are recorded within this database, dating back to 1947. This data is used to understand where flooding has occurred in the past and provides details as available. Absence of a historic flood event for an area does not mean that the area has never flooded, but only that the Environment Agency do not currently have records of flooding within the area. Equally, a record of a flood footprint in previous years does not mean that an area will flood again, and this information does not take account of flood management schemes and improved flood defences.



### 4. JBA Surface Water (Pluvial) Flood Map



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Surface Water (pluvial) flooding is defined as flooding caused by rainfall-generated overland flow before the runoff enters a watercourse or sewer. In such events, sewerage and drainage systems and surface watercourses may be entirely overwhelmed.

Surface Water (pluvial) flooding will usually be a result of extreme rainfall events, though may also occur when lesser amounts of rain falls on land which has low permeability and/or is already saturated, frozen or developed. In such cases overland flow and 'ponding' in topographical depressions may occur.

What is the risk of pluvial flooding at the study site?

Highly Significant

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Guidance: The site or an area in close proximity has been assessed to be at Highly Significant Risk of surface water (pluvial) flooding. This indicates that this area would be expected to be affected by surface water flooding in a 1 in 75 year rainfall event to a depth of greater than 1m.

Flood data provided by JBA RISK MANAGEMENT LIMITED Copyright © JBA RISK MANAGEMENT LIMITED 2008-2014

The following pluvial (surface water) flood risk records within 50m of the study site are shown on the JBA Surface Water Flooding Map:

Distance	Direction	Risk
0.0	On Site	High

GroundSure



Distance	Direction	Risk
0.0	On Site	High
0.0	On Site	Highly Significant
0.0	On Site	Low

Distance	Direction	Risk
0.0	On Site	Low
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate

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Risk



Distance	Direction	Risk
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate
0.0	On Site	Low to Moderate

0.0	On Site	Low to Moderate
0.0	On Site	Moderate
0.0	On Site	Significant
3.0	NW	Low
6.0	E	Low
6.0	NW	Low to Moderate
7.0	E	Low to Moderate

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Distance

Direction

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Distance	Direction	Risk
8.0	E	Low
8.0	NW	Low
9.0	Е	Low
9.0	E	Low to Moderate
10.0	NW	Low
11.0	Е	Low
11.0	NW	Low to Moderate
12.0	E	Low to Moderate
13.0	E	High
13.0	E	Low
13.0	NW	Low
13.0	E	Low to Moderate
13.0	E	Low to Moderate
14.0	Е	High
14.0	NW	Low
14.0	Е	Low to Moderate
15.0	Е	High
15.0	Е	High
15.0	NW	Low to Moderate
16.0	E	Low to Moderate
16.0	E	Significant
17.0	E	High
18.0	E	Low
19.0	E	High
19.0	NW	Low
19.0	E	Low
22.0	E	Low
23.0	E	Low to Moderate
24.0	W	Low
25.0	E	Low
25.0	NW	Low
25.0	W	Low to Moderate
26.0	E	Low
27.0	E	High
28.0	W	Low
28.0	W	Low
28.0	E	Low to Moderate
29.0	E	Low
29.0	W	Low
29.0	W	Significant

30.0	E	Significant
30.0	W	Significant
31.0	E	Low
31.0	E	Low to Moderate
32.0	E	High
32.0	W	Low
32.0	E	Low to Moderate
33.0	NW	Low
33.0	W	Low
33.0	W	Low
34.0	E	High
34.0	W	High
34.0	W	High
34.0	W	Low
34.0	W	Low
34.0	W	Low
34.0	E	Low to Moderate
35.0	E	High
35.0	E	Low
35.0	W	Low
35.0	W	Low to Moderate
35.0	W	Low to Moderate
36.0	E	High
36.0	W	Low to Moderate
36.0	E	Moderate
36.0	W	Moderate
37.0	E	High
37.0	W	High
37.0	E	High
37.0	W	Low
38.0	E	High
38.0	W	High
38.0	W	Low
38.0	E	Low to Moderate
38.0	W	Moderate
38.0	W	Significant
39.0	W	High
39.0	W	High

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Distance

30.0

30.0

30.0

Direction

Е

W

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Risk

High

High

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Distance	Direction	Risk
39.0	E	Low to Moderate
39.0	Е	Moderate
41.0	W	Low
42.0	W	Low
43.0	W	High
43.0	E	Low
44.0	NW	Low
44.0	E	Significant
45.0	E	High
46.0	W	Low
46.0	W	Low
46.0	E	Low to Moderate
46.0	Е	Low to Moderate
47.0	W	Low
47.0	Е	Low
47.0	W	Low
48.0	Е	High
48.0	Е	Low to Moderate
50.0	E	High
50.0	W	Low
50.0	E	Moderate
50.0	E	Moderate



Notes on Surface water (Pluvial) Flooding data:

JBA Consulting surface water flood map identifies areas likely to flood following extreme rainfall events, i.e. land naturally vulnerable to surface water or "pluvial" flooding. This data set was produced by simulating 1 in 75 year, 1 in 200 year and 1 in 1000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though older ones may even flood in a 1 in 5 year rainstorm event.

The model provides the maximum depth of flooding in each 5m "cell" of topographical mapping coverage. The maps include 7 bands indicating areas of increasing natural vulnerability to surface water flooding. These are:-

- Less than 0.1m in a 1 in 1000 year rainfall event Negligible
- Greater than 0.1m in a 1 in 1000 year rainfall event Low
- Between 0.1m and 0.3m in a 1 in 200 year rainfall event Low to Moderate
- Between 0.3m and 1m in a 1 in 200 year rainfall event Moderate
- Greater than 1m in a 1 in 200 year rainfall event Moderate to High
- Between 0.1m and 0.3m in a 1 in 75 year rainfall event High
- · Between 0.3m to 1m in a 1 in 75 year rainfall event Significant
- Greater than 1m in a 1 in 75 year rainfall event Highly Significant

NW



NE





Surface Water Feature (narrower than 5m)

N



# **5. Surface Water Features**

Are there any surface water features within 250m of the study site?

Yes

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GroundSure

The following surface water records are represented on mapping:

ID	Distance (m)	Direction
1	33.0	W
2	52.0	E
3	60.0	NW
4	81.0	E
5	150.0	E
6	155.0	E
7	160.0	E

Search Buffers (m)



### 6. BGS Groundwater Flooding Map



surface

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6.1 Groundwater Flooding Susceptibility Areas

Are there any British Geological Survey groundwater flooding susceptibility flood areas within 50m of the boundary of the study site? Yes

What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions? Potential for groundwater flooding at surface

Does this relate to Clearwater Flooding or Superficial Deposits Flooding? Superficial Deposits Flooding

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

6.2 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result?

High

GroundSure

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

#### Notes on Groundwater Flooding data:

The BGS Susceptibility to Groundwater Flooding hazard dataset identifies areas where geological conditions could enable groundwater flooding to occur and where groundwater may come close to the ground surface.

Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

The susceptibility data is suitable for use for regional or national planning purposes where the groundwater flooding information will be used along with a range of other relevant information to inform land-use planning decisions. It might also be used in conjunction with a large number of other factors, e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information, to establish relative, but not absolute, risk of groundwater flooding at a resolution of greater than a few hundred metres. The susceptibility data should not be used to inform planning decisions at the site scale. The susceptibility data cannot be used on its own to make planning decisions at any scale, and, in particular, should not be used to inform planning decisions at the site scale. The susceptibility data cannot be used on its



No



Are there any geological indicators of flooding within 250m of the study site?

This dataset identifies the presence of superficial geological deposits which indicate that the site may be, or have been in the past, vulnerable to inland and/or coastal flooding. This assessment does not take account of any man-made factors such as flood protection schemes, and the data behind the report are purely geological.

Notes on BGS Geological Indicators of Flooding data:

The BGS Geological Indicators of Flooding (GIF) data set is a digital map based on the BGS Digital Geological Map of Great Britain at the 1:50,000 scale (DiGMapGB-50). It was produced by characterising Superficial (Drift) Deposits on DiGMapGB-50 in terms of their likely vulnerability to flooding, either from coastal or inland water flow. These Superficial Deposits are considered 'recent' in geological terms, most having been formed in the later parts of the Quaternary geological period (i.e. within the last few tens of thousands of years). Observations made during recent major inland and coastal flooding events have demonstrated that the erosion and deposition of these recent geological sediments have produced subtle topographical variations, resulting in landforms such as fluvial and coastal floodplains. The mapping of these landforms, in conjunction with the fluvial and/or coastal deposits that underlie them, has in turn determined the extent of previous coastal and inland flooding.

On this basis, the floodplains which are at greatest risk from flooding can be both visualised and defined by Superficial Deposits as depicted on geological maps. These include deposits such as river alluvium and lacustrine (lake) alluvium, as well as the First River Terrace or 'Floodplain terrace' (raised flat areas adjacent to or within floodplains, which represent the level of the floodplain prior to the most recent episode of downcutting). Older and higher river terraces have been excluded as they lie outside the geologically defined floodplain. Areas at risk from coastal inundation are similarly characterised by a range of estuarine or marine deposits that include, for example, tidal flats.







Areas at risk from Canal Breach

GroundSure



No



8.1 JBA Reservoir Failure Impact Modelling

Is the property located in an area identified as being at potential risk in the event of a reservoir failure? No

JBA consulting have modelled the flooding impact from 1,700 reservoirs in England and Wales, should there be a catastrophic failure of a reservoir wall or embankment. This data is not displayed on mapping.

Guidance: None required

Notes on Reservoir Failure Impact data:

This dataset identified areas that are most likely to flood following the sudden catastrophic failure of a reservoir and is provided by JBA Consulting. JBA has identified over 1,700 reservoirs that pose a risk to people and property. These maps identify properties that would flood in the unlikely event of the failure of the reservoir's dam or embankment. Empirical methods were used to predict the flow that would result from the failure which was then modelled onto high resolution Digital Terrain Models (DTM) using JBA's advanced 2D hydraulic modelling techniques. The model provides the maximum depth of flooding in each cell of the DTM.

#### 8.2 JBA Canal Break Modelling

Is the property located within 500m of an area identified as being at potential risk in the event of a canal break?

Database searched and no data found.



#### Notes on Canal Break modelling data

Canal failure mapping includes two types of failure:

- Breach of raised canal embankments failure of the embankment due to weaknesses; these are typically caused by erosion or animal burrowing but can also arise from poor maintenance.
- Aqueduct failure an aqueduct is where the canal passes over infrastructure such as roads, railways and subways, or over other canals and rivers. Failures of these are typically caused by the collapse of the underlying culvert.

A length of over 1,700km of canal covering England, Wales and Scotland was modelled. The canal modelling is restricted to the areas where LIDAR is available as the raised embankments are more defined in the LIDAR than in the Photogrammetry data. Each canal is categorised as part of the Merchant Shipping Notice (MSN 1776 (M)). The majority of the modelled canals are categorised as A, with a few exceptions, which fell under category B.

- Category A: narrow rivers and canals where the depth of water is generally less than 1.5m.
- Category B: wider rivers and canals where the depth of water is generally 1.5m or more and where the
  significant wave height could not be expected to exceed 0.6m at any time.
- Category C: tidal rivers and estuaries and large, deep lakes and lochs where the significant wave height could not be expected to exceed 1.2m at any time.
- Category D: tidal rivers and estuaries where the significant wave height could not be expected to
  exceed 2m at any time.

The canal map provides flood extent data only and show flooded areas with a depth greater than 0.1m.



Standard Terms and Conditions

#### 1 Definitions

In these terms and conditions unless the context otherwise requires "Beneficiary" means the person or entity for whose benefit the Client has obtained the Services.

"Client" means the party or parties entering into a Contract with GroundSure. "Commercial" means any building or property which is not Residential. "Confidential Information" means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other 3.2 The Client shall be solely responsible for ensuring that the Services are

than information which the Client can prove was rightfully in its 3.3 The Client shall supply to GroundSure as soon as practicable and without charge

possession prior to disclosure by GroundSure and

"Support Services" means Support Services provided by GroundSure including, without limitation, interpreting third party and in-house environmental data,

"Contract" means the contract between GroundSure and the Client for the provision of the Services, and which shall incorporate these terms and conditions,

the Order, and the relevant User Guide. "Third Party Data Provider" means any third party providing Third Party Content

"Data Reports" means reports comprising factual data with no accompanying

interpretation. "Fees" has the meaning set out in clause 5.1.

"GroundSure" means GroundSure Limited, a company registered in England and Wales under number 03421028.

"GroundSure Materials" means all materials prepared by GroundSure and provided

Reports, Mapping, and Risk Screening Reports. "Intellectual Property" means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other 4.1The Client acknowledges that the Services provided by GroundSure consist of

rights of a similar nature anywhere in the world. "Mapping" means a map, map data or a combination of historical maps of various

"Ordnance Survey" means the Secretary of State for Business. Innovation and skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS,

VIII. Even by the providing turning to the service of the first purchase or first tenant of the Site, and (iv) the first purchase or first tenant of the Site, and (iv) the first purchase or first tenant of the Site and (iv) the first purchase or first tenant of the Site and (iv) the first purchase or first tenant of the Site and (iv) the first purchase or first tenant of the Site and (iv) the first purchase or first tenant of the Site and (iv) the first purchase or first tenant of the Site and (iv) the first purchase or first tenant of the Site and (iv) the first purchase or first tenant of the Site and (iv) the first purchase or first tenant of the Site and (iv) the first purchase of the Site and (iv) the site of th

"Report" means a Risk Screening Report or Data Report for Commercial or

Residential property. "Residential" means any building or property used as or intended to be used as a 4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly

single dwelling.

has agreed to provide by accepting an Order pursuant to clause 2.6. "Site" means the area of land in respect of which the Client has requested

GroundSure to provide the Services.

"Third Party Content" means data, database information or other information which is provided to GroundSure by a Third Party Data Provider. "User Guide" means the user guide, as amended from time to time, available upon request from GroundSure and on the website (www.GroundSure.com) and forming

nart of this Contract 2 Scope of Services, terms and conditions, requests for insurance and

quotations

Services. 2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any

out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law. implied by custom, practice or course of dealing shall be of no effect, and that this days. Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result 6.1 Subject to of the Services, GroundSure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. In addition you acknowledge and agree that GroundSure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 GroundSure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by GroundSure. GroundSure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by GroundSure. GroundSure's acceptance of an Order

shall be binding only when made in writing and signed by GroundSure's authorised representative or when accepted through the Order Website.

#### 3 The Client's obligations 3 1The Client shall comply with the terms of this Contract and

procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

 be liable to GroundSure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client

appropriate and suitable for its and/or the Reneficiary's needs

all requisite information (and the Client warrants that such information is accurate (ii) any information which is in the public domain (other than by virtue of a breach of this Contract). reasonably require in the provision of the Services including, without limitation access to the Site, facilities and equipment.

without limitation, interpreting third party and in-house environmental users, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items. given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the GroundSure Materials, or use the GroundSure Materials in a manner for which they were not intended. The Client may make the GroundSure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and "GroundSure Materials" means all materials prepared by GroundSure and provided as part of the Services, including but not limited to Third Party Content, Data accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

#### 4 Reliance

the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or

ages. time periods and scales. "Order" means an electronic, written or other order form submitted by the Client requesting Services from GroundSure in respect of a specified Site. Lasses of person and no other are entitled to rely on their contents; (i) the Beneficiary

the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as

the professional advisers and lenders of the first purchaser o

tenant of the Site

named in a Report and no other parties are entitled to rely on its contents. "Risk Screening Report" means a risk screening report comprising factual data with 4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in

Nor of certain greeport in the start of t Services does so at their own risk.

#### 5 Fees and Disbursements

5.1GroundSure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by GroundSure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together "Fees").

5.2 The Client shall pay all outstanding Fees to GroundSure in full without deduction, counterclaim or set off within 30 days of the date of GroundSure's 2.1 GroundSure agrees to provide the Services in accordance with the Contract. 2.2 GroundSure shall exercise reasonable skill and care in the provision of the the Client ("Payment Date"). Interest on late payments will accrue on a daily basis invoice or such other period as may be agreed in writing between GroundSure and from the Payment Date until the date of payment (whether before or after

ent) at the rate of 8% per annum. statement or representation made by or on behalf of GroundSure which is not set 5.3 The Client shall be deemed to have agreed the amount of any invoice unless an

2.4 The Client acknowledges that terms and conditions appearing on a Client's clause 5.2 a member of GroundSure's management team will contact the Client and order form, printed stationery or other communication, or any terms or conditions the parties shall then use all reasonable endeavours to resolve the dispute within 15

#### 6 Intellectual Property and Confidentiality

full payment of all relevant Fees and

compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, nonassignable and (save to the extent set out in this Contract) non-transferable licence to make use of the GroundSure Materials.

6.2 All Intellectual Property in the GroundSure Materials are and shall remain owned by GroundSure or GroundSure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure ledgement by the Beneficiary of, such ownership. Nothing in this Contract ackr purports to transfer or assign any rights to the Client or the Beneficiary in respec

of such Intellectual Property. 6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the GroundSure days of the Payment Date; o

(i) other proprietary marking belonging to GroundSure or any third party from the Services: (;;)

respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;

not create any product or report which is derived directly o Beneficiary may provide advice based upon the Services); (iv) not combine the Services with or incorporate such Services

into any other information data or service:

addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services):

 (vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and (vii) not copy in whole or in part by any means any map prints or

run-on copies containing content belonging to Ordnance Survey (other than that acceptance of the Order; and contained within Ordnance Survey; So Street Map) without first being in (ii) the Repo 6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the

 Control of the provided and the provided and the professional capacity.
 However, GroundSure shall have no liability in respect of any advice, opinion or
 10.1 Upon termination of the Contract: report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person to whom the Services are made available shall notify GroundSure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

#### 7.Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of GroundSure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of: (i) any breach of contract, including any deliberate breach of

the Contract by GroundSure or its employees, agents or

subcontractors;

any use made of the Reports, Services, Materials or any part of them; and

any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract. 7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract 7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation. .4 GroundSure shall not be liable for

loss of profits:

- loss of business;
- (iii) (iv) depletion of goodwill and/or similar losses; loss of anticipated savings;
- loss of goods:
- (v) (vi) (vii) loss of contract;

loss of use;

loss or corruption of data or information: (viii)

business interruption; any kind of special, indirect, consequential or pure economic

loss, costs, damages, charges or expenses;

the GroundSure Materials in breach of the Contract; loss or damage arising as a result of any error, omission or (xii) inaccuracy in any part of the GroundSure Materials where such error, omission or

Third Party Content: loss or damage to a computer, software, modem, telephone or

7.5 GroundSure's total liability in relation to or under the Contract shall be limited

to £10 million for any claim or claims. 7.6 GroundSure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of GroundSure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against GroundSure in relation to the Services or other matters arising pursuant to the Contract.

#### 8 GroundSure's right to suspend or terminate

8.1 If GroundSure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services. GroundSure shall be entitled to suspend all further performance of the ervices until such time as any such deficiency has been made good. 8.2 GroundSure shall be entitled to terminate the Contract immediately on written

the Client (being an individual) has a bankruptcy order made

not remove, suppress or modify any trade mark, copyright or against him or (being a company) shall enter into liquidation whether compulsory or against min of being a company share effect into induction where comparison of or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the use the information obtained as part of the Services in Client is struck off the Register of Companies or dissolved, or the Client being a company is unable to pay its debts within

the meaning of Section 123 of the Insolvency Act 1986 or being an individual ears unable to pay his debts within the meaning of Section 268 of the Inindirectly from the Services (save that those acting in a professional capacity to the Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or the Client or the Beneficiary breaches any term of the

Contract (including, but not limited to, the obligations in clause 4) which is incanable of remedy or if remediable, is not remedied within five days of notice of the breach. 9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services 9.2 In any event, where the Client is a consumer (and not a business) he/she hereby

expressly acknowledges and agrees that: the supply of Services under this Contract (and therefore the

formance of this Contract) commences immediately upon GroundSure's the Reports and/or Mapping provided under this Contract are

(a) supplied to the Client's specification(s) and in any event (b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

GroundSure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in

GroundSure's possession or control: and the Client shall pay to GroundSure all and any Fees payable in respect of the performance of the Services up to the date of termination or

spension. In respect of any Support Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination or suspension of the Contract 11 Anti-Briberv

11.1 The Client warrants that it shalls comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010:

comply with such of GroundSure's anti-bribery and anticorruption policies as are potified to the Client from time to time; and

 promptly report to GroundSure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract. 11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract. 12.2 The Client shall be permitted to make one copy only of each Report of

Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through GroundSure.

12.3 GroundSure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of GroundSure.

12.4 No failure on the part of GroundSure to exercise, and no delay in exercise set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

inaccuracy is caused by any Third Party Content or any reasonable interpretation of successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties)

the Client or Beneficiary's failure to provide facilities, acces

fire, storm, flood, tempest or epidemic (iii) (iv) Acts of God or the public enemy:

riot civil commotion or war

strikes, labour disputes or industrial action; acts or regulations of any governmental or other agency

(viii) (ix) any other reason beyond GroundSure's reasonable control. In the event that GroundSure is prevented from performing the Services for any

part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then GroundSure shall be entitled to terminate this Contract immediately on notice in the event that: (i) the Client fails to pay any sum due to GroundSure within 30 written notice to the Client. 12.8 Any notice provided shall be in writing and shall be deemed to be properly

given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 GroundSure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at GroundSure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law

any right, power or provision under this Contract shall operate as a waiver thereof. loss or damage that arise as a result of the use of all or part of 12.5 Save as expressly provided in this Contract, no person other than the person

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS'

other property; and (xiv) loss or damage caused by a delay or loss of use of 12.7 GroundSure shall not be liable to the Client if the provision of the Services is

or information:

(vi) suspension or delay of services at public registries by Third

Party Data Providers: changes in law; o

#### © GroundSure Limited June 2013



Rail Buildings Infrastructure Transport & Environment



Product 4 (Detailed Flood Risk) for: Rosehill Recreation Ground, Rosehill, Sutton, SM1 3HH Requested by: Robert West Consulting Reference: KSL141219EH49 Date: 24 December 2014

Contents

- Flood Map for Planning (Rivers & Sea) Confirmation
   Flood Map for Planning (Rivers & Sea) Extract
   Model Output Data
- Data Point Location Map
   Modelled Flood Outlines Map
- Recorded Flood Events Data
- Recorded Flood Events Data Map
   Surface Water
- Additional Data
- Environment Agency Standard Notice

The information provided is based on the best data available as of the date of this letter.

You may feel it is appropriate to contact our office at regular intervals, to check whether any amendments/ improvements have been made to the data for this location. Should you re-contact us after a period of time, please quote the above reference in order to help us deal with your query.

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

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH. Email: kslenquiries@environment-agency.gov.uk

Appendix E – EA Flood data



Flood Map for Planning (Rivers & Sea) Confirmation

The Flood Map for Planning (Rivers & Sea)

Our Flood Map shows the natural floodplain for areas at risk from river and tidal flooding. The floodplain is specifically mapped ignoring the presence and effect of defences. Although flood defences reduce the risk of flooding they cannot completely remove that risk as they may be over topped or breached during a flood event.

The Flood Map indicates areas with a 1% (0.5% in tidal areas), Annual Exceedance Probability (AEP) - the probability of a flood of a particular magnitude, or greater, occurring in any given year, and a 0.1% AEP of flooding from rivers and/or the sea in any given year. The map also shows the location of some flood defences and the areas that benefit from them.

The Flood Map is intended to act as a guide to indicate the potential risk of flooding. When producing it we use the best data available to us at the time, taking into account historic flooding and local knowledge. The Flood Map is updated on a quartery basis to account for any amendments required. These amendments are then displayed on the internet at www.environment-agency.gov.uk.

At this Site:

The Flood Map shows that this site;

lies partially within the outline of the 0.1% and 1% chance of flooding from rivers in any given year.

Enclosed is an extract of our Flood Map which shows this information for your area.

#### Method of production

The Flood Map at this location has been derived using the detailed fluvial Beverley Brook 2D Flood Risk Mapping Study, completed in 2008 by Royal Haskoning.

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH. Email: kslenquiries@environment-agency.gov.uk



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#### Model Output Data

You have requested flood levels for various return periods at this location.

2D The modelled flood levels for the closest most appropriate model grid cells, any additional information you may need to know about the modelling from which they are derived and/or any specific use or health warning for their use are set out below.

Using a 2D TuFLOW model the floodplain has been represented as a grid. The flood water levels have been calculated for each grid cell.

A map showing the location of the points from which the data is taken is enclosed. Please note you should read the notice enclosed for your specific use rights.

Environment Agency

#### Table 1: Modelled Undefended and Defended Flood Levels

			Modelled Flood Level for Annual Exceedance Probability Shown, in Metres AOD								
Node ID	de ID Easting Northing		usting Northing 1% AEP 0.1% Undefended Unde		20% AEP Defended	20% AEP 5% AEP Defended		1% AEP Defended	1% AEP plus climate change Defended		
0	525662	166152	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
1	525891	166342	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
2	525874	166112	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
3	525778	165989	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
4	525841	165932	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
5	525820	165804	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
6	525781	165881	33.57	33.67	N/A	33.51	33.55	33.57	33.60		

Data taken from the Beverley Brook 2D Flood Risk Mapping Study, completed in 2008 by Royal Haskoning.

There are no health warnings or additional information for these levels or the model from which they were produced.

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH. Email: kslenquiries@environment-agency.gov.uk



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April 2015

Defence Details

There are no formal flood defences owned or maintained by the Environment Agency in the area of this site.

#### Recorded Flood Events Data



We hold records of historic flood events from rivers and the sea. Information on the floods that may have affected the area local to your site are provided below and in the enclosed map (if relevant).

Flood Event Data

Environment Agency

Dates of historic flood events in this area - September 1968

Please note that our records are not comprehensive. We would therefore advise that you make further enquiries locally with specific reference to flooding at this location. You should consider contacting the relevant Local Planning Authority and/or water/sewerage undertaker for the area.

We map flooding to land, not individual properties. Our historic flood event record outlines are an indication of the geographical extent of an observed flood event. Our historic flood event outlines do not give any indication of flood levels for individual properties. They also do not imply that any property within the outline has flooded internally.

Please be aware that flooding can come from different sources. Examples of these are:

- from rivers or the sea;

Invit invers or the S8a;
 surface water (i.e. rainwater flowing over or accumulating on the ground before it is able to enter rivers or the drainage system);
 overflowing or backing up of sewer or drainage systems which have been overwhelmed,
 groundwater rising up from underground aquifers

Currently the Environment Agency can only supply flood risk data relating to the chance of flooding from rivers or the sea. However you should be aware that in recent years, there has been an increase in flood damage caused by surface water flooding or drainage systems that have been overwhelmed.

### Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH. Email: kslenquiries@environment-agency.gov.uk

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH. Email: kslenquiries@environment-agency.gov.uk



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#### Additional Information

#### Use of Environment Agency Information for Flood Risk / Flood Consequence Assessments

Important If you have requested this information to help inform a development proposal, then we recommend that you undertake a formal preapplication enquiry using the form available from our website:

#### https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

Depending on the enquiry, we may also provide advice on other issues related to our responsibilities including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

In England, you should refer to the Environment Agency's Flood Risk Standing Advice, the National Planning Policy Framework and the technical guidance to the National Planning Policy Framework for information about what flood risk assessment is needed for new development in the different Flood Zones. These documents can be accessed via:

https://www.gov.uk/flood-risk-standing-advice-frsa-for-local-planning-authorities http://planningguidance.planningportal.gov.uk/

You should also consult the Strategic Flood Risk Assessment produced by your local planning authority.

#### You should note that:

- 1. Information supplied by the Environment Agency may be used to assist in producing a Flood Risk / Consequence Assessment (FRA / FCA) where one is required, but does not constitute such an assessment on its own.
- This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or overland runoff. The information produced by the local planning authority referred to above may assist here.
- 3. Where a planning application requires a FRA / FCA and this is not submitted or deficient, the Environment Agency may well raise an objection.
- 4. For more significant proposals in higher flood risk areas, we would be pleased to discuss details with you ahead of making any planning application, and you should also discuss the matter with your local planning authority.

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH. Email: kslenquiries@environment-agency.gov.uk





#### Surface Water

We have provided two national Surface Water maps, under our Strategic Overview for flooding, to your Lead Local Flood Authority – Sutton London Borough, who are responsible for local flood risk (i.e. surface runoff, ground water and ordinary waterourse), which alongside their existing local information will help them in determining what best perpresents surface water flood risk in your area.

You may also wish to consider contacting the appropriate relevant Local Planning Authority and/or water/sewerage undertaker for the area. They may be able to provide some knowledge on the risk of flooding from other sources. We are working with these organisations to improve knowledge and understanding of surface water flooding.

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH. Email: kslenguiries@environment-agency.gov.uk Standard Notice [not for use with Special Data, Personal Data or unlicensed 3" party rights]

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Rail Buildings Infrastructure Transport & Environment

Appendix F - Groundwater flood records





Rail Buildings Infrastructure Transport & Environment

Appendix G - Thames Water data





Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert	Manh
0301	S	44.93	43.37	1.56	1404
0303	F	-	-	-	1405
0304	F	-	-	-	1406
0305	F	-	-	-	1407
0306	F	-	-	-	141B
0307	F	-	-	-	141C
0308	S	-	-	-	141D
03AG	F	-	-	-	141E
0401	S	-	-	-	141F
0403	S	-	-	-	141G
0404	S	-	-	-	14AF
0405	S	46.03	43.9	2.13	14AI
0406	S	45.75	43.59	2.16	14AJ
0407	F	-	-	-	1501
0408	F	-	-	-	1502
0409	F	30.71	29.56	1.15	151C
0410	F	27.69	26.77	0.92	15AC
0411	F	-	-	-	15AD
0412	F	-	-	-	7201
0413	F	-	-	-	7301
0414	F	-	-	-	7302
0415	F	-	-	-	7303
0416	F	-	-	-	7304
0417	F	-	-	-	7305
0418	F	-	-	-	7306
0419	S	-	-	-	7401
041A	F	-	-	-	7402
0420	S	-	-	-	7403
0421	S	-	-	-	7404
0422	S	-	-	-	7405
04BE	F	-	-	-	7406
04BF	F	-	-	-	8401
04BG	F	-	-	-	8402
04B.I	F	-	-	-	8403
04CA	F	-	-	-	8404
04CB	F	-	-	-	9202
04CC	F	-	-	-	9301
0501	F	-	-	-	9401
0503	S	-	-	-	9402
0512	F	-	-	-	9403
0513	S	-	-	-	9501
1301	s	47 81	45.82	1 99	9502
1302	S	46.67	44 61	2.06	0002
1303	F	31.84	30.38	1.46	
1304	F	31.23	30.01	1.22	
13AG	F	-	-	-	
13AI	F	-	-	_	
13A.I	F	-	-	-	
1402	S		-	-	
1403	s	-	-	-	
	~				

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
1404	F	-	-	-
1405	S	-	-	-
1406	F	-	-	-
1407	F	-	-	-
141B	F	-	-	-
141C	F	-	-	-
141D	F	-	-	-
141E	F	-	-	-
141F	F	-	-	1.5
141G	F	-	-	-
14AF	F	-	-	-
14AI	F	-	-	-
14AJ	F	-	-	-
1501	S	-	-	-
1502	F	-	-	-
151C	F	-	-	-
15AC	F	-	-	-
15AD	F	-	-	-
7201	S	-	-	-
7301	S	-	-	-
7302	s	-	-	-
7303	s	-	-	-
7304	s	-	-	-
7305	S	-	-	-
7306	F	-	-	-
7401	S	-	-	-
7402	S	-	-	-
7403	S	-	-	-
7404	F	-	-	-
7405	F	-	-	-
7406	F	-	-	-
8401	s	-	-	-
8402	S	-	-	-
8403	S	-	-	-
8404	F	-	_	-
0707 0202	F	1	-	_
0202	۱ د	40.55	29.0	1.65
9301	0	40.55	30.9	1.05
9407	0			
9402	9	-	-	-
9501	0			
9501	0			
3302	3	-	-	-
		1		

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert





Manhole Reference	e Liquid Type	Cover Level	Invert Level	Depth to Invert	Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert	Manhole Refer	ence Liquid Type	Cover Level	Invert Level	Depth to Inver
0002	S	-	-	-										
0008	F	-	-	-										_
5121	F	-	-	-										_
5122	F		-	-										_
5122	F	-	-	-										
5201	S	-	-	-										
5207	S	1	_	-										_
5205	F	-	_	-										
5205	F	-	_	-										
5200	F	-	-	-										_
5207	5													-
6101	S	-	-	-										_
6102	9	-	-	-										
6102	9	-	-	-										
6106	5	-	-	-										
0100	F	-	-	-										
6202	0	-	-	-										
6202	5	-	-	-										
0203	3	-	-	-								-		
6204	5	-	-	-										
6205	5	-	-	-										
6206	F	-	-	-										
6207	F	-	-	-										
6208	S	-	-	-										
62AI	F	-	-	-										
6301	S	-	-	-										
6306	F	-	-	-										
7001	F	-	-	-										
7101	S	-	-	-										
7102	F	-	-	-										
7201	S	-	-	-										
7303	S	-	-	-										
9101	S	-	-	-										
9102	S	-	-	-										
9103	S	-	-	-										
9106	F	-	-	-										
9107	F	-	-	-										
9108	F	-	-	-										
9201	F	-	-	-										
9202	F	-	-	-										
9301	S	40.55	38.9	1.65										




Manhole Refer	ence Liquid Type	Cover Level	Invert Level	Depth to Invert	Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert	Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to In
4010	F	-	-	-	9903	F	-	-	-					
5007	S	-	-	-										
5010	F	-	-	-										
5011	F	-	-	-										
5015	F	-	-	-										
5014	F	-	-	-										
01B	F	-	-	-										
501C	F	-	-	-										
101	S	-	-	-										
104	S	-	-	-										
109	S	-	-	-										
120	F	-	-	-										
121	F	-	-	-										
122	F	-	-	-										
123	F		-	-										
132	F	-	-	_										
201	S		-	_										
207	F		-	-										
901	S		-	-										
202	S		-	_										
902 005	5	-	-	-										
000		-	-	-										
007		-	-	-										
000		-	-	-										
10		-	-	-										
910 011	с С	-	-	-										
	5	-	-	-										
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101	۱ د	-	-	-										
101	<u> </u>	-	-	-										
102	0	-	-	-										
106	E	-	-	-										
100	F	-	-											
101	1 C	-	-	-										
102	F	-	-											
203	F	-	-	-										
101	1 S	-	-	-										
04	5	-	-	-										
0- <del>1</del>	F	-	-	-										
01	C C	-	-	-										
00	0	-	-	-										
02	3	-	-	-										
00	ی ۲	-	-	-										
007	F	-	-	-										
107	F	-	-	-										
108	F	-	-	-										
201	F	-	-	-										
902	F	-	-	-										





Manhole Refer	rence Liquid Type	Cover Level	Invert Level	Depth to Invert	Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert		Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to In
4905	S				9902	F	-	-	-	L					
4909	F	-	-	-	9903	F	-	-	-	-					-
5701	S	-	-	-						-					
702	S		-	-						-					
707	F	-	-	-						-					
708	F	-	-	-						-					
709	F	-	-	-						-					
710	F	-	-	-						-					
713	F	-	-	-						-					
714	F	-	-	-						-					
71Δ	F		-	-						-					
71R	F	-	-	-						-					
101	S	-	-	-						-					
802	F			-						-					
804	F		-	-						-					-
205	F	-	_	-						-					
206	1 Q	-	-	-						-					
R1Δ	F	-	-	-						-					
1B	F	-	-	-						-					
10	F	-	-	-						-					
	F	-	-	-						-					
01	r e	-	-	-						-					
02	0	-	-	-						-					
02	5	-	-	-						-					
000	r r	-	-	-						-					
007	F	-	-	-						-					
007	r r	-	-	-						-					
000	r r	-	-	-						-					
909 010	F	-	-	-						-					
910 014	r e	-	-	-						-					
211	5	-	-	-						-					
	F	-	-	-						-					
	F	-	-	-						-					
	F	-	-	-						-					
	F	-	-	-						-					
01	r e	-	-	-						-					
01	3	-	-	-						-					
02	5	-	-	-						-					
103	F	-	-	-						-					-
104 701	F	-	-	-						-					
01	5	-	-	-						-					-
03	F	-	-	-						-					-
J4 D2	F	-	-	-						-					-
02	F	-	-	-						-					
01	5	-	-	-						-					
01	5	-	-	-						-					
06	F	-	-	-						-					
07	F	-	-	-						-					
01	S	-	-	-						-					
303	F	-	-	-						-					
J01	S	-	-	-											1





Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert	M
061A	F	-	-	-	85
0702	S	-	-	-	85
501B	S	-	-	-	85
5502	s	-	-	-	85
5503	S	-	-	-	85
5504	S	-	-	-	85
5506	F	-	-	-	85
5507	F	-	-	-	86
5508	F	-	-	-	86
5509	F	-	-	-	86
5514	F	43.86	42.4	1.46	86
5516	S	43.87	42.16	1.71	86
5517	S	43.73	42.09	1.64	86
5519	S	-	41.36	-	86
551A	F	-	-	-	86
5601	s	-	-	-	86
5602	S	-	-	-	87
5605	F	-	-	-	87
5606	F	-	-	-	87
5607	F	-	-	-	9!
5608	F	-	-	-	95
561B	F	-	-	-	95
561D	F	-	-	-	95
561E	F	-	-	-	95
5701	s	-	-	-	94
5702	S	-	-	_	94
5703	S	-	-	-	95
5704	S	-	-	_	94
5707	F	-	-	-	95
5708	F	-	-	-	95
5709	F	-	-	-	96
5710	F	-	-	-	96
5713	F	-	-	-	96
5714	F	-	-	-	96
5714	F	-	-	-	96
571B	F	-	-	-	96
601A	S	-	-	-	96
651A	F	-	-	-	96
651B	F	-	-	-	96
6601	s.	-	-	-	96
6602	F	-	-	-	96
7601	S	-	-	-	96
7602	F	-	-	-	97
8501	S	-	-	-	97
8502	s	-	-	-	97
8503	s	-	-	-	9
8504	S	-	-	-	97
8505	s	-	-	-	97
8508	F	-	-	-	01
8509	F	39.78	35.69	4.09	
1		1.1.1.1.1			

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
8510	F	40.67	37.31	3.36
8511	F	40.7	37.81	2.89
8513	F	41.34	38.98	2.36
8514	F	40.87	38.94	1.93
8515	F	-	-	-
85BG	F	-	-	-
85BH	F	-	-	-
8602	S	-	-	-
8603	S	-	-	-
8604	S	-	-	-
8605	F	-	-	-
8606	F	-	-	-
8608	F	-	-	-
8609	F	-	-	-
8610	F	-	-	-
8611	S	-	-	-
8701	S	-	-	-
8703	F	-	-	-
8704	F	-	-	-
9501	S	-	-	-
9502	S	-	-	-
9504	F	-	-	-
9505	F	-	-	-
951A	F	-	-	-
951B	F	-	-	-
951C	F	-	-	-
951D	F	-	-	-
951E	F	-	-	-
951H	F	-	-	-
95AG	F	-	-	-
9601	S	-	-	-
9602	S	-	-	-
9604	F	-	-	-
9605	F	-	-	-
9607	F	-	-	-
9608	F	-	-	-
9609	S	-	-	-
961A	F	-	-	-
961B	F	-	-	-
961C	F	-	-	-
961D	F	-	-	-
961E	F	-	-	-
9701	S	-	-	-
9704	F	-	-	-
9705	F	-	-	-
9706	F	-	-	-
9707	F	-	-	-
971A	F	-	-	-

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert



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Registered in England and Wales No. 2366651, Registered office Clearwater Court, Vastern Road Reading RG1 8DB

Page 2 of 3

## Sewer Flooding History Enquiry



#### History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public severs.

#### For your guidance:

- A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- "At Risk" properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0800 316 9800 or website www.thameswater.co.uk

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Rail Buildings Infrastructure Transport & Environment

Appendix H – SWMP plans





Robert West Rail Buildings Infrastructure **Transport & Environment** Appendix J – Drainage Strategy 4723/001/RP01

### Appendix



Checked by



READY to DIG

#### Ready to Dig - Utility Search Service Maria-Ilena Barcellona Customer: ATKINS Company: Order Number: 34353 Site Name: Rosehill, Sutton Date of Order: 06/11/2014 Date of Issue: 03/12/2014 Thank you for using our Ready to Dig Utility Search Service. This report has been completed in accordance with the standards defined under Survey Category D of PAS128, a Publicly Available Specification for underground utility detection, verification and location published by the British Standards Institution. Positional accuracy of plant is not guaranteed from information presented in a desktop search alone and the location of underground utilities should be verified through other means prior to breaking ground. Information relating to the presence of Radio Frequency Identification Devices (RFIDs) has been requested from relevant utility companies or taken from mapping systems where available. Utility companies who have not responded to enquiries are referenced on the enclosed Status Report accordingly. Their response will be chased and forwarded on as per our standard terms and conditions. Whilst we cannot guarantee that a utility company will respond to our enquiries, we endeavour to obtain responses from those that have not responded. Any responses contained within this report have been obtained between the date of the order and the date of issue. If you want to discuss your report further with us please contact our team on 01454 663222 or stat.enguiries@atkinsglobal.com. We also offer a range of additional utility services, including an Overview Map which collates all the affected utilities on one plan. Our Utility Management Solutions team can also assist with diversionary works, new connections and utility feasibility reports. For more information, contact our account managers on 01436 462747 or <u>UMS exitins(lobal.com</u>.



Request Status Report	V3	34353
Rosehill, Sutton		
OSGR: 525847,166054		SM1 3EX
Date Requested: 06-Nov-2014		Client Reference:
		New School Feasibility Study

#### Affected Utilities We have received plans/information from the following companies. Please see the enclosed response.

Utility	Category	Date Issued	Late Response Issue Date	Notes
British Telecommunications plc	Telecom	03 Dec 14		
Environment Agency	Other	03 Dec 14		See response.
LinesearchbeforeUdig	Pipeline	03 Dec 14		National Grid Gas (above 2 bar) and National Grid Electricity Transmission - affected. See separate response.
London Underground, AP Power Maintenance	Rail	03 Dec 14		See response.
National Grid Gas (above 2 bar) and National Grid Electricity Transmission	Gas & Electricity	03 Dec 14		
Network Rail	Rail	03 Dec 14		
Southern Gas Networks (Scotia)	Gas	03 Dec 14		
Sutton and East Surrey Water Plc	Water	03 Dec 14		
Thames Water Utilities Ltd	Water and / or Sewer	03 Dec 14		Sewer only.
Transport For London	Other	03 Dec 14		
UK Power Networks	Electric	03 Dec 14		Paper plans sent in post.
Virgin Media	Telecom	03 Dec 14		

#### **No response received** We are still awaiting a full response from the following companies.

Utility	Category	Date Issued	Late Response Issue Date	Notes
London Borough of Sutton	Council			
Vtesse Networks Ltd	Telecom			

\*You have ordered a report without Viesse Networks Lud plans at your request. Our standard service does not include a search of Viesse Networks Lud's telecommunications fibre plant in light of data that has shown their plant is affected in less than 1% of searches. Our experience of working with them has shown the majority of their libre is within other licensed operators ducing, that we do search, and their plant is nationwide, and very sparse. A search of Viesse Network Lud's plant will cost a minimum of £55 + VAT for areas of 250m radius or less, for areas larger than this prices will be considerably higher and are only available on application to Viesse. You will be charged for a Viesse search if they are affected or unaffected and we do not believe that a search of their network is cost effective relative to the risk to warrant a place in our standard search. If you have decided you would like to purchase a Viesse search is us on stant and use only available on applications.

### Request Status Report

34353

Not affected utilities We have received a not affected/no plant present response from the following companies.

Utility	Category	Date Issued	Late Response Issue Date	Notes
BskyB (Easynet)	Telecom	03 Dec 14		
C.A. Telecom UK Ltd - [COLT]	Telecom	03 Dec 14		
CityFibre Holdings Ltd	Telecom	03 Dec 14		
Energetics	Electric, Gas & Water	03 Dec 14		
Fulcrum Pipelines	Pipeline	03 Dec 14		
GTC [includes Envoy]	Electric, Water, Fibre, Gas, Pipeline	03 Dec 14		
Instalcom Ltd	Telecom	03 Dec 14		
Interoute (Ringway/Beach/51 degrees/Plancast)	Telecom	03 Dec 14		
KCOM Group PLC	Telecom	03 Dec 14		
London Tramlink	Other	03 Dec 14		
London Underground Ltd	Other	03 Dec 14		
McNicholas [KPN Networks]	Telecom		18 Dec 14	
McNicholas [TATA Networks]	Telecom		18 Dec 14	
SSE	Electric, Gas & Telecom	03 Dec 14		Website used.
Telent on behalf of Teliasonera	Telecom		12 Dec 14	
TrafficMaster Plc	Other	03 Dec 14		Website used.
Verizon Business	Telecom	03 Dec 14		
Vodafone Limited	Telecom	03 Dec 14		

**V**3

#### Checked and Validated By Chrissy Elliott

Date 03 December 2014

alliett

Our standard service does not include a search of Mobile Broadband Network Ltd (MBNL) plant which is managed by Ericsson Ltd. Ericsson Ltd. Ericsson Ltd. Ericsson Ltd. Seriesson Ltd. Ericsson Ltd. Seriesson Ltd. Ericsson Ltd.

The locations below are NOT AFFECTED by KPN & TATA apparatus.

#### McGrath, Claire

From:	Sandra Lakin <sandra.lakin@mcnicholas.co.uk></sandra.lakin@mcnicholas.co.uk>
Sent:	12 December 2014 14:19
To:	Statutory Enquiries
Subject:	34359/34355/34356/34344/34352/34353/34351/34357/34366/34360/34361/34367
-	FW: PLANT ENQUIRY RESPONSES - NOT AFFECTED - KPN & TATA

Our team. Your solution.

McNicholas Construction Services Ltd. Registered in England No. 1510892. Our registered office is at Lismirrane Ind Park, Elstree Road, Elstree, WD6 3EA

DISCLAIMER: The information contained in this email is intended for the named recipient only. It may contain confidential information. If you are not the intended recipient, you must not copy, distribute or take any action in reliance on it. Please note that neither McNichdas Construction Services Ltd nor the sender accepts any responsibility for viruses and it is your responsibility for scan attachments (if any).

The IS team in Atkins has scanned this email and any attachments for viruses and other threats; however no technology can be guaranteed to detect all threats. Always exercise caution before acting on the content of an email and before opening attachments or following links contained within the email.

34359/PS	Atkins Global	Eaves Lane, Stoke-on-Trent, ST2 8LW
34354/NR	Atkins Global	Barnhall Road, Layer Marney, Colchester, CO5 0JA-CM9 8HE-CM9 8HF
34355/NVS	Atkins Global	Wogaston Angle, Pembrokeshire, SA71 5AA
34356/RCN	Atkins Global	Firhill Timber Basin, Glasgow, G20 7BB
34344/NVS	Atkins Global	Beechtree Farm Close, Knutsford, WA16 6NS
34352/NR	Atkins Global	Second Way, Wembley, HA9 0TU
34353/RCN	Atkins Global	Rosehill, Sutton, SM1 3EX
34351/NVS	Atkins Global	Weather Oaks, Harborne, Birmingham, B17 9DD
34357/NVS	Atkins Global	Druids Lane, Birmingham, B14 5SN
34365/NR	Atkins Global	Hamilton Lane, Scraptoft, Charnwood, Leicestershire, LE5 1QF
34366/PS	Atkins Global	Kingswood, King Ride, Ascot, Berkshire, SL5 8AD
34362/NR	Atkins Global	Offenham Road, Evesham, Worcestshire, WR11 3EB
34363/PS	Atkins Global	Cheltenham Road, Stanton, Broadway, Worcestshire, WR12 7ND
34360/NVS	Atkins Global	Kenstone Cresecent, Idle, Bradford, BD10 8PU
34361/PS	Atkins Global	Pinewood Close, Salisbury, Wiltshire, SP2 9HZ
34358/NR	Atkins Global	Church Lane, London, NW9 8JT
34371/SA	Atkins Global	Burrowton Farm, Broadclyst, Exeter, EX5 3DA
34370/SA	Atkins Global	Llangattock, Powys, NP8 1LZ
34367/AB	Atkins Global	Brocketbraes Road, Lesmahagow, ML11 9PT

Please quote these references on any correspondence.

#### Please note:

McNicholas, on behalf of our client, accept no liability for claims arising from inaccuracies, omissions or errors contained within your plant enquiry request.

1

If you require further information please do not hesitate to contact us.

Kind Regards,



#### McNicholas Plant Enguiry Team

Telephone – 0330 055 8466/8469 Facsimile – 01923 802704

Website - www.mcnicholas.co.uk

2



telent Crompton Close Basildon Essex SS14 3BA United Kingdom

Telephone: +44 (0)800 526 015 Facsimile: +44 (0)1268 507 569

www.telent.com

Date 05/12/2014 Our Ref LPENQ000063255

Dear Sir/Madam

#### Teliasonera Line Plant Enquiry.

Thank you for your correspondence enclosing details of your proposals as per your reference below:

#### 34353/RCN - Rosehill. Sutton

Our client's apparatus, Teliasonera, is not located within the vicinity of the above reference and we therefore have no further interest in this current location.

Please note that all enquiries relating to the Teliasonera line plant should be forwarded to:

By post – to,	telent,
	Teliasonera line plant enquiries,
	Crompton Close,
	Basildon,
	Essex
	SS14 3BA
By email - to,	telenttelia.plantenquiries@telent.com
By phone – to,	0800 526 015
Yours faithfully	
Telent CCO	
Basildon	

To who			
			To who

From:	Harris, Emma [emma.harris@environment-agency.gov.uk] on behalf of KSL Enquiries
	[KSLE@environment-agency.gov.uk]
Sent:	Monday, November 17, 2014 9:36 PM
To:	Statutory Enquiries
Subject:	KSL141117 EH65 - RE: 141011/NE08 FW: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton
Attachments:	FD002-Guidance notes for the Flood Defence Consent application form.pdf; FD001-
Attachments:	Application form for Flood Defence Consent.pdf; Standard Notice 2012.pdf

Dear Roshith

Thank you for your recent consultation regarding the site at Rosehill, Sutton.

Although the Environment Agency is classed as a statutory undertaker for certain purposes we do not generally have plant equipment or pipelines situated in the public highway. Our consent as a regulator may be required if you are intending to carry out work within 8 metres of a Main River as defined in the Water Resources Act 1991 or within 16 metres of the Tidal Thames.

Under the terms of the Water Resources Act 1991, and the Land Drainage Byelaws 1981, the prior written consent of the Environment Agency is required for any proposed works or structures, in, under, over or within 8 metres of the top of the bank of a 'main river'.

Please find an application form for a Flood Defence Consent attached.

This reply has been drafted without conducting a specific search of our records. If you have reason to think that your proposal will affect land or equipment which we own please resubmit your enquiry making this clear.

I hope that we have correctly interpreted your request. Please see the attached Notice for details of permitted use.

I trust the attached information is of use for your current requirements. If you require any further assistance please do not hesitate to get in touch.

If you have any further queries or if you'd like us to review the information we have provided under the Freedom of Information Act 2000 and Environmental Information Regulations 2004 please contact us within two months and we will happily do this for you.

We would be grateful if you could provide us with feedback about our service.

Yours sincerely

Emma Harris Environment Agency kslenquiries@environment-agency.gov.uk

From: CN, Roshith [mailto:Roshith.CN@atkinsglobal.com] On Behalf Of Statutory Enquiries Sent: 10 November 2014 06:26 To: National Plant Enguiry's; 'Easynet'; Enguiries, Unit; 'Interoute'; 'McNic'; 'Global Crosing New'; 'Networkrail'; 'Telenttelia.Plantenguiries@telent.com'; 'verizonbusiness'; 'plantenguiries@energetics-uk.com'; 'plantenquiries@cityfibreholdings.com'; 'plantenquiries@catelecomuk.com'; plantenquiries@ismconstruction.com; plantenquiries@tfl.gov.uk; LULHVpowerassets@tfl.gov.uk; ltassetrequest@tfl.gov.uk Subject: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

1

om it may concern,



89 07 SD02, Version 6

Standard notice [not for use with Special Data, Personal Data or unlicensed 3rd party rights]

### Information warning



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- adapt the Information
- exploit the Information commercially, for example, by combining it with other Information, or by including it in your own product or application

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- acknowledge the source of the Information by including the following attribution statement: "Contains Environment Agency information © Environment Agency and database right"
- ensure that you do not use the Information in a way that suggests any official status or that We endorse you or your use of the Information
- ensure that you do not mislead others or misrepresent the Information or its source or use the Information in a way that is detrimental to the environment, including the risk of reduced future enhancement
- ensure that your use of the Information does not breach the Data Protection Act 1998 or the Privacy
- and Electronic Communications (EC Directive) Regulations 2003

These are important conditions and if you fail to comply with them the rights granted to you under this licence, or any similar licence granted by us will end automatically.

#### No warranty

The Information is licensed 'as is' and We exclude all representations, warranties, obligations and liabilities in relation to the Information to the maximum extent permitted by law. We are not liable for any errors or omissions in the Information and shall not be liable for any loss, injury or damage of any kind caused by its use. We do not guarantee the continued supply of the Information.

#### Governing Law

This licence is governed by the laws of England and Wales.

#### Definitions

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#### "Commercial" means:

- offering a product or service containing the Information, or any adaptation of it, for a charge, or
- internal use for any purpose, or offering a product or service based on the Information for indirect commercial advantage, by an organisation that is primarily engaged in trade, commerce or a profession.

#### Form guidance FD 002: Application for flood defence consent - guidance notes

#### Application for flood defence consent

Please read through these guidance notes and the

application form carefully before you fill the form

If you are not sure about anything in these guidance notes

03708 506 506 between 8am and 6pm, Monday to Friday.

your application for flood defence consent for works

affecting main river or sea defences. If you fill in your

application form correctly first time, we can process it

Before filling in this form you should contact us for advice

on your proposal. Under the Water Resource Act 1991, you

need consent for any works in, over, under or near any main

river watercourse or flood defence (including sea defences).

There is a charge of £50 for each structure or operation for

please contact the person who sent it to you or phone us on

These guidance notes give you information to help you fill in

Guidance notes

Introduction

in.

auicker.



Please follow this guidance to help avoid delays in your application

- Contents
- Applicant details Agent details
- Your interest in the land Location of the proposed works h
- Description and purpose of the proposed works
- Plans and sections
- Construction details
- Other Environment Agency interests 8
- Other authority permissions 10 Maintaining the structure
- 11 Effects on the environment
- 12 Water Framework Directive (WFD) assessment

the national grid Reference (12 figures); and

We also need to make sure that your application is for works on

a 'designated main river'. You should contact us to check this

5 Description and purpose of the proposed

It is important that you accurately describe the proposals in

To consider your proposals we need to receive plans and

drawings, ideally drawn by a competent engineer or surveyor,

You need to give us a copy of all relevant drawings. You can

showing Ordnance Datum Newlyn (the height above sea level).

send these electronically by email (pdf format) or by hard copy.

The drawings must be no larger than A0 size, and they need to

This should be at an appropriate scale and be based on an

Ordnance Survey map. It must clearly show the general

location of the site and include general features. It must

also identify the watercourse or other bodies of water in

the number of structures you need consent for.

your application. Please tell us the purpose of the works and

- 13 Fees
- 14 Checklist
- 15 The Data Protection Act 1998 16 Declaration
- 17 Next steps

a site location plan.

works

before filling in your application.

6 Plans and sections

include the following.

the surrounding area.

your proposals;

Site plan (general arrangement)

You must provide a plan of the site showing:

- the existing site, including any watercourse;

• Location plan

applications made under the Water Resource Act 1991. We have two months to make a decision on your application.

#### 1 Applicant details

This is the name of the individual, organisation or company applying for consent. This should be given along with the name, address and telephone number of a person who can be contacted to discuss the proposals.

You must give us your full UK address. The address you give here will be the address we register your flood defence consent to and will be shown on any flood defence consent we grant.

#### 2 Agent details

- You can choose someone other than the person named on any flood defence consent (for example, a consultant or agent to act on your behalf). You need to give us your or the relevant person's full name, address and contact details.
- If you fill in this section, we will send all correspondence to the agent. Leave it blank if it does not apply to you.

#### 3 Your interest in the land

We need to know what interest you have in the land where the works will be carried out (for example, whether you are the landowner or tenant). If any work will be carried out on land that you do not own, you will need permission from whoever owns the land.

#### 4 Location of the proposed works

We need to be able to easily identify where the proposed works will be carried out. Please give details of:

- the location of the site;
- the name of the watercourse

FD 002 Version 1, May 2012

#### 127



#### Form guidance FD 002: Application for flood defence consent – guidance notes

- the position of any structures which may influence local river hydraulics, including bridges, pipes and ducts, ways of crossing the watercourse, culverts and screens, embankments, walls, outfalls and so on; and
- existing fish passes or structures intended to allow fish to pass upstream and downstream.

The plan should be drawn to an appropriate scale, which must be clearly stated.

#### • Cross sections

Where works encroach into any watercourse, you should provide cross sections both upstream and downstream of the proposed works. Cross sections should be drawn as if looking downstream on the watercourse and should include details of existing and proposed features and water levels.

#### Longitudinal sections

We need longitudinal sections taken along the centre line of the watercourse. These must show the existing and proposed features including water levels, bed levels and structures. They should extend both upstream and downstream of the proposed work.

#### Detailed drawings

•

These are to show details of the existing and proposed features such as the following.

- The location of any proposed service pipes or cables which may affect the future maintenance of the watercourse.
- Details of any tree, shrub, hedgerow, pond or wetland area that may be affected by the proposed works.
- Details of any planting or seeding.
- Dams and weirs. (We need a plan showing the extent of the water impounded (held back) under normal and flood conditions so that we can assess the possible effect on land next to the river.)

#### 7 Construction details

You may need separate consents for the permanent works and any temporary works that do not form part of the permanent works. In some cases, it may be possible to apply for both the permanent works and temporary works within one application.

Temporary works could include, for example, scaffolding, cofferdams (watertight enclosures) across a watercourse, or temporary diversions of water while work is carried out.

For any temporary work, we need to know how you are proposing to carry out the work. So you need to send us a **'method statement'** that includes measures you plan to take to minimise disruption and reduce any unwanted effects while the work is being carried out. Please see our 'Guide for contractors working on watercourses', available on our website.

We need to know when you are proposing to carry out the work and how long you think it will take. When you are planning the work you need to make sure that you have allowed enough time for us to consider your application.

#### 8 Other Environment Agency interests

Please tick the appropriate boxes.

If you answer, yes, to any of the questions, you will probably need extra licences or consents from us before you start work.

You should make sure that you have enough time to get all approvals you need before you start work. If you don't, this could delay the work.

#### 9 Other authority permissions

Please provide details of any planning permission you may have or are applying for that relates to this proposal.

#### 10 Maintaining the structure

We need to know who will be responsible for maintenance both during construction work and after the work has finished.

#### 11 Effects on the environment

We have a legal duty to protect and improve the environment, so we must consider the environmental effects of your proposal.

You may need to carry out an environmental appraisal to assess the effects of your work. You should contact us before you send us your application so that we can advise you on this. If you don't, your application could be delayed.

Your environmental appraisal should identify and consider all likely effects on the environment. You should consider the direct and indirect effects the work has on sites and features of interest and species of particular value.

Include any specific measures you plan to minimise any disruption and reduce any unwanted effects while the work is ongoing.

Set out any opportunities for you to improve the environmental value of the site. This may include creating water features, planting trees and shrubs that would normally grow at the site, providing bird nesting boxes or creating sustainable places for wildlife to live.

If as part of a planning permission we have asked for an environmental appraisal, you must send it to us with all the other supporting documents we need.

If your site falls within, is next to or is linked to a nature conservation site, contact us as soon as possible to discuss your proposals before you send us your application.

Under the European Habitats Regulations, we must make sure that Flood Defence Consent does not have a direct or indirect negative effect on any site specified in the regulations, including:

- sites of special scientific interest (SSSIs)
- designated special areas of conservation (SACs);
- special protection areas (SPAs);
- listed RAMSAR sites; and
- scheduled ancient monuments (SAMs)

Under the Habitats Regulations, we must consult Natural England or the Countryside Council for Wales (or CADW in the case of ancient monuments).

You may want to contact these organisations yourself to get their views on your proposal.

#### 12 Water Framework Directive (WFD) assessment

It is important that as part of the application process your proposals are assessed to see if they keep to the aims of the Water Framework Directive (WFD).

#### Form guidance FD 002: Application for flood defence consent - guidance notes

A proposal included in a consent application might cause a water body to deteriorate in status or prevent its ecological objectives from being met.

To achieve the goals of the WFD, we must make sure any new scheme or activity is assessed for keeping to the WFD. You must contact your area teams to discuss any requirement to carry out a WFD assessment before you send us your application.

Please see our 'living on the edge' document for more information on the Water Framework Directive.

#### 13 Fees

The fee for Flood Defence Consent, where charged, is  $\pm$ 50 per structure. Please contact us before you send us this application for confirmation of the appropriate fee.

We cannot charge for application for consent in relation to its Byelaws.

#### 14 Checklist

Tick the relevant documents in this section so that we know what you are sending.

#### 15 The Data Protection Act 1998

This section sets out our rights and responsibilities under the Data Protection Act 1998.

#### 16 Declaration

By filling in this section you are declaring that, as far as you know, the information you have provided, including the map and any supporting documents, is true. We will not accept an application without this section being completed.

- If you are applying as a company which has trustees, all trustees must fill in the declaration.
- If you are applying as a limited company, a company secretary or a director must fill in the declaration.

#### 17 Next steps

Please return the form FD001 'Application for Flood Defence Consent' and any supporting documents to us either by email or hard copy.

You will need to send this to the appropriate area office that will be dealing with your application.

If you are not sure which office to send this application to or need help filling in this form, please contact the person who sent the form to you or contact our general enquiries number shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.environment-agency.gov.uk

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.



contraction for nove extende consent		Form FD 001: Application for flood defence consent
Application for flood defence consent	Environment	3 Your interest in the land 4 Location of the proposed works, continued
Natar Recourses Art 1001 - Section 100	Agency	3.1 What is your interest in the land? 4.3 Have you checked the watercourse is designated
Consent is needed under this legislation and you will be charged	l for it)	Yes
lood Defence (Land Drainage) Byelaws/Sea Defence Byelaws Consent is also needed under this legislation but you will not be	charged for it)	4 Location of the proposed works No 🗌 Please contact us for confirmation.
nvironment Act 1995 (This is general legislation we work within :	as part of the process.)	4.1 What is the location of the proposed works? 4.4 National grid reference of the site (12 figures)
lood and Water Management Act 2010		
Introduction	Contents	4.2 Name of river or watercourse (if known)
Before filling in this form, please contact us for	1 Applicant details	
advice on your proposal.	3 Your interest in the land	5 Description and purpose of the proposed works
Please make sure you read through the guidance notes and the application form carefully before you	4 Location of the proposed works 5 Description and purpose of the proposed works	5.1 Please provide a description of the proposed works
fill the form in.	6 Plans and sections 7 Construction datails	
It should take about 20 minutes to fill in this form.	8 Other Environment Agency interests	
If you are not sure about anything in this form, contact the	9 Other authority permissions 10 Maintaining the structure	
between 8am and 6pm, Monday to Friday.	11 Effects on the environment	
	13 Fees	
	14 Checklist 15 The Data Protection Act 1998	
	16 Declaration	
Applicant details	2 Agent details	
ame of individual, organisation or company	Name of individual, organisation or company	
ame of contact	Name of contact	
Title (Mr, Mrs, Miss and so on)	Title (Mr, Mrs, Miss and so on)	
First name	First name	5.2 Number of structures
Last name	Last name	
Idress	Profession	6 Plans and sections
J	Addrocs	
		6.1 Please provide a description and reference number of all plans and sections you have provided (see the guidance notes)
		5414411CE 1101CE3/
ostcode		
ontact numbers, including the area code	L	
Phone	Postcode	
Fax	Contact numbers, including the area code	
Mobile	Phone	
Email	Fax	
	Mobile	
	Email	

page 2 of 4

#### Form FD 001: Application for flood defence consent

#### 7 Construction details 7.1 Is this an application for permanent works, temporary works or both? Permanent (for example, bridge structure) Temporary (for example, scaffolding) Both 7.2 Date construction work will start? Date (DD/MM/YYYY) Other Environment Agency interests 8 8.1 Do the proposed works involve or affect the following? Impounding (holding back a watercourse) Abote ating (ramaving) wat

П

Abstracting (removing) water	
Fish or fisheries	
Disposing of waste material	
Discharging water	
Navigation	
If you have ticked any of the above, please contact the Environment Agency on 03708 506 506.	

#### 9 Other authority permissions

Fill in this section if you have been given planning permission for the proposed works. Otherwise go to section 10.

#### 9.1 Planning authority

9.2	Appl	ication	number
-----	------	---------	--------

9.3 Approval date?

Date (DD/MM/YYYY)

FD 001 Version 1, May 2012

#### 10 Maintaining the structure

#### 10.1 Name of person or organisation responsible for maintaining the structure

During constru	ction			
Name				
Title (Mr, Mrs, Miss and so on)				
First name	L			
Last name	L			
Contact numbers, including the area code				
Phone	L]			
Fax	L			
Mobile	L			
Email	L			

_	

	on is completed
Name	
Title (Mr, Mrs,	Miss and so on)
First name	
Last name	
– Contact numbers,	including the area code
Phone	
Fax	
Mobile	
Email	
11 Effects of	the environment
II Ellects of	i the environment

#### Form FD 001: Application for flood defence consent

12 Water Framework Directive (WFD) assessment

12.1 Is a Water Framework Directive Assessment needed as part of your application? (See the guidance notes.)

No 🗌	
------	--

- Yes 🗌 Has one been submitted? No
  - Yes

#### 13 Fees

The fee is £50 for each structure associated with the application. If you are not clear what charge will apply, contact us before you send us this application.

#### 14 Checklist

Please read through this list and tick the items you are sending with this application.

Completed form Fee (if it applies) Copies of drawings and plans

Method statement (if it applies)

#### 15 The Data Protection Act 1998

We, the Environment Agency, will process the information you provide so that we can deal with your enquiry.

We may also process or release the information to:

- offer you documents or services relating to environmental matters;
- · consult the public, public organisations and other organisations (for example, the Health and Safety Executive, local authorities, the emergency services, the Department for Environment, Food and Rural Affairs) on environmental issues
- · carry out research and development work on environmental issues;
- provide information from the public register to anyone who • asks:
- prevent anyone from breaking environmental law, ٠ investigate cases where environmental law may have been broken, and take any action that is needed;
- assess whether customers are satisfied with our service, and to improve our service; and
- respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data Protection Act allows).

We may pass the information on to our agents or representatives to do these things for us.

#### 16 Declaration

If you make a statement that is false or misleading you may be committing an offence under the Water Resources Act 1991 -Section 109, the Flood Defence (Land Drainage) Byelaws/Sea Defence Byelaws, the Environment Act 1995 or the Flood and Water Management Act 2010.

I declare that as far as I know and believe, the information in this application is true. I understand that this application may be refused, or approval withdrawn, if I give false or incomplete information.

Tick this box to confirm that you understand and agree with the declaration above.

#### Name

Pos

Fitle (Mr, Mrs, Miss and so on)				
First name				
Last name				
sition				

Today's date (DD/MM/YYYY)

#### 17 Next steps

Please send this form together with any supporting documents to us.

To find out the address of the appropriate area office dealing with your application, or if you need help filling in this form, please contact the person who sent the form to you or phone us on our general enquiries number shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.environment-agency.gov.uk

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.



ient Agency use only			
	Fee received?	No 🗌	
		Yes 🗌	Date received (DD/MM/YYYY)
	WRA91/Byelav	v/	
	L		
	File/office refe	rence	
	L		

page 3 of 4

For Environn Main river No 🗌 Yes 🗌 Fee No 🗌 Yes 🗌

# openreach

#### **Openreach Plant Maps Requested**

NewSite Office (addresses can be located from here) National Freephone: 0800 616 866

#### Dear Sir/Madam

Thank you for your request to: www.openreach.co.uk/networkinfo/

You have downloaded copies of our drawings marked up to show the approximate location of Openreach apparatus, which is present in the immediate vicinity of your works. It is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works made near to Openreach apparatus, which may, exist at various depths and may deviate, from the marked route.

To avoid damage it is recommended that mechanical excavators or borers are not used within 600mm of Openreach plant. Please ensure that our equipment is not enclosed, blocked, covered or otherwise obstructed by your plant. In the event of clearance not being adequate we anticipate that your plant is either resited, or an order is placed with Openreach for rearrangements of its plant. If there are any difficulties with the Map please ring 0800 616866.

Please contact our Network Protection Service if required by dialling 0800 917 3993 or by Email on <u>DBYD@openreach.co.uk</u> giving seven days notice of your commencement date. This will provide you with on-site advice and a check of location for any Openreach apparatus.

Further to this, I hope the following points will assist you at the new development: -

Openreach has a licence obligation to provide service to any end customer requiring a connection. A Developer would not normally be charged for provision of service, our standard connection charges would apply to the end user when orders are placed with the communication provider of choice. However, should a Developer insist on an underground service in an area where Openreach plant is provided overhead, charges may be incurred.

When the Developer has obtained contract and planning permission Openreach would request a 'Clean', scaled Site Layout, Location Map and a covering letter be sent to the relevant newSite Office. We would particularly request that you give details of your programmed site start date and likely first occupancy date where possible. To obtain contact details of the newSite office covering the development area click on the URL below.

http://www.openreach.co.uk/orpg/networkinfo/developnetwork/regionalcontacts.do

Where a development affects existing Openreach apparatus in the public highway, the cost of any necessary protection or diversionary works must be borne by the Developer. In this case where a budget estimate is required a Site Plan, Location Map and a covering letter should be forwarded to the Repayments Project Office. Please visit

http://www.openreach.co.uk/orpg/networkinfo/alternetwork/alterationcontacts.do for contact details of the Repayments Office covering the development area.

Yours faithfully,

#### **Openreach** newSites

British Telecommunications plc Registered Office 81 Newgate Street LONDON EC1A 7AJ Registered in England no.1800000 1 of 1

### Maps by email Plant Information Reply









#### Transport for London London Underground

 Our Ref:
 PU48543

 Your Ref:
 34353/RCN

 Date:
 10 November 2014

Name: ATKINS

Address: ATKINS 500 PARK AVENUE BRISTOL



Dear Sir/Madam

Subject Rosehill, Sutton

We acknowledge receipt of your Letter / New Roads & Street Works Act Enquiry,

Dated 10-Nov-14

We have no H.V. cables or cable duct routes in the area in question. However, it is possible that, there may be other cables buried in this area, belonging to a third party, for which we unfortunately have no information or drawing records.

Yours sincerely

On behalf of Mr D Beavan, H.V. Cables Manager

Name: Anis Naili

Title: NRSWA co-ordinator

Email: LULHVpowerassets@tfl.gov.uk

London Underground Limited trading as London Underground whose registered office is 55 Broadway London SW1H 0BD

Registered in England and Wales Company number 1900907

London Underground Limited is a company controlled by a local authority within the meaning of Part V Local Government and



Enquiry Confirmation LSBUD Ref: 2961676

 rmation
 Date of enquiry: 10/11/2014

 961676
 Time of enquiry: 05:52

Enquirer			
Name	Miss Chrissy Elliott	Phone	01454662397
Company	Atkins	Mobile	Not Supplied
		Fax	Not Supplied
Address	The Hub 500 Park Avenue, Aztec West, Patchway Almondsbury Bristol BS32 4RZ		
Email	atkinsstatutory.enquiries@atkinsglobal.com		
Notes	Please ensure your contact details are correct and up to date on the system in case the Asset Owners need to contact		

Enquiry Details			
Scheme/Reference	34353/RCN		
Enquiry type	Initial Enquiry	Work category	Utility Works
Start date	26/11/2014	Work type	Single excavation site
End date	25/02/2015	Site size	289609 metres square
Searched location	XY= 525847, 166054 Easting/Northing	Work type buffer*	25 metres
Confirmed location	525757 165900		

\* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen



V3.3.1 Contains Ordnance Survey data © Crown copyright and database right 2012



Enquiry Confirmation LSBUD Ref: 2961676

Date of enquiry: 10/11/2014 Time of enquiry: 05:52

#### Asset Owners

Subject always to our standard terms and conditions, this enquiry result is valid for 28 days only from the date of enquiry and is based on the confirmed information you entered. If the location of the work changes then a further enquiry must be made. Should the work not be undertaken within 28 days of the enquiry then a further enquiry must be made.

Where applicable listed below are those registered Asset Owners who have been notified, those to whom you need to send further information and those who have no apparatus within your search area. In addition your response will include other non-registered Asset Owners contact details who have NOT been notified, which may be of interest to you.

Please be aware that the lists below are not exhaustive and that not all Asset Owners are registered with this service. In particular please note that the LinesearchbeforeUdig system only contains information on National Grid's Gas above 2 bar asset and all National Grid Electricity Transmission asset. For National Grid Gas below 2 bar asset information please go to www.beforeyoudig.nationalgrid.com

If you are required to email additional info please note that we need the following: Site contact name and number, Location plan, Detailed plan (minimum scale 1:2500), Cross sectional drawings (if available), Work Specification.

Asset Owners who DO have assets near your proposed work site.

In the Zone of Interest						
Asset Owner	Phone/Email	Emergency Only	Status			
National Grid Gas (above 2 bar) and National Grid Electricity		Gas 0800111999				
	0800688588	Electricity	Notified			
1101151111551011		0800404090				

#### LinesearchbeforeUdig Asset Owners who DO NOT have assets in the immediate vicinity of your proposed work site.

Not in the Zone of Interest					
WE Pipeline	FibreSpeed Limited	Phillips 66			
BOC Limited (A Member of the Linde Group)	Gamma	Premier Transmission Ltd (SNIP)			
3P Midstream Pipelines	Government Pipelines & Storage System	RWEnpower (Little Barford and South Haven)			
3PA	Humbly Grove Energy	SABIC UK Petrochemicals			
Centrica Energy	HV Cables	Scottish Power Generation			
Centrica Storage Ltd	IGas Energy	Seabank Power Ltd			
ConocoPhillips (UK) Ltd	Ineos Enterprises Limited	Shell Pipelines			
Coryton Energy Co Ltd (Gas Pipeline)	INEOS Manufacturing (Scotland and TSEP)	Spiecapag UK Limited (Carrington)			
CSP Fibre c/o Centara	Lark Energy	Total (Finaline, Colnbrook & Colwick Pipelines)			
irGrid	Mainline Pipelines Limited	Transmission Capital			
lectricity North West Limited	Manchester Jetline Limited	Western Power Distribution			
on UK Plc (Gas Pipelines Only)	Marchwood Power Ltd (Gas Pipeline)	Wingas Storage UK Ltd			
SP Utilities Group	NPower CHP Pipelines	Zayo Group UK Ltd c/o JSM Group Ltd			
SSAR	Oikos Storage Limited				
Esso Petroleum Company Limited	Perenco UK Limited (Purbeck Southampton Pipeline)				

April 2015



#### Transport for London London Underground

 Our Ref:
 PU48543

 Your Ref:
 34353/RCN

 Date:
 10 November 2014

Name: ATKINS

Address: ATKINS 500 PARK AVENUE BRISTOL



Dear Sir/Madam

Subject Rosehill, Sutton

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Dated 10-Nov-14

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Yours sincerely

On behalf of Mr D Beavan, H.V. Cables Manager

Name: Anis Naili

Title: NRSWA co-ordinator

Email: LULHVpowerassets@tfl.gov.uk

London Underground Limited trading as London Underground whose registered office is 55 Broadway London SW1H 0BD

Registered in England and Wales Company number 1900907

London Underground Limited is a company controlled by a local authority within the meaning of Part V Local Government and



#### Your Responsibilities and Obligations

The "Assessment" Section below outlines the detailed requirements that must be followed when planning or undertaking your scheduled activities at this location.

It is your responsibility to ensure that the information you have submitted is accurate and that all relevant documents including links are provided to all persons (either direct labour or contractors) working for you near National Grid's apparatus, e.g. as contained within the Construction (Design and Management) Regulations.

This assessment solely relates to National Grid Electricity Transmission plc (NGET) and National Grid Gas plc (NGG) apparatus. This assessment does **NOT** include:

- National Grid's legal interest (easements or wayleaves) in the land which restricts activity in proximity
  to National Grid's assets in private land. You must obtain details of any such restrictions from the
  landowner in the first instance and if in doubt contact National Grid.
- Gas service pipes and related apparatus
- Recently installed apparatus
- Apparatus owned by other organisations, e.g. other gas distribution operators, local electricity companies, other utilities, etc.

It is **YOUR** responsibility to take into account whether the items listed above may be present and if they could be affected by your proposed activities. Further "Essential Guidance" in respect of these items can be found on the National Grid Website (<u>http://www.nationalgrid.com/NR/rdonlyres/6D6525F9-59EB-4825-BA89-DBD7E68882C7/51319/EssentialGuidance.pdf</u>).

This communication does not constitute any formal agreement or consent for any proposed development work; either generally or with regard to National Grid's easements or wayleaves nor any planning or building regulations applications.

NGG and NGET or their agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability where prohibited by the law nor does it supersede the express terms of any related agreements.

If you require further assistance please contact the National Grid Plant Protection team via e-mail (click here) or via the contact details at the top of this response.

Yours faithfully

National Grid Plant Protection Team

#### ASSESSMENT

#### Affected Apparatus

The National Grid apparatus that has been identified as being in the vicinity of your proposed works is:

- Electricity Transmission overhead lines
- · Above ground electricity sites and installations

#### Requirements

#### BEFORE carrying out any work you must:

- Carefully read these requirements including the attached guidance documents and maps showing the location of National Grid apparatus.
- Contact the landowner and ensure any proposed works in private land do not infringe National Grid's legal rights (i.e. easements or wayleaves). If the works are in the road or footpath the relevant local authority should be contacted.
- Ensure that all persons, including direct labour and contractors, working for you on or near National Grid's apparatus follow the requirements of the HSE Guidance Notes HSG47 - 'Avoiding Danger from Underground Services' and GS6 - 'Avoidance of danger from overhead electric power lines'. This guidance can be downloaded free of charge at <u>http://www.hse.gov.uk</u>
- In line with the above guidance, verify and establish the actual position of mains, pipes, cables, services and other apparatus on site before any activities are undertaken.

#### GUIDANCE

Electricity Overhead Lines Guidance: http://www.nationalgrid.com/NR/rdonlyres/D9FEFEEC-0B9B-4E72-A1D0-A5FB1DB5D7B3/51894/ElectricityOHLGuidance.pdf

Development Near Overhead Lines: http://www.nationalgrid.com/NR/rdonlyres/4DD2D3FF-B973-4F3C-A8C3-CDB640526660/45082/Developmentnearoverheadlines.pdf

#### **Standard Guidance**

Essential Guidance document: http://www.nationalgrid.com/NR/rdonlyres/6D6525F9-59EB-4825-BA89-DBD7E68882C7/51319/EssentialGuidance.pdf

General Guidance document: http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=35103

Excavating Safely in the vicinity of gas pipes guidance (Credit card): http://www.nationalgrid.com/NR/rdonlyres/A3D37677-6641-476C-9DDA-E89949052829/44257/ExcavatingSafelyCreditCard.pdf

Excavating Safely in the vicinity of electricity cables guidance (Credit card): http://www.nationalgrid.com/NR/rdonlyres/35DDEC6D-D754-4BA5-AF3C-D607D05A25C2/44858/ExcavatingSafelyCreditCardelectricitycables.pdf

Copies of all the Guidance Documents can also be downloaded from the National Grid Website: <u>http://www.nationalgrid.com/uk/Gas/Safety/work/downloads/</u>

Page 3 of 6



### **ENQUIRY SUMMARY**

Received Date 11/11/2014

Your Reference 34353 - LSBUD-141110-2961676

### Location

Centre Point: 525785, 166020 X Extent: 660 Y Extent: 1210 Postcode: SM1 3EX Location Description: Rosehill, Sutton

#### Map Options

Paper Size: A3 Orientation: PORTRAIT Requested Scale: 10000 Actual Scale: 1:10000 (ELECTRIC) Real World Extents: 2890m x 3670m (ELECTRIC)

Recipients stat.enquiries@atkinsglobal.com

#### Enquirer Details

Organisation Name: Atkins Limited Contact Name: Chrissy Elliott Email Address: stat.enquiries@atkinsglobal.com Telephone: 01454662397 (01454662397) Address: The Hub, 500 Park Avenue, Aztec West, Almondsbury, Bristol, BS32 4RZ

Description of Works Building Works - Low Rise

Enquiry Type Proposed Works

Activity Type Small-scale Construction

Work Types Work Type: Plans Only

### Transport for London

### **London Streets**

Your ref: 34353/RCN Our ref: AD/NRSWA/ENQ/TfL:33585

12 November 2014

Dear Sir/Madam

PLANT ENQUIRY: Rosehill, Sutton

Thank you for your email dated 10<sup>th</sup> Nov 2014.

Our records show traffic control equipment in the vicinity of the above as detailed on the attached drawings (installations 21/032, 21/173, 21/185&186).

If you suspect your works will affect these installations, should you vary the location of the works, please inform us so that further checks can be made.

The information relates to traffic control equipment owned by Transport for London, and is believed to be correct.

Yours faithfully

Kiran

RSM Operations ,Planned Interventions, Surface Transport, Transport for London Email: <u>plantenquiries@tfl.gov.uk</u> Direct line: (020) 3054 6121





New 8FE Secondary Schools\_Rosehill Recreation Ground Feasibility Report

### **Responses - Affected**



Therefore, you must not rely solely on this plan if you are carrying out any excavation or other works in the vicinity of Virgin Media apparatus. The actual position of any underground service must be verified by cable detection equipment, etc. and established on site before any mechanical plant is used. Accordingly, unless it is due to the negligence of Virgin Media, is employees or agents. Virgin Media, will not have any liability for any omissions or inaccuracies in the plan or for any loss or damage caused or arising from the use of and/or any reliance on this plan.

This plan is produced by Virgin Media Limited from Ordnance Survey © Crown Copyright 100019209

media

New 8FE Secondary School\_Rosehill Recreation Ground Feasibility Report

### **Responses - Affected**



Important Information - please read

The purpose of this plan is to identify Virgin Media apparatus. We have tried to make it as accurate as possible but we cannot warrant its accuracy. In addition, we caution that within Virgin Media apparatus there may be instances where mains voltage power cables have been placed inside green, rather than black ducing. Further details can be found using the 'Affected Postodes.pdf', which can be downloaded from this website.

Therefore, you must not rely solely on this plan if you are carrying out any excavation or other works in the vicinity of Virgin Media apparatus. The actual position of any underground service must be verified by cable detection equipment, etc. and established on site before any mechanical plant is used. Accordingly, unless it is due to the negligence of Virgin Media temployees or agents, Virgin Media will not have any liability for any omissions or inaccuracies in the plan or for any loss or damage caused or arising from the use of and/or any reliance on this plan.



New 8FE Secondary Schools\_Rosehill Recreation Ground Feasibility Report

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#### Important Information - please read

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New 8FE Secondary Schools\_Rosehill Recreation Ground Feasibility Report

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New 8FE Secondary Schools\_Rosehill Recreation Ground Feasibility Report











NRSWA Asset Enquiries Network Rail National Records Centre Audax Road YORK YO30 4GS Underground Services Team National Records Centre Audax Road YORK

YO30 4GS Tel:

Date: 20 November 2014

Your Reference 2014\_14802 Our Reference: SET125389 JD5

Dear NRSWA,

Re: Underground Services Search: \*\*OP\*\* Rosehill, Sutton

#### Please find information available as per the checklist.

The information contained herein is based on Network Rail's records and, where appropriate, third parties such as utility companies. The search enclosed does not cover a search of local council records. Also, schematic Signal and Telecom (S&T) cables plans are not provided as part of the search results, therefore you must assume S&T cables are present until proven otherwise.

Although at the date of this letter the information is as up to date as possible, it is **NOT** a statement of validity, accuracy or completeness as to any of the enclosed search information and must not be relied on as such.

Your risk assessment MUST take into account:

- That the information supplied, including the services shown on the map from the Geographical Information Portal (GIP), does not provide any guarantee as to the accuracy of the actual location of services on site and MUST be considered as for guidance purposes only.
- That new/unrecorded services are likely to be present
- That the enclosed Underground Services search information has been collated only for the ELR and Mileage boundaries as stated on the original request form

Included in your underground services search is a list of local engineers and managers you **MUST** contact before any ground disturbance is carried out, to check whether further information is held locally.

Further guidance can be obtained from the Health and Safety Executive publication HSG47 "Avoiding Danger from Underground Services" and the Network Rail Publication NR/L2/BUS/1030

Should you become aware of any additional underground services or assets within the locality during your investigations and/or works, including redundant assets, please identify them as a matter of urgency to the site manager. Records of the location of these assets should be kept for onward transmission to the Hazard Editor for entry into the Hazard Directory.

Yours sincerely

#### John Devanney

Distribution Administrator

Network Rail Infrastructure Ltd. Registered Office Kings Place 90 York Way London N1 9AG Registered in England and Wales No. 2904587 www.networkrail.co.uk



#### GUIDELINES TO BE READ IN CONJUNCTION WITH THE ENCLOSED INFORMATION

The information contained herein is based on Network Rail's records and, where appropriate, third parties such as utility companies. The search enclosed does not cover a search of local council records. Also, schematic Signal and Telecom (S&T) cables plans are not provided as part of the search results, therefore you must assume S&T cables are present until proven otherwise.

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UNDERGROUND SERVICES INFORMATION CHECKLIST					Network Rail				
YOUR REF	2014_14802	2014_14802			OUR REF	SET125389			
LOCATION	**OP** Rosehill, Sutton				ELR	SMS2			
MILEAGE FROM	10.0820	10.0820			EAGE TO	10.1514			
Utility Company/Intern	al Source	Category		Enc	Notes				
GI Portal		Marlin		Yes					
Hazard Directory		Hazard		Yes					
Civils SE		NRG		Yes					
eBrowser		NRG		Yes					



NIL RETURN: After interrogating the information made available to us, no records containing underground services information have been returned for this worksite. However, reference must be made to the guidelines supplied with this underground services search, which contain important information on safe working practices.

Upon receipt can you please check that the information provided agrees with this listing and if there are any discrepancies please contact the Underground Services Team at: National Records Centre, Audax Road, York. YO30 4GS buriedservicesnst@networkrail.co.uk Checklist printed on: 20/11/14













# **GI** Portal

This material is a guide only and although every effort will be made to ensure that the information is correct you should be aware that the information may be incomplete, inaccurate or out of date. Network Rail shall not be liable for any loss or damage, which may arise from the use of any information, contained.



April 2015





#### Terms and Conditions

The National Hazard Directory (NHD) is issued by Network Rail to provide information on those hazards recorded as present on Network Rail's infrastructure. Its' purpose is to alert user(s) to the typical hazards that may be encountered on or around the Infrastructure during works . The NHD is made available to Network Rail employees and Network Rail contractors in order to assist in the identification and design of appropriate safety measures.

Although Network Rail believes its content is reasonably correct as at the date of issue, it includes information from records of varying age and levels of accuracy, and accordingly Network Rail gives no warranty as to accuracy, completeness or suitability for use in any particular circumstances. Users must particularly note that all searches (including searches of utility companies) should be conducted together with a site visit and site specific risk assessment, all as appropriate to the activity concerned. Network Rail accepts no liability in respect of the content or subsequent use of this system or the data held within it.

Users of the Directory must note that when working on or near the line that the appropriate requirements of the Rule Book, especially the provisions of the track safety rules, must be applied as appropriate to the activity concerned.

Technical Indexes do not warrant the use of the Network Rail National Hazard Directory including without limitation, the database, software or equipment will be interpreted or error free or the results obtained will be successful or will satisfy user's requirements. The data should be used as a reference only. No representations or warranties are made as to completeness or accuracy. ALL WARRANTIES (INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY EXPRESSLY EXCLUDED). Technical Indexes accept no responsibility for lost profit or for any other indirect, special, incidental, consequential or punitive damage.

#### National Hazard Directory

### Customised Report

Search Criteria: ELR(s) = SMS2; Mileage From = 10.0820; Mileage To = 10.1514 Date: 20'11/20'14

					10 Hazar	as touna.		
ELR	ELR Name	Mileage From	Mileage To	Hazard Code	Hazard Description	Local Name	Track ID	Free Text
SMS2	WIMBLEDON "A" JN - SUTTON WIMBLEDON LINE JN	10.0550	10.1694	EKF	Landfill Gases	Sutton Site No. 242. Rosehill Recreation Ground		LANDFILL GAS. This stretch of railway has been identified as being at risk from the migration of landfill gasses. Appropriate precautions should be taken. For further information please contact NST Mining 01332 262716.
SMS2	WIMBLEDON "A" JN - SUTTON WIMBLEDON LINE JN	10.0659	10.0880	HBW	Buried Water Main	Sutton Common	All/Multiple Tracks	Surface Water Drain.10.40 - 10.30.Info on underground/overhead services <gas, water, electricity&gt; has not been validated.</gas, 
SMS2	WIMBLEDON "A" JN - SUTTON WIMBLEDON LINE JN	10.0659	10.1099	HXE	Buried & Overhead Electric Cable	Sutton Common	All/Multiple Tracks	Cable-Reigate Ave from 10.30-10.50. Info on underground/overhead services <gas, water, electricity&gt; has not been validated.</gas, 
SMS2	WIMBLEDON "A" JN - SUTTON WIMBLEDON LINE JN	10.0858	10.0858	HXE	Buried & Overhead Electric Cable	Sutton Common	All/Multiple Tracks	U/G electric cable. Info on underground/overhead services <gas, water, electricity&gt; has not been validated.</gas, 
SMS2	WIMBLEDON "A" JN - SUTTON WIMBLEDON LINE JN	10.0858	10.0858	MAP	Authorised Access Point - Pedestrian	Reigate Rd A217	Down Main/Fast	Risk Rating 3, Hazard Rating 2, Score 6
SMS2	WIMBLEDON "A" JN - SUTTON WIMBLEDON LINE JN	10.0880	10.0880	HBF	Buried Foul Water Service	Sutton Common	All/Multiple Tracks	6" sewer. Info on underground/overhead services <gas, electricity="" water,=""> has not been validated.</gas,>
SMS2	WIMBLEDON "A" JN - SUTTON WIMBLEDON LINE JN	10.0880	10.0880	HBE	Buried Electrical Cables	St. Helier S/S - Wimbledon A S/S [*]	Down Main/Fast	Track id indicative only: Cable Type = 3x1 Core 185mm, AL Cond, XLPE
SMS2	WIMBLEDON "A" JN - SUTTON WIMBLEDON LINE JN	10.0880	10.0880	HBE	Buried Electrical Cables	St. Helier S/S - Sutton S/S [*]	Down Main/Fast	Track id indicative only:. *. ELR BTH2 Mileage 014.1474
SMS2	WIMBLEDON "A" JN - SUTTON WIMBLEDON LINE JN	10.0923	10.0923	HXE	Buried & Overhead Electric Cable	Sutton Common	All/Multiple Tracks	Cable - Reigate Road bridge. Info on underground/overhead services <gas, water, electricity&gt; has not been validated.</gas, 
SMS2	WIMBLEDON "A" JN - SUTTON WIMBLEDON LINE JN	10.1474	10.1474	MAP	Authorised Access Point - Pedestrian	Sutton Common Stn	All/Multiple Tracks	Access through station, Risk Rating 6, Hazard Rating 2, Score 12, 20 Steps Dn

### Devanney John (York)

From:	Mole Simon
Sent:	12 November 2014 10:52
To:	BS_Transmittals
Subject	: Underground Services search: NRS **OP** Rosehill, Sutton (SET125389)
Action ta	ken by NRG:
Records NST Ref National	sent via email : SET125389 Records Group















CCMS Reference Number	Location	Building Name	ELR
09013b5b81a05f07	Sutton Common Station	STN - Sutton Common	SMS2
	ELR	Mileage	Title
	^	^	SR - WIMBLEDON SUTTON RLY SUTTON COMMON (NO. 5) STATION PLATFORM AND ROOFING S.W. DRAINAGE
Unfortunately, this record was not available. This does not mean it does not exist, but merely that it was not available on the day it was searched for. Please accept our apologies for any inconvenience.	BTH2	^	SUTTON COMMON STATION SUTTON TO WEST SUTTON BETWEEN 15 AND 15 1/4 MILE POSTS FEEDER NO. 529 AND PILOT CABLE SUTTON TO ST HELIER S/STN D.O.O. SCHEME LIGHTING AND ELECTRICAL SERVICES AS FITTED DRAWING



Unfortunately, this record was not available. This does not mean it does not exist, but merely that it was not available on the day it was searched for. Please accept our apologies for any inconvenience. SUTTON COMMON STATION SUTTON TO WEST SUTTON BETWEEN 15 AND 15 1/4 MILE POSTS FEEDER NO. 529 AND PILOT CABLE SUTTON TO ST HELIER S/STN

SMS2 ^ DRAINAGE PLAN

SMS2

Structure Number(s )	Health & Safety File?	Documen t Barcode	Alternate Ref.	Alt ref. COUNT - don't exceed 32	Buried Services	Date Record Created	Documen t Class	File Location	CCMS2 Target Folder (Cabinets /NRG/As Built Drawings /As BuiltsR oute/ELR )	Туре	Security Classifica tion	Author
Structure	TRUE	Buriod	FTN001- 02555- DRAB- 0001-C	24	TRUE	*****	Drawing	In CCMS - stored in Cabinets/ NRG/As Built Drawings/ As Builts by Route & ELR - see column F	/NRG/As Built Drawings/ As Builts/Sus sex/SMS2	Asset Support Document (nr_asset _support)	Internal	Tracey Isaac
Structure	Structure	Buried										

	Miles/Yard	10	1489	11	258
Microfilm	Barcode	Bag Identity	Location	Drawing Number	Plan Arch Ref
٨	SZ707448 9	SZ007906	^	^	^
	^	^	^	1W/SHT4	^
				*	
427045	^	^	SUTTON COMMON	BSE/1605 /E/1	S117/1/1

	TRUE		02555- DRAB- 0001-0
Structure Number	Structure Name	Buried Services	
^	^		
^	^		
^	SUTTON COMMON STATION		

^	^	^	SUTTON COMMON	1W/SHEE T44	^
NEG: 18361	SZ713116 1	SZ008462	SUTTON COMMON	2625/1	^



Our Ref: SO/0046628 Your Ref: 34353/RCN

Date: 12/11/2014

Roshith C N, . Atkins The Hub 500 Park Avenue Aztec West Almondsbury, Bristol, BS32 4RZ.



Plant Location 95 Kilbinnie Street Glasgow 65 8JD Phone: 0141 418 4093 Phone: 0845 070 3497 Fax: 0141 429 6432 Email: plantlocation@sgn.co.uk

Dear Customer,

Re: Enquiry at: Rosehill,Sutton, Sutton S1 3EX.

#### Searches - Important Information

Thank you for your enquiry regarding the above location. If your client plans to carry out any on site works they **must** contact ourselves directly so that a full safety and engineering risk assessment can be carried out **prior** to any work starting.

Listed below is the **minimum** information we would require from your client and our contact details:

- Full contact details (name, company name, address, telephone number and e-mail address)
- Full site address, post code and easting/northing grid reference.
- Plan showing the site boundary.
- Details of the work to be carried out.
- The proposed start date (please specify if work is at the planning stage).

Our contact information is:

Address - Scotia Gas Networks, Plant Location Dept, 95 Kilbirnie Street, Glasgow, G5 8JD.

E Mail - plantlocation@sgn.co.uk

Fax - 0141 429 6432

It must be stressed that both direct and consequential damage to gas plant can be dangerous both for your client's employees and the general public, repairs to any such damage will incur a charge. Your client's works should be carried out in such a manner that we are able to gain access to our apparatus throughout the duration of your client's operations.

24 hour gas escape number 0800 111 999* *Calls will be recorded and may be monitored	Southern Gas Networks pic is part of the Scotia Gas Networks Group Registered Office: St Lawrence House Station Approach Horley Surrey RH6 9HJ Pencitezed in Encland & Wales No. 05167021
	http://www.sgn.co.uk

Please note that the information supplied by Scotia Gas Networks is given without warranty. Whilst we understand the information supplied to be correct, no reliance should be given in respect of the location of our apparatus. We can locate apparatus on site at your client's request prior to any development works to be carried out in the vicinity of our pipelines.

If you require any further information please contact the number below.

Yours faithfully,

Alison Mair 0141 418 4093

24 hour gas escape number 0800 111 999\* \*Calls will be recorded and may be monitored Southern Gas Networks plc is part of the Scotia Gas Networks Group Registered Office: St Lawrence House Station Approach Horley Surrey RH6 9HJ Registered in England & Wales No. 05167021 http://www.sgn.co.uk New 8FE Secondary Schools\_Rosehill Recreation Ground Feasibility Report

### **Responses - Affected**



SCALE 1:1404	LP MAINS
USER ID: am54938	MP MAINS
DATE: 12/11/2014	LHP MAINS
INTERNAL USE ONLY	HISTORY DATA
GRID REFERNCE: E525848,N166055,TQ 25 66	GTs SSSIs
Some examples of Plant items: Valve M Depth of Syph Cover	non O Diameter 🕂 Material   Change 🕂 Change

This plan shows the location of those pipes owned by Scotia Gas Networks (SGN) by virtue of being a licensed Gas Transporter (GT). Gas pipes owned by other GTs or third parties may also be present in this area but are not shown on this plan. Information with regard to such pipes should be obtained from the relevant owners. No warranties are given with regard to the accuracy of the information shown on this plan. Service pipes, valves, siphons, sub-connections etc are not shown but their presence should be anticipated. You should be aware that a small percentage of our pipes/assets may be undergoing review and will temporarily be highlighted in yellow. If your proposed works are close to one of these pipes, you should contact the SGN Plant Protection Team on 0450703497 for advice. No liability of any kind whatseever is accepted by SGN or its agents, servants or sub-contractors for any error or omission contained herein. Safe digging practices, in accordance with HS (G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that plant location information is provided to all persons (whether direct labour or sub-contractors) working for you on or near gas apparatus. Information included on this plan should not be referred to beyond a period of 28 days from the date of lasue.

#### INTRANET MAP VERSION 2.1

#### Greater London Authority Area

This plan is reproduced from or based on the OS map by Scotia Gas Networks plc, with the sanction of the controller of HM Stationery Office.Crown Copyright Reserved. New 8FE Secondary School\_Rosehill Recreation Ground Feasibility Report





New 8FE Secondary Schools\_Rosehill Recreation Ground Feasibility Report





New 8FE Secondary School\_Rosehill Recreation Ground Feasibility Report









New 8FE Secondary School\_Rosehill Recreation Ground Feasibility Report



New 8FE Secondary Schools\_Rosehill Recreation Ground Feasibility Report













New 8FE Secondary School\_Rosehill Recreation Ground Feasibility Report





New 8FE Secondary Schools\_Rosehill Recreation Ground Feasibility Report







#### Sahu, Anima

From:	NRSWA [NRSWA@bskyb.com]
Sent:	Monday, November 10, 2014 7:00 PM
To:	Statutory Fonuitries
Subject:	BskyB Telecommunications Services Ltd Plant Enquiry - PEN-14-11-0812 : ATKINS - 34353/RCN

Attention: Roshith.CN - ATKINS

Dear Sir/Madam,

#### RE: Rosehill, Sutton SM1 3EX

Thank you for your enquiry.

Please be advised that BSkyB Telecommunications Services Ltd will not be affected by these works.

Best endeavours have been made to ensure accuracy, however if you require further information, please contact us. If you would like to submit your plant enquiries electronically, please send them to nrswa@bskyb.com

Please be advised that our fax number has changed to 0207 032 3252.

Regards

NRSWA Department Network Infrastructure and Planning BSKYB Telecommunications Services Ltd 70 Buckingham Avenue SLOUGH SL1 4PN

T +44 (0) 207 032 3234/250 F +44 (0) 207 032 3252 E <u>nrswa@bskyb.com</u>

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The IS team in Atkins has scanned this email and any attachments for viruses and other threats; however no technology can be guaranteed to detect all threats. Always exercise caution before acting on the content of an email and before opening attachments or following links contained within the email.

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#### Sahu, Anima

From: Sent:	Plant enquiries [plantenquiries@catelecomuk.com] Friday, November 14, 2014 7:09 PM
Го:	Statutory Enquiries
Subject:	RE: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

#### Dear Sir/Madam,

Thank you for your enquiry for the above reference.

We can confirm that Colt Technology Services do not have apparatus near the above location.

Search is based on Overseeing Organisation Agent data supplied; we do not accept responsibility for O.O. Agent inaccurate data.

If we can be of any further assistance please do not hesitate to contact us.

Kind regards,

Plant Enquiry Team



#### Please consider the environment before printing this email.

This e-mail and any files transmitted with it are confidential and are intended solely for the use of the intended recipient(s). If you are not the intended recipient, you must not copy, distribute or take any action based on this communication. If you have received this communication in error please contact <u>plantenquiries@catelecomuk.com</u> and delete this communication and any copies of it. Any views or opinions presented are solely those of the author and do not necessarily represent those of CA Telecom LTD. CA Telecom LTD monitors e-mails to ensure that its systems operate effectively and to minimise the risk of viruses.

From: CN, Roshith [mailto:Roshith.CN@atkinsglobal.com] On Behalf Of Statutory Enquiries Sent: 10 November 2014 06:26 To: National Plant Enquiry's; 'Easynet'; 'Environment agn'; 'Interoute'; 'McNic'; 'Global Crosing New'; 'Networkrail'; 'Telenttelia.Plantenquiries@telent.com'; 'verizonbusiness'; 'plantenquiries@energetics-uk.com'; 'plantenquiries@citfyfibreholdings.com'; 'plantenquiries@catelecomuk.com'; plantenquiries@cisfl.gov.uk Subject: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

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To whom it may concern,

Please reply to this Email id: - AtkinsStatutory.Enquiries@atkinsglobal.com;

#### Sahu, Anima

From:	Anthony Kelly [anthony.kelly@cityfibre.com]
Sent:	Monday, November 10, 2014 6:21 PM
To:	Statutory Enquiries
Subject:	RE: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

You recently requested information pertaining to the above location and in relation to CityFibre Holdings Ltd plant.

I can confirm that at this current time we have NO PLANT which may be affected by your proposed works.

However, due to the nature of our works this could change dependent on the roll out of the programmes. The validity of this response is 6 weeks, after such time a new enquiry would need to be made.

Please see the points of contact below if they are required:

516 Chadwick House Warrington Road Birchwood Park Warrington WA3 6AE 0333 150 7282 plant.enguiries@cityfibre.com

From: CN, Roshith [mailto:Roshith.CN@atkinsglobal.com] On Behalf Of Statutory Enquiries Sent: 10 November 2014 06:26

To: National Plant Enquiry's; 'Easynet'; 'Environment agn'; 'Interoute'; 'McNic'; 'Global Crosing New'; 'Networkrail'; 'Telenttelia.Plantenquiries@telent.com'; 'verizonbusiness'; 'plantenquiries@energetics-uk.com'; Noticing; 'plantenquiries@catelecomuk.com'; plantenquiries@jsmconstruction.com; plantenquiries@tfl.gov.uk; LULHVpowerassets@tfl.gov.uk; Itasetrequest@tfl.gov.uk Subject: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

To whom it may concern,

Please reply to this Email id: - AtkinsStatutory.Enquiries@atkinsglobal.com;

McNicholas - Please reply for KPN & TATA

34353/RCN - Rosehill, Sutton- 525847,166054- SM1 3EX

Works Description- Building Works -Low Rise

Reply required by date - 26/11/2014

Please find attached a plant enquiry with corresponding map for your attention. Please could you send us plans showing the location of your company's affected plant to the below address quoting our reference number and the name of the scheme shown above. Please also include information relating to the use and location of Radio Frequency Identification Devices (RFIDs) where available.

Please cover the entire area shown in the boundary on the attached map not just the arrow, this is just an indicator of the middle of the site

If you do not have any apparatus in this area, please could you send written confirmation to declare that no apparatus is affected.

#### Sahu, Anima

 From:
 Plant Enquiries [plantenquiries@energetics-uk.com]

 Sent:
 Tuesday, November 11, 2014 3:00 PM

 To:
 Statutory Enquiries

 Subject:
 RE: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

Dear Sir/Madam,

Thank you for submitting your recent plant enquiry.

Based on the information provided, I can confirm that Energetics **does not** have any plant within the area(s) specified in your request.

Please be advised that it may take around 10 working days to process enquiries. In the unlikely event that you have been waiting longer than 10 working days, or require further assistance with outstanding enquiries, please call 01698 404945.

Please ensure all plant enquiries are sent to plantenguiries@energetics-uk.com

Regards

Louise O'Raw Technical Clerical Team

Energetics Design & Build International House Stanley Boulevard Hamilton International Technology Park Glasgow G72 OBN

t: 01698 404977 f: 01698 404940

e: louise.oraw@energetics-uk.com w: www.energetics-uk.com

From: CN, Roshith [mailto:Roshith.CN@atkinsglobal.com] On Behalf Of Statutory Enquiries Sent: 10 November 2014 06:26 To: National Plant Enquiry's: 'Easynet'; 'Environment agn'; 'Interoute'; 'McNic'; 'Global Crosing New'; 'Networkrail'; 'Telenttelia.Plantenquiries@telent.com'; 'verizonbusiness'; Plant Enquiries; 'plantenquiries@cityfibreholdings.com'; 'plantenquiries@catelecomuk.com'; plantenquiries@ismconstruction.com; plantenquiries@tfl.gov.uk; LULHYpowerassets@tfl.gov.uk; Issetrequest@tfl.gov.uk Subject: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

To whom it may concern,

Please reply to this Email id: - AtkinsStatutory.Enquiries@atkinsglobal.com;

McNicholas - Please reply for KPN & TATA

### Sahu, Anima

 From:
 &box\_FPLplantprotection\_conx, [FPLplantprotection@fulcrum.co.uk]

 Sent:
 Wednesday, November 12, 2014 1:56 PM

 To:
 Statutory Enquiries

 Subject:
 RE: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

### Hi,

You'll be pleased to know we can confirm Fulcrum Pipelines Limited do not have any existing pipes or equipment on or around the above site address.

Please note that other gas transporters may have plant in the area which could be affected by your proposed works.

We will always make every effort to help you where we can, but Fulcrum Pipelines Limited will not be held responsible for any incident or accident arising from the use of the information associated with this search. The details provided are given in good faith, but no liability whatsoever can be accepted in respect thereof.

If you need any help or information simply contact Fulcrum on 0845 641 3060. Or you can email us at FPLplantprotection@fulcrum.co.uk

#### Regards,

IAN LAKE Process Assistant



Tel: 03330 146 455 Direct Dial: 01142 804 275 Email: <u>lan.Lake@fulcrum.co.uk</u> Web: <u>www.fulcrum.co.uk</u>

### in 🏏

#### FULCRUM NEWS

FULCRUM GAS PIPELINE PROJECT SHORTLISTED FOR UTILITY INDUSTRY AWARD Historic 16 mile Speyside Gas Pipeline project sees Fulcrum short-listed for the Capital Project Management accolade at this year's Utility Week Achievement Awards. Learn more.

1

From: Gowrish, Manoj [mailto:Manoj.Gowrish@atkinsglobal.com] On Behalf Of Statutory Enquiries Sent: 11 November 2014 09:06 To: &box\_FPLplantprotection\_conx, Subject: PLANT ENQUIRY: 34353/RCN - Rosehill, Sutton

#### Sahu, Anima

 
 From:
 plantenquiryservice=gtc-uk.co.uk@mailer.gtc-uk.co.uk on behalf of plantenquiryservice@gtc-uk.co.uk

 Sent:
 Monday, November 10, 2014 11:40 AM

 To:
 Statutory Enquiries

 Subject:
 GTC Plant Enquiry - Ref- 53615

 Attachments:
 53615.png

#### GTC Apparatus Not Found In Search Area

Our Plant Enquiry Service Ref: 53615 Your Enquiry Ref: 34353/RCN

#### Dear Chrissy,

Thank you for your enquiry concerning apparatus in the vicinity of your proposed work. GTC can confirm that we have no apparatus in the vicinity but please note that other asset owners may have and ensure all utility owners have been consulted. For your records, the search area is shown in the attached map.

Please note our assets now include those owned and operated by:

- GTC Pipelines Limited
- Independent Pipelines Limited
- Quadrant Pipelines Limited
- Electricity Network Company Limited
- · Independent Power Networks Limited
- Independent Water Networks Limited
- Independent Fibre Networks Limited
- Independent Community Heating Limited

If you have any queries or require any further information please do not hesitate to contact us.

The IS team in Atkins has scanned this email and any attachments for viruses and other threats; however no technology can be guaranteed to detect all threats. Always exercise caution before acting on the content of an email and before opening attachments or following links contained within the email.

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#### Your sincerely,

GTC Plant Enquiry Service.

GTC Energy House Woolpit Business Park Woolpit Bury St Edmunds Suffolk, IP30 9UP Tel: 01359 240363 plant.enquiries@gtc-uk.co.uk

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GTC Plant Enguiny. Our Ref 53615, Your Ref 34353/RCN generated for AbinsStatutory Enguines@atkinsglobal.com at 10/11/2014 06/09.43. This map shows the search area of your enguiny.



CIVILS AND CABLING INSTALLATION SPECIALIST

Instalcom Ltd, Borehamwood Ind Park, Rowley Lane, Borehamwood, Herts WD6 5PZ. Telephone: 020 8731 4600 Fax: 020 8731 4601 Email: enquiries@instalcom.co.uk

27 November 2014

Dear Sir or Madam,

Your Ref:	34353/RCN - Rosehill, Sutton
Our Ref:	E11-14-2348

With reference to your enquiry regarding the above noted location, I can confirm that LEVEL 3, GLOBAL CROSSING (UK) LTD, GLOBAL CROSSING PEC FIBERNET UK LTD and FIBRESPAN LTD networks <u>DO NOT</u> have any apparatus within the immediate proximity of your proposed works.

Instalcom responds to plant enquiries for LEVEL 3, GLOBAL CROSSING (UK) LTD, GLOBAL CROSSING PEC and FIBERNET UK LTD and FIBRESPAN LTD simultaneously and therefore you only need send one copy of a plant enquiry to cover all of these companies. If you would like to query the location further, please email us accordingly and we can arrange an in depth survey, which will be charged at a cost. As we are moving towards a fully electronic database we urge our customers to request plant enquiries by email which will result in a higher level of service, please forward future plant enquiries to <u>plantenquiries@instalcom.co.uk</u>

If you require any further information, please do not hesitate to contact me.

Plant Protection Administrator

Instalcom Limited Borehamwood Ind. Park Rowley Lane Borehamwood, WD6 5PZ E mail: - <u>plantenguiries@instalcom.co.uk</u> Phone: - 020 8731 4600 Fax: - 020 8731 4601 Web: - <u>www.instalcom.co.uk</u>



DIRECTORS: T.G. & T.J. O'Consor, J.T. McVeigh, D.J. Dis, P.M. Alderson, INSTALCOM LIMITED REGISTERED IN ENGLAND No. 3421543


#### Sahu, Anima

To:

Interoute [interoute.enquiries@plancast.co.uk] From: Sent: Monday, November 10, 2014 7:37 PM Statutory Enquiries Subject: RE: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

To whom it may concern

This response does not include Vtesse plant, please continue to use Vtesse details for their enquiries

Thank you for your enquiry regarding the above proposals at the above location

We would advise that we are unaware of any Interoute plant or services in this Location as indicated in your enauirv.

We bring to your attention the fact that whilst we try to ensure the information we provide is accurate, the information is provided Without Prejudice and Interoute and its Agents accept no liability for claims arising from any inaccuracy, omissions or errors contained in this response.

#### All responses are only vaild for 28 days

Yours faithfully

PLANCAST Plant Enquiry Department



The Old Haybarn Rosebery Mews, Mentmore Bedfordshire LU7 0UE

T: 01296 662647 www.plancast.co.uk

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Registered office: 1<sup>st</sup> Floor, The Old Haybarn, Rosebery Mews, Mentmore LU7 0UE. Registered in England and Wales with number 4455025 VAT No. 8567 195 80



KCOM Group PLC 5th Floor Prospect House Prospect Street Hull HU2 8PU Tel: 01482 603479 Fax: highwaysadmin@kcom.com Date: Our Ref: Your Ref:

#### Dear Sirs

Please note this is a standard response made on behalf of the KCOM Group by Atkins.

With regards to your request for details of existing services in the search area supplied, we can confirm that based on the details provided to us, we have no buried plant or equipment in the identified area.

This is valid for 3 months from the date of receipt of this email. If any further information is required, please call 01482 603479, or email our group email address -

#### highwaysadmin@kcom.com

For clarity, the KCOM group consists of KCOM, Affiniti, Torch Telecom, DRL & Kingston Communications.

Yours faithfully

Enc.

Please quote our reference number in all replies

April 2015

From: CN, Roshith [mailto:Roshith.CN@atkinsglobal.com] On Behalf Of Statutory Enquiries Sent: 10 November 2014 06:26

To: National Plant Enquiry's; 'Easynet'; 'Environment agn'; Interoute Enquiries; 'McNic'; 'Global Crosing New'; 'Networkrail'; 'Telenttelia.Plantenquiries@telent.com'; 'verizonbusiness'; 'plantenquiries@energetics-uk.com'; 'plantenquiries@cityfibreholdings.com'; 'plantenquiries@catelecomuk.com'; plantenquiries@jsmconstruction.com; 1

#### Sahu, Anima

rom:	Murphy Patrick [PatrickMurphy3@tfl.gov.uk]
Sent:	Monday, November 10, 2014 10:42 PM
To:	Statutory Enquiries
Subject:	RE: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

#### Afternoon Roshith,

The attached plant enquiry does not affect London Tramlink infrastructure,

Regards

Patrick Murphy 3rd Party Works Co-ordinator, London Tramlink Tramlink Depot, Coomber Way, Croydon, CR0 4TQ Tel: 0203 054 2781 Mobile: 07803259834 Email: patrickmurphy3@ffl.gov.uk

From: CN, Roshith [mailto:Roshith.CN@atkinsglobal.com] On Behalf Of Statutory Enquiries Sent: 10 November 2014 06:26 To: National Plant Enquiry's; 'Easynet'; 'Environment agn'; 'Interoute'; 'McNic'; 'Global Crosing New'; 'Networkrail'; 'Telenttelia.Plantenquiries@telent.com'; 'verizonbusiness'; 'plantenquiries@energetics-uk.com'; 'plantenquiries@cityfibreholdings.com'; 'plantenquiries@catelecomuk.com'; plantenquiries@jsmconstruction.com; Plant Enquiries; LULHVpowerassets; LT asset request Subject: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

To whom it may concern,

<u>Please reply to this Email id: - AtkinsStatutory.Enquiries@atkinsglobal.com;</u>

McNicholas - Please reply for KPN & TATA

34353/RCN - Rosehill, Sutton- 525847,166054- SM1 3EX

Works Description- Building Works -Low Rise

Reply required by date - 26/11/2014

Please find attached a plant enquiry with corresponding map for your attention. Please could you send us plans showing the location of your company's affected plant to the below address quoting our reference number and the name of the scheme shown above. Please also include information relating to the use and location of Radio Frequency Identification Devices (RFIDs) where available.

Please cover the entire area shown in the boundary on the attached map not just the arrow, this is just an indicator of the middle of the site

- Date 11 November 2014
- Our Ref 20878-SI-2-111114
- Your Ref 34353/RCN
  - T₀ Roshith CN Atkins Roshith.CN@atkinsglobal.com

Hello Roshith,

## **Rosehill Sutton SM1 3EX**

Thank you for your communication of 10<sup>th</sup> November 2014.

I can confirm that London Underground has no assets within 50 metres of your site as shown on the plan you provided.

However your works may affect Transport for London Road Network. Please contact the following for advice if you are carrying out any highway/utility works:

Transport for London RSM Operations Planned Interventions Palestra 3rd Floor (3R1) 197 Blackfriars Road London SE1 8NJ Tel: (020) 3054 6121 Email: <u>plantenquiries@tfl.gov.uk</u>

There are Network Rail assets close to this site. Please contact the following to query what affect if any your proposals will have on the railway:

Asset Protection Anglia Route Network Rail Floor 11 One Stratford Place Stratford London E20 1EJ Telephone number 0203 356 2510 Email: AssetProtectionAnglia@networkrail.co.uk

Should you have any further enquiries, please do not hesitate to contact me.

Shahina Inayathusein Information Manager LUL Infrastructure Protection E-mail: Locationenquiries@tube.tfl.gov.uk Tel: 020 7918 0016





#### We have checked SSE's website and in this instance your area is not affected.

# READY to DIG

We have checked TrafficMaster's website and in this instance your area is not affected.

#### Sahu, Anima

 From:
 UK OSP-Team [osp-team@uk.verizon.com]

 Sent:
 Monday, November 10, 2014 2:57 PM

 To:
 Statutory Enquiries

 Subject:
 RE: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

Dear Sir/Madam

Verizon is a licensed Statutory Undertaker.

We have reviewed your plans and have determined that Verizon (Formally known as MCI WorldCom, MFS) has no apparatus in the areas concerned.

If you have any further queries please do not hesitate to call.

Yours faithfully

Chris Pile

#### Plant Protection Officer E.mail osp-team@uk.verizon.com



Chris.Pile Plant Protection Officer OSP-Infrastructu Field Operations, UK Office:01293 611736 Mobile:07990 774438 www.verizon.com

From: Statutory Enquiries [mailto:AtkinsStatutory.Enquiries@atkinsglobal.com] Sent: 10 November 2014 06:26 To: National Plant Enquiry's; 'Easynet'; 'Environment agn'; 'Interoute'; 'McNic'; 'Global Crosing New'; 'Networkrail'; 'Telenttelia.Plantenquiries@etelent.com'; 'verizonbusiness'; 'plantenquiries@energetics-uk.com'; 'plantenquiries@etligtyfibreholdings.com'; 'plantenquiries@catelecomuk.com'; <u>plantenquiries@ismconstruction.com</u>; plantenquiries@etligty.uk/LULHVpowerassets@tfl.gov.uk/: Itassetrequest@tfl.gov.uk/ Subject: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

To whom it may concern,

Please reply to this Email id: - <u>AtkinsStatutory.Enguiries@atkinsglobal.com;</u>

McNicholas - Please reply for KPN & TATA

34353/RCN - Rosehill, Sutton- 525847,166054- SM1 3EX

Works Description- Building Works -Low Rise

Reply required by date - 26/11/2014

Please find attached a plant enquiry with corresponding map for your attention. Please could you send us plans showing the location of your company's affected plant to the below address quoting our reference number and the name of the scheme shown above. Please also include information relating to the use and location of Radio Frequency Identification Devices (RFIDs) where available.

#### Sahu, Anima

 From:
 Kumar, Krishnaraj

 Sent:
 Wednesday, November 19, 2014 1:43 PM

 To:
 Statutory Enquiries

 Subject:
 RE: PLANT ENQUIRY : 34353/RCN - Rosehill, Sutton

This response is made only in respect to electronic communications apparatus forming part of the Vodafone: Fixed electronic communications network formerly being part of the electronic communications networks of Cable & Wireless UK, Energis Communications Limited, Thus Group Holdings Plc and Your Communications Limited.

Please accept this email as confirmation that Vodafone: Fixed <u>does not</u> have apparatus within the vicinity of your proposed works detailed below.

Many thanks.

Plant Enquiries Team T: 01454 662881 E: <u>osm.enquiries@atkinsglobal.com</u>

ATKINS working on behalf of Vodafone

# 🗕 vodafone

#### PLEASE NOTE:

The information given is indicative only. No warranty is made as to its accuracy. This information must not be solely relied upon in the event of excavation or other works carried out in the vicinity of Vodafone plant. No liability of any kind whatsoever is accepted by Vodafone, its servants, or aggrents, for any error or omission in respect of information contained on this information. The actual position of underground services must be verified and established on site before any mechanical plant is used. Authorities and contractors will be held liable for the full cost of repairs to Vodafone's apparatus and all claims made against them by Third parties as a result of any interference or damage.

Diversionary works may be necessary if the existing line of the highway/railway or it's levels are altered, where apparatus is affected. Where apparatus is affected and requires diversion, you must submit draft details of the proposed scheme with a request for a C3 Buddet Estimate' to <u>osm-equires@atkinselbal.com</u> These estimates should be provided normally within 20 working days from receipt of your request. Please include proof of this C2 response when requesting a C3 (using the 'forward' option).

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1

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## **Document Control Sheet**

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Revision	Date	Description	Prepared	Reviewed	Approved

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On behalf of London Borough of Sutton

**Rosehill Recreation** 

**Preliminary Ecological Appraisal** 

of Sutton

**Ground, London Borough** 



Project Ref: 32381 | Rev: V1 | Date: January 2015

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Preliminary Ecological Appraisal

Rosehill Recreation Ground, London Borough of Sutton

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# **Executive Summary**

- 1.1.1 Peter Brett Associates LLP (PBA) were commissioned by the London Borough of Sutton (LBS) to carry out a preliminary ecological appraisal of a site called Rosehill Recreation Ground. This appraisal will inform a feasibility study currently being undertaken by LBS to determine a suitable location for a new secondary school complex in the Borough.
- 1.1.2 The site is approximately 15 hectares in size and comprises amenity grassland associated with the recreation ground, bounded by trees, species-poor hedgerows and woodland scrub habitat. Should the site be taken forward for future development, the majority of the proposed school is likely to be situated on hard standing or amenity grassland, considered to be of negligible ecological value. Nevertheless, the more valuable habitats within the site contribute to the Parks and Open Space Sutton Biodiversity Action Plan, in addition to the Woodland and Scrub Sutton Biodiversity Action Plan, and are therefore considered as priority habitats within the Borough of Sutton. In addition, the site lies directly adjacent to Sutton to St Helier Railway Line SINC, designated for the mixed woodland, scrub and grassland it supports. An appropriate buffer zone (a minimum of 8m) should be incorporated within the masterplan layout to protect this feature of nature conservation value.
- 1.1.3 The sensitive design of any future masterplan should also retain the boundary features and any mature trees in order to minimise potential impacts on foraging, commuting and roosting bats, and nesting birds. In addition, the implementation of a Construction Environmental Management Plan would protect features of ecological value during the construction phase.
- 1.1.4 Should it not be possible to retain the mature trees along the western boundary within the masterplan layout, further surveys would be required in order to determine the presence or likely absence of roosting bats to inform any mitigation requirements. This would be required in advance of submission of a future planning application.
- 1.1.5 Recommendations are provided for enhancement of the biodiversity value of the site. This includes the incorporation of additional tree/ woodland planting and hedgerow enhancement, the provision of bat and bird boxes, and the creation of hibernacula. In addition, consideration should be given to the creation of a 'Wildlife Area' within any future masterplan design for the school complex. The creation of new habitats and features, such as wildflower grassland and pond would be expected to result in a net gain in biodiversity. The Wildlife Area could also be used as an educational resource for the school.
- 1.1.6 There are no potential significant ecological constraints that would preclude the development of Rosehill Recreation Ground as a secondary school complex.
- 1.1.7 The adoption of the mitigation and enhancement measures outlined above would ensure the scheme can be considered in line with planning policy DM17 of the London Borough of Sutton Local Development Framework "Site Development Policies DPD" (March 2012), which states that The Council will grant planning permission for developments that create, conserve or enhance biodiversity.

Preliminary Ecological Appraisal Rosehill Recreation Ground, London Borough of Sutton



# 1 Introduction

## 1.1 Background

- 1.1.1 Peter Brett Associates LLP (PBA) were commissioned by the London Borough of Sutton (LBS) to carry out a preliminary ecological appraisal of a site called Rosehill Recreation Ground. This appraisal will inform a feasibility study currently being undertaken by LBS to determine a suitable location for a new secondary school complex in the Borough.
- 1.1.2 The aims of the study were as follows:
  - To undertake a desk study and Phase 1 Habitat survey of the site and identify and map the habitats present, providing an overview of any other features of ecological interest associated with the site;
  - To assess the likely presence of valued habitats and protected species;
  - To identify any potential ecological constraints to be taken into account as part of the feasibility study; and
  - To provide an overview of the mitigation requirements and opportunities for ecological enhancement as part of any future development proposals.

## 1.2 Site Description

- 1.2.1 Rosehill Recreation Ground is a candidate site for the location of a new secondary school complex. The site is located within Rosehill Recreation Ground in the town of Sutton, Surrey and is split in the middle by a leisure centre and sports pitches, as shown in Figures 1 and 2 below.
- 1.2.2 The site is approximately 15 hectares (ha) in size and comprises amenity grassland associated with the recreation ground, bounded by trees, species-poor hedgerows and woodland scrub habitat. Small areas of introduced shrubs were also noted within the site, with a stream present within the southern half of the site and a wet ditch running along the southern half of the eastern boundary. The Southern and Thameslink railway line is located along the western boundary, with roads bounding the north western and eastern boundaries. Residential housing was located adjacent to the southern boundary. The approximate centre of the site is TQ 258 661.
- 1.2.3 The wider landscape is characterised by urban development associated with the town of Sutton. Parks and open spaces within the immediate vicinity include Rosehill Park East, Greenshaw Wood, St Helier Open Space and Thomas Wall Park.



Figure 1: Ordnance Survey Map Showing Location of Site Shaded in Red (OS Licence 100050456)



Figure 2: Aerial Photo of the Site (shaded in red)



Preliminary Ecological Appraisal Rosehill Recreation Ground, London Borough of Sutton



## 1.3 Proposals

1.3.1 Rosehill Recreation Ground is being considered as a candidate site for the development of a secondary school complex with associated access roads, parking and soft landscaping. Whilst the layout for the scheme is not confirmed, should this site be taken forward for development, it is likely that the school buildings would be located within the southern half of the site, with the northern half containing playing fields etc. Some hedgerow/tree clearance may be necessary to create access roads into the finalised site. It is understood that any buildings present within the site boundary would be retained as part of any future development proposals.

Preliminary Ecological Appraisal



# Rosehill Recreation Ground, London Borough of Sutton

# 2 Survey and Assessment Methodology

## 2.1 Desk Study

- 2.1.1 Statutory designated sites within 1km of the site were identified using the Natural England/DEFRA web-based MAGIC database (www.MAGIC.gov.uk).
- 2.1.2 The Greenspace Information for Greater London (GiGL) records centre was consulted for records of protected and notable species within 1km of the site. The records centre was also asked to provide details of locally designated sites within 1km of the site.
- 2.1.3 Ordnance Survey maps (1:25,000) and aerial images of the site were examined online (bing.com/maps and maps.google.co.uk).
- 2.1.4 The Local Development Framework document for the London Borough of Sutton (Site Development Policies DPD, March 2012) was consulted for details of planning policies relevant to designated sites, protected species and habitats, and general ecological and environmental protection.

## 2.2 Field Survey

2.2.1 The field survey was undertaken by Harry Fox, MCIEEM. The survey was carried out on 20th November 2014. At the time of survey, the weather conditions were dry and sunny, and the air temperature was between 5-8°C.

#### **Habitats**

- 2.2.2 The area inside the red line boundary on **Figures 1** and **2** was included in the survey. A habitat survey was carried out based on standard field methodology set out in the Handbook for Phase 1 Habitat Survey (JNCC, 2010).
- 2.2.3 The hedgerows were surveyed for their native species-richness. Particular attention was paid to the status of each hedgerow with regards to the Hedgerows Regulations (1997).
- 2.2.4 Habitats were mapped following the codes and conventions described within the Phase 1 Habitat Survey Handbook and Target Notes (see **Appendix A**) have been used to describe habitats not readily conforming to recognised types. The survey was extended to include as assessment of potential suitability and evidence of protected species and species of conservation concern as described below.

#### **Protected and Notable Species**

#### **Badgers**

2.2.5 A search was made for badger setts, and sett entrances were checked for signs of use by badgers or other mammals. Setts were classified into the following categories; main, subsidiary, annexe or outlying. Field signs such as 'snuffle holes' (holes dug by badgers when searching for invertebrates), pathways through vegetation, 'latrines' (small pits in which badgers deposit their faeces) and 'day nests' (nests of bedding material made by badgers for sleeping above ground) were also mapped, where present.

Preliminary Ecological Appraisal Rosehill Recreation Ground, London Borough of Sutton



- 2.2.7 Buildings: as all buildings currently present on site are to be retained, only the exteriors of the buildings were therefore assessed for features capable of supporting roosting bats or allowing bats entry into potentially suitable roosting spaces beyond. Extra factors taken into consideration included the potential for noise disturbance to the potential roost feature, exposure to the elements, lighting levels, proximity/connectivity of vegetation and water and whether these features/apertures led on to cavities further into the structure.
- 2.2.8 Trees: an inspection of trees on site was carried out from the ground, using binoculars, to record any signs of use of the tree by bat species. A ladder, powerful torch and a video fibrescope were available. Features such as frost cracks, rot cavities, flush cuts, split or decaying limbs (including hazard beams), loose bark and dense plates of ivy were inspected and recorded. Any signs of staining (from urine or fur rubbing) and scratch marks below potential access points were noted, and a search was made for droppings underneath these features.
- 2.2.9 Habitat: the habitats within the site were appraised for their suitability for use by foraging and commuting bats. In particular, the connectivity of the habitats on site to those lying beyond was taken into account. Vegetated linear features are typically important for many species to navigate around the landscape, while the presence of woodland, scrub, gardens, grassland and wetland features increases an area's foraging resource value to bats. The potential for noise or lighting disturbance which may affect commuting links was also recorded.

#### Amphibians

- 2.2.10 Any ponds within 500m of the site were identified using Ordnance Survey maps and aerial imagery, and were assessed during the field survey for their suitability to support amphibian species where access was possible.
- 2.2.11 Where suitable water bodies were identified on accessible land, a Habitat Suitability Index (HSI) score was calculated for each one following the methodology described by Oldham *et al* (Oldham *et al*, 2000). HSI scores give a relative indication of the likelihood that a water body would support breeding great crested newts. Factors which increase these scores include the presence of other ponds nearby, water quality, pond size, absence of fish/waterfowl, vegetation cover, and shading.
- 2.2.12 Terrestrial habitats were also assessed for their suitability for foraging and sheltering amphibians. Amphibians require habitats such as grassland, scrub, woodland and hedgerows for dispersal and hibernation. Further hibernation features include buried rubble and logs, or mammal burrows.

#### Reptiles

2.2.13 Features on site were assessed for their potential to provide suitable habitats for use by reptile species. These include rough, tussocky grassland, scrub, disturbed land or refugia such as wood piles, rubble or compost heaps. Where present, suitable existing refugia were inspected for sheltering reptiles, and the ground was scanned whilst walking to look for basking species.

Birds

2.2.14 Any buildings and vegetation were surveyed for signs of use by nesting birds and any birds seen or heard during the survey were noted. The site's potential to support bird species of particular conservation concern (i.e. Schedule 1, NERC S41 and Red List species) was assessed, taking into consideration the bird species assemblage observed during the survey, the habitats present on and around the site, the context of the site in the wider landscape and the results of the desk study.



#### Dormice

2.2.15 Any hedgerows, scrub and woodlands were assessed during the walkover for their suitability to support dormice *Muscardinus avellanarius*. Particular consideration was paid to the abundance of food sources within them, density for nesting and overnight shelter and the strength of connectivity to other suitable habitats leading off site. In addition, any direct sightings, nests or feeding signs observed during the site visit were also recorded.

#### Water Vole

2.2.16 The banks of the stream and ditch within the south east part of the site were searched for water vole *Arvicola amphibius* signs including latrines, burrow entrances, feeding stations, 'runways' and footprints and listening for the characteristic 'plop' of a water vole entering the water as a result of having been disturbed.

#### Other Notable Species and Species of Conservation Concern

2.2.17 Field signs indicating the presence of other species of conservation concern, such as hares *Lepus europaeus* and hedgehogs *Erinaceus europaeus* (Species of Principal Importance under the NERC Act (2006)) were recorded. Habitats were also assessed for their potential to support such species.

#### **Invasive Species**

2.2.18 Invasive species, such as Japanese knotweed *Fallopia japonica* and Himalayan Balsam *Impatiens glandulifera* were searched for and recorded, if present.

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# 3 Survey Limitations

## 3.1 Desk Study

- 3.1.1 The data presented within the report should not be seen as exhaustive. Data obtained from within the search area is highly unlikely to constitute a complete record of habitats and species present within the search area. It is therefore possible that protected species may occur within the vicinity of the proposed development that have not been identified within the desk study.
- 3.1.2 The data presented within the desk study section of this report constitutes a summary of the data obtained from the local records centre.

## 3.2 Field survey

- 3.2.1 This survey offers only a single 'snapshot' of the site and takes no account of seasonal differences, or of any species which might choose to take up residence subsequently. At the same time a lack of signs of any particular species does not confirm its absence, merely that there was no indication of its presence during this survey.
- 3.2.2 If no action or development of this land takes place within twelve months of the date of this report, then the findings of this survey should be reviewed and may need to be updated. After three years the findings will be out of date and the full survey should be repeated.



# 4 Results

4.1 Desk Study

**Designated Sites** 

International Designations within 5km of the Site

4.1.1 No internationally designated sites were identified within 5km of the site boundary.

National Designations within 2km of the Site

4.1.2 No nationally designated sites were identified within 2km of the site boundary.

#### Local Designations within 1km of the Site

- 4.1.3 The data search obtained from GiGL identified two Local Nature Reserves (LNRs) and five Sites of Importance for Nature Conservation (SINCs) within 1km of the site boundary (each identified to its closest point);
  - Sutton to St Helier Railway Line SINC bounds the western boundary of the site and extends north into Sutton Line South of Wimbledon SINC. These SINCs receive designation for the mixed woodland, scrub and grassland which lines the railway line. This railway line is also designated as a green corridor.
  - Greenshaw Wood and Rosehill Park East SINC is located approximately 150m east which receives designation for the oak woodland and ancient oak pollards it supports, in addition to the wildflower meadows.
  - Anton Crescent Wetland LNR and SINC is located approximately 550m south west and receives designation for the habitats and species it supports, which includes reed beds, marsh and open grassland, with a wide range of birds, reptiles and amphibians.
  - Pyl Brook LNR is located approximately 720m north west and comprises mature hawthorn and elm scrub with pockets of crack-willow, elder, blackthorn and bramble.
  - All Saints Churchyard SINC is located approximately 350m south and comprises habitats including woodland and semi-improved neutral grassland. This SINC receives designation bird and butterfly species it supports.
- 4.1.4 Locations of all the above LNRs/SINCs are provided in Appendix C.
- 4.1.5 The site is also classified as an Outdoor Sports Facility under the Open Spaces of Sutton and includes an Area of Deficiency along the western boundary.

#### **Protected and Notable Species**

- 4.1.6 A stag beetle, which is a UKBAP species, was recorded approximately 750m to the south west of the site in 2009.
- 4.1.7 A pipistrelle bat species *Pipistrellus* sp. was recorded approximately 1km to the north of the site in 2010.
- 4.1.8 Common toad *Bufo bufo* and common frog *Rana temporaria* were both recorded approximately 900m to the south west of the site in 2010.

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- 4.1.9 European hedgehog Erinaceus europaeus was recorded approximately 900m to the south west of the site in 2007.
- 4.1.10 The following birds shown in **Table 1** have been recorded within 1km of the site and are listed under the UK Biodiversity Action Plan<sup>1</sup>, Species of Principal Importance (SPI)<sup>2</sup> or BTO Birds of Conservation Concern red/amber lists<sup>3</sup>:

#### Table 1: Bird species recorded within 1km since 2000, arranged in order to proximity to the Site.

Species	Latin	Designation	Distance and Direction from the Sites
Water Rail	Rallus aquaticus	BTO Amber list	922m SW
Snipe	Gallinago gallinago	BTO Amber list	899m SW
Swift	Apus apus	BTO Amber list	385m N
Swallow	Hirundo rustica	BTO Amber list	782m N
Dunnock	Prunella modularis	BTO Amber list, UKBAP Priority Species, SPI	385m N
Song thrush	Turdus philomelos	BTO Red list, UKBAP Priority Species, SPI	385m N
Mistle thrush	Turdus viscivorus	BTO Amber list	477m N
Starling	Sturnus vulgaris	BTO Red list, UKBAP Priority Species, SPI	385m N
House Sparrow	Passer domesticus	BTO Red list, UKBAP Priority Species, SPI	163m N
Reed Bunting	Emberiza schoeniclus	BTO Amber list, UKBAP Priority Species, SPI	899m SW

<sup>&</sup>lt;sup>1</sup> Species identified as being most threatened and requiring conservation under the UK Biodiversity Action Plan. UK BAP Species are not legally protected, however local governments are obliged to have due regard to the presence and conservation status of these species through the planning process and mitigation/enhancements for them may be recommended.

<sup>&</sup>lt;sup>2</sup> Species of Principal Importance (SPI) are listed in Schedule 41 of the Natural Environment and Rural Communities (NERC) Act as requiring action under the UK Biodiversity Action Plan



## **Planning Policy**

4.1.11 The following policy has been identified within the London Borough of Sutton Local Development Framework "Site Development Policies DPD", March 2012, which is considered relevant to the site.

#### POLICY DM17:

#### Biodiversity, Habitats and Species

- (a) The Council will not grant planning permission for development within or adjacent to SINCs where there would be a significant damaging impact on the nature conservation value or integrity of the site unless the need for, and benefits of, the development clearly outweigh the harm; where the Council is satisfied that there are no reasonable alternative sites that would result in less harm; and, where adequate mitigation and compensation measures can be put in place.
- (b) The Council will grant planning permission for developments that create, conserve or enhance biodiversity and improve access to nature particularly in 'Areas of Deficiency in Access to Nature' and 'Priority Opportunity Areas to Reduce Deficiency in Access'.
- (c) The Council will not grant planning permission for development that would adversely affect the value of Green Corridors for nature conservation, amenity and leisure purposes.
- (d) Where appropriate, the Council will secure financial contributions towards enhancing nature conservation and access to nature. In particular, the Council will seek, where appropriate, contributions towards improvements to the River Wandle and the Beverley and Pyl Brooks, including river restoration, deculverting and habitat enhancement, and financial/land contributions required to complete the River Wandle Walkway and Cycleway.

#### **Local Conservation Priorities**

4.1.12 The following species and habitats are listed on the Sutton Biodiversity Partnership Biodiversity Action Plan.

#### Habitats

- Woodland and Scrub
- Parks and Open Spaces

#### Species

- Bats
- 4.1.13 These habitats and species have been identified as local conservation priorities and therefore will be given appropriate additional weight within the site ecological evaluation.

Preliminary Ecological Appraisal Rosehill Recreation Ground, London Borough of Sutton



## 4.2 Field Survey Results

## **General Description**

- 4.2.1 The site comprised amenity grassland and hard standing associated with the recreation ground, bounded by planted, managed trees, species-poor hedgerows and woodland scrub habitat. Small areas of introduced shrubs were noted within the site and a stream was noted within the southern half of the site, with a wet ditch located along the southern half of the eastern boundary.
- 4.2.2 The results of the ecological survey are included in map form on Figure 3. Habitats are mapped following the codes and conventions described within the Phase 1 Habitat Survey Handbook and Target Notes (Appendix A) were used to describe habitats not readily conforming to recognised types and evidence of or potential for protected species and species of conservation concern. Photographs of the site can be seen in Appendix B.

#### Buildings

- 4.2.3 Only one building was present within the northern half of the site, which comprised a brick built one storey electricity substation with a flat roof and no windows. The substation measured 3m in height and between 8-10m in width/length. A metal lean to shed was located adjacent to the substation.
- 4.2.4 A group of pavilion buildings associated with the bowls club were identified within the south eastern corner of the site. These buildings were simple in construction, comprising a mixture of single storey buildings, some of which were brick built and flat roofed, with others constructed from wooden cladding and boards with pitched and hipped bitumen felt roofing. It should be noted that internal access was not permitted at the time of survey. All of these buildings would be retained within development proposals.

#### Habitats

#### Amenity Grassland and Shrub Planting

- 4.2.5 The majority of the site comprised amenity grassland associated with the recreational use of the site. The grassland was dominated by perennial ryegrass *Lolium perenne*, red fescue *Festuca rubra* and annual meadow grass *Poa annua*, with other species including yarrow *Achillea millefolium*, herb-Robert *Geranium robertianum*, dandelion *Taraxacum officinale*, white clover *Trifolium repens*, ragwort *Senecio* sp and shepherds purse *Capsella bursapastoris*.
- 4.2.6 A small area of introduced shrubs was recorded within the north western corner of the site. This comprised a small area of planted willows Salix sp. and non-native ornamental shrub species on a slight bank.
- 4.2.7 Introduced shrub species had been planted along the southern boundary and between the areas of hard standing in the south eastern corner of the site. A little scattered scrub was also present within the southern boundary shrub species. Dominant species present included bramble *Rubus fruticosus* agg., cotoneaster *Cotoneaster* sp, privet *Ligustrum vulgare*, wild strawberry *Fragaria virginiana*, elder *Sambucus nigra* and *Mahonia* species.
- 4.2.8 This habitat, contributes to the Parks and Open Space Sutton Biodiversity Action Plan habitat designation.



#### Scattered Trees

- 4.2.9 Trees lined the eastern and northern half of the western boundaries of the site, with further scattered trees noted throughout the site. All of the trees within the site were semi-mature planted specimens, with the northern half of the eastern boundary comprising mainly London plane *Platanus x hispanica*.
- 4.2.10 Species planted throughout the site included ash *Fraxinus excelsior*, common lime *Tilia x europaea*, horse chestnut *Aesculus hippocastanum*, sycamore *Acer pseudoplatanus*, birch *Betula* sp, hornbeam *Carpinus betulus*, a Prunus species and London plane. Leyland cypress trees had been planted in rows within the southern half of the site.
- 4.2.11 The north western boundary and southern half of the western boundary comprised exclusively Hybrid black poplar *Populus x canadensis*, with several large and mature trees.

#### Scrub and Broadleaved Woodland

- 4.2.12 Areas of dense scrub and scattered scrub were recorded along the northern half of the western boundary, adjacent to the broadleaved woodland and railway line embankment. This was dominated by bramble with occasional ivy *Hedera helix*.
- 4.2.13 Broadleaved woodland was recorded directly adjacent to the scrub and connected to the woodland habitat within the railway embankment. Species present included mature poplars and intermittent semi-mature ash, sycamore, hazel *Corylus avellana* and willow. This habitat contributes to the Woodland and Scrub Sutton Biodiversity Action Plan habitat designation.

#### **Running Water**

4.2.14 A fast flowing stream was noted within the southern half of the site, running east to west from culvert to culvert. In addition, a wet ditch was noted running north to south along the eastern boundary. Neither had any aquatic vegetation associated with them, and both measured 0.4m deep and 0.3m wide. The water level was approximately 0.1m deep.

#### Hedgerows

4.2.15 Hedgerows are described on Figure 3 as numbers H1 – H6. Detailed descriptions of each hedgerow are provided within Appendix A. All hedgerows were species-poor, intact managed hedgerows, supporting a combination of hawthorn, elder, smooth-leaved elm, beech and privet. None of the hedgerows would be considered 'Important' under the Hedgerows Regulations (1997). All hedgerows can be considered to be Habitats of Principal Importance for nature conservation as designated under Section 4 of the NERC Act 2006.

## **Protected Species and Species of Conservation Concern**

#### Badgers

4.2.16 A mammal path was noted between the western scrub/woodland boundary and Hedgerow 2, passing through the hedgerow/fence line into the scrubby bund area outside of the site boundary. Suitable foraging and sheltering habitat was noted along the broadleaved woodland and railway embankment along the western boundary. No confirmatory evidence of badger activity was recorded during the survey. In addition, no records of badgers have been recorded within 1km of the site since the year 2000. Badgers are not considered to constitute a constraint to the future development of this site.

Preliminary Ecological Appraisal Rosehill Recreation Ground, London Borough of Sutton



Bats

- 4.2.17 No access/egress points for bat species were noted around the electricity substation. It should be noted that internal access was not possible. From the external inspection, the electricity substation was considered to offer negligible potential for roosting bats as all areas of the roof construction were tight and it was highly unlikely that there were any voids of cavity walls beyond.
- 4.2.18 No access/egress points for bat species were noted around the sports pavilion buildings located within the site associated with the bowls club. It should be noted that internal access was not possible. From the external inspection, the buildings were considered to offer low potential for roosting bats, with only a limited number of shallow crevice-type roosting locations under flashing and barge boards. No evidence of bat roosting was recorded.
- 4.2.19 Five mature poplars identified along the western boundary of the site (Target Notes 1-5, Appendix A, Figure 3) had potential roosting features for bat species, which were all classified as Category 1 for their potential value for roosting bats according to Bat Conservation Trust guidance (Hundt, 2012).
- 4.2.20 Foraging and commuting habitat for bats was limited to the boundary features, although the eastern boundary is likely to be subjected to artificial light from streetlamps. The amenity grassland was of poor value for foraging bats due to its uniform structure and low species diversity making it a relatively unsuitable habitat for night flying invertebrates (which bats feed on).

#### Dormice

4.2.21 The hedgerows, tree lines and woodland within the site boundary offered sub-optimal habitat for dormice, being species-poor and lacking connectivity to the wider landscape. Dormice are not considered to constitute a constraint to the future development of this site.

#### Water Vole

4.2.22 No evidence of water voles was recorded along the bank of the stream and ditch. In addition, the watercourses have poor connectivity to the wider environment. Water voles are not considered to constitute a constraint to the future development of this site.

#### Amphibians

- 4.2.23 No ponds were identified within the site boundary itself or within 500m of the site. A stream and wet ditch were identified within the southern half of the site. Neither of these features were considered suitable breeding habitat, with the stream holding fast flowing water and the narrow wet ditch containing very shallow water with no aquatic vegetation. For these reasons, coupled with the absence of records derived from the desk study, great crested newts are not considered to constitute a constraint to the future development of this site.
- 4.2.24 Terrestrial habitat within the site itself was considered to predominantly be of negligible value for amphibians, being dominated by managed amenity grassland, hard standing and planted trees. The scrub/woodland and the hedgerows may offer suitable terrestrial habitat to common amphibian species such as common toad *Bufo bufo* and common frog *Rana temporaria*, however, there appears to be a lack of suitable breeding features nearby.

#### Reptiles

4.2.25 The majority of the site was considered to offer negligible suitability for common reptile species, being dominated by managed amenity grassland and hard standing. The small lengths of woodland and scrub habitat features along the western boundary and adjacent to



the railway embankment were considered suitable for foraging and sheltering reptile species and connected to suitable habitat associated with the railway beyond the site.

#### **Birds**

- 4.2.26 It is likely that the area supports reasonable numbers of breeding and overwintering birds typical of urban fringe habitats. The hedgerows, scrub, trees and woodland represented suitable bird nesting habitat.
- 4.2.27 Species recorded on site incidentally during the survey included wren *Troglodytes troglodytes*, robin *Erithacus rubecula*, blackbird *Turdus merula*, blue tit *Cyanistes caeruleus* and rose-ringed parakeet *Psittacula krameri*.

#### Invertebrates

4.2.28 Water quality within the stream and ditch appeared to be good and these features are likely to support an aquatic invertebrate fauna of some conservation value. The woodland/scrub habitat is likely to some value to invertebrate species; but does not constitute suitable habitat for stag beetle (a desk study record was revealed nearby). It is likely that the remaining habitat features within the site boundary would support a fairly restricted range of common invertebrate species.

#### **Other Protected Species, Species of Conservation Concern**

4.2.29 Although no signs were observed during the survey the site may support populations of hedgehog, with shelter provided within the hedgerows and scrub/woodland habitat.

#### **Invasive Species**

4.2.30 No invasive species were noted during the survey.

Preliminary Ecological Appraisal Rosehill Recreation Ground, London Borough of Sutton



# **5** Constraints and Mitigation

#### 5.1 Overview

- 5.1.1 A number of features/ habitats of nature conservation value were identified during the desk study and extended Phase 1 habitat survey, which may constitute a constraint to any proposed development of the site. These are illustrated on the Ecological Constraints Plan, provided as Figure 4.
- 5.1.2 At the feasibility stage, it is important to identify any significant potential ecological constraints which may influence the decision to develop the site. Such constraints could include significant impacts on European protected species, requiring substantial mitigation to be implemented with onerous licensing implications (should the presence of the species concerned be confirmed), or if there is an impact on a site of considerable nature conservation value, such as a statutory designated site. This constraint may result in part of a site being precluded from developed.
- 5.1.3 Secondly, there will be ecological constraints that will need to be taken into account as part of the Masterplanning process, should the development of this site proceed. This will include retaining the most valuable habitats and/ or those with potential to support protected species within the site. Every effort should be made to retain these habitats or features, to ensure that impacts are minimised as far as possible but where this is not possible, mitigation will be required. Generally this will be straightforward mitigation, and is likely to include appropriate habitat or species translocation, habitat creation and/ or enhancement measures, incorporated into the Masterplan through sensitive design.
- 5.1.4 Finally, there will be ecological constraints which may need to be taken into account during future stages of the development process, for example, to inform the submission of a planning application and/ or due the legislative protection of a species. Further surveys may be required to inform the ecological appraisal or assessment to accompany the planning application, but they would not be expected to have an influence on decision making during the feasibility stage.

#### 5.2 Designated Sites

- 5.2.1 Whilst there will be no direct impacts on any designated sites as a result of the proposals, the potential exists for indirect effects on the adjacent Sutton to St Helier Railway Line, which is designated as an SINC. Although the scrub and woodland habitat present within the SINC extends slightly into the site, the development would be expected to be located outside of the SINC boundary. Provided that sound environmental protection measures to minimise the likelihood of pollution, accidental damage or contamination are taken during the construction phase, any indirect impacts are likely to be limited. To ensure direct and indirect impacts are avoided, it is recommended that a Construction Environmental Management Plan (CEMP) is implemented which will include details of features such as (but not limited to) protective fencing specification, location of set-down areas, plant storage areas, and measures to avoid and remediate incidental pollution events.
- 5.2.2 It is also recommended that an appropriate buffer zone is incorporated into any future masterplan layout for the site, to ensure that the adjacent SINC is retained and protected during both the construction and operation phase of the proposed school; a minimum width of 8m is recommended.
- 5.2.3 All other designated sites identified in the desk study are considered sufficiently distant from the site to avoid any direct or indirect impacts as a result of the proposals.



#### 5.3 Habitats

- 5.3.1 Should the scheme be taken forward, the majority of the proposed development would be situated on hard standing or amenity grassland considered to be of negligible ecological value. Nevertheless, the more valuable habitats within the site contribute to the Parks and Open Space Sutton Biodiversity Action Plan, in addition to the Woodland and Scrub Sutton Biodiversity Action Plan, and are therefore considered as priority habitats within the Borough of Sutton. In addition to this, the site lies directly adjacent to a SINC designated for the mixed woodland, scrub and grassland it supports.
- 5.3.2 The boundary features (tree lines, hedgerows, woodland and scrub) were considered to be of intrinsic nature conservation value, and suitable for use by foraging and commuting bats, in addition to nesting, foraging and sheltering bird species. Some trees also appeared suitable for roosting bats and are likely to be used by nesting birds (see below). Every effort should be made to retain these features within any future masterplan layout for the site, including an appropriate buffer zone, as recommended in paragraph 5.2.2.
- 5.3.3 The stream and wet ditch within the southern half of the site should be retained within any future masterplan layout. Implementation of the CEMP (see paragraph 5.2.1), would protect these watercourses during the construction phase.
- 5.3.4 It is assumed that the loss of mature trees will be minimised. All retained trees and hedgerows should be protected from damage during the construction phase by the use of an appropriate buffer and protective fencing, in accordance with BSS837:2012. This would prevent accidental damage during construction and ensure materials are not stored at the base of trees, hedgerows and other habitat. Such measures would ensure that these habitats remain in good health and can support associated wildlife for the long term.

#### 5.4 Protected Species and Species of Conservation Concern

## Bats

- 5.4.1 Five mature hybrid black poplar trees were classified as Category 1 for their potential for roosting bats and should be retained within development proposals, if at all possible (Target Notes 1-5, Figure 3, Appendix A). Should these trees require removal or any pruning and maintenance they will require further surveys to establish the presence or likely absence of bats (see Section 7). All species of bats in the UK are European protected species, receiving protection under the Conservation of Habitats and Species Regulations (2010) and amendments. They are also protected under the Wildlife and Countryside Act (1981) as amended. Should the presence of roosting bats be confirmed, a licence will be required from Natural England for the tree to be removed, and an appropriate mitigation strategy devised, including the sensitive timing of works and the provision of replacement roosting sites.
- 5.4.2 The SINC located directly adjacent to the western boundary provided suitable bat foraging and commuting habitat. The broadleaved woodland habitat within the SINC extended into the site along this boundary. As identified above, it is recommended that this feature is protected and retained, with an appropriate buffer zone. It is important that light spill is avoided on this feature both during the construction and operation phase of the proposed development, to retain a dark corridor for foraging and commuting bats.
- 5.4.3 The remainder of the site is likely to be partially illuminated by street lighting or lighting from adjacent buildings. As such, the assemblage of species using the remaining parts of the site for foraging is likely to be limited to the more common, light tolerant species such as common pipistrelle.
- 5.4.4 Artificial lighting within the development and along any access roads should be equipped with directional cowls to limit light spillage on retained boundary vegetation. A suitable lighting

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strategy for the proposed school should be designed with input from an ecologist to avoid light pollution of suitable bat habitat within and adjacent to the site. This could include exterior security lighting fitted to any new buildings being on a motion-sensitive timer, with directional cowls.

#### Reptiles

- 5.4.5 No signs or presence of reptiles were recorded during the survey; however, the woodland/scrub habitat along the western boundary provided suitable habitat for common species of reptiles. Reptiles are afforded protection under the Wildlife and Countryside Act (1981) as amended, against killing and injury. Should any areas of woodland/scrub be removed as a result of the proposals, this should be undertaken in a sensitive manner using phased vegetation clearance. The scrub and woodland vegetation should be strimmed to approximately 250mm with all arisings removed. 48 hours after the initial cut, a further cut would be made to reduce vegetation to a maximum of 100mm, again with all arisings removed. Vegetation should then be maintained at a low level prior to site clearance activities commencing.
- 5.4.6 It is also recommended that as a precaution, clearance of any woodland/scrub vegetation should be undertaken outside of the hibernation period (between late March and mid-October) to ensure any reptiles which may be present are able to move away from the works. It should be noted that clearance within the main bird nesting season would require an initial inspection by an ecologist, as detailed below.

#### Birds

- 5.4.7 The site contained suitable nesting habitat for birds within the woodland, scrub, hedgerows and all trees. Small areas of vegetation clearance along the eastern or north western boundaries may be required in order to provide access roads into the development. Some of the broadleaved woodland and scrub may also require removal as a result of the development.
- 5.4.8 Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended). Therefore any vegetation clearance affecting nesting habitat should be timed to occur outside the nesting bird season (usually March to August inclusive but seasonally variable). If this is not possible, a suitably experienced ecologist would be required to check the vegetation for active nests first. This check would identify individual nests and life stages of the occupants (eggs, chicks, fledglings). Any active nests found would need to be protected until eggs have hatched and young fledged. This would be ensured through the creation of at least a 10m buffer zone free of any other vegetation clearance. Until the young have fledged, the nest should be subjected to regular monitoring to ensure that a second brood is not raised once the first brood has fledged.
- 5.4.9 Any new tree or hedgerow planting as part of the landscape strategy for the scheme would be expected to contribute towards mitigating the loss of bird nesting habitat. In addition, it may be necessary to provide replacement nesting opportunities by installing bird boxes on retained vegetation. The number required will depend upon the degree of vegetation removal but between 10 to 15 boxes is likely to be appropriate. Boxes such as Schwegler 1B or general nesting boxes for wrens, robins and blackbirds are recommended, although boxes which can be incorporated into the fabric of new buildings would be favoured as they offer permanent nesting habitat provision.



#### **Other Protected Species and Species of Conservation Concern**

5.4.10 Habitat suitable for hedgehogs was recorded on site during the survey. It is recommended that clearance of any hedgerows, woodland or scrub habitat is carried out with caution to avoid injury to hedgehogs which may be sheltering or nesting within them. If any such animals are found advice from a suitably experienced ecologist should be sought as to the best action, which may result in re-release or transfer to an RSPCA unit or similar.

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# Ecological Enhancement Opportunities

- 6.1.1 The National Planning Policy Framework (NPPF), issued in March 2012, states that the planning system should contribute to "minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures". It also states that "opportunities to incorporate biodiversity in and around developments should be encouraged".
- 6.1.2 The masterplanning process should maximise opportunities for enhancement, in order to achieve a net increase in biodiversity. This is in accordance with the NERC Act (2006) which requires that "every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat." Recommendations for ecological enhancement are provided below and illustrated on Figure 4.
- 6.1.3 The value of the hedgerow network could be improved by augmenting the existing species-poor hedgerows with a more diverse planting mix (using native species of local provenance, wherever possible), and by implementing a sensitive management regime of the hedgerows to increase their value for wildlife. This would be expected to be of value to nesting birds, and foraging and commuting bats, as well as providing corridors for movement of wildlife across the site.
- 6.1.4 In addition, consideration should be given to planting-up the tree-lined boundaries to create continuous hedgerow features, in particular, along the western boundary of the site. Planting should comprise native species or species of known benefit to British wildlife, such as dogwood *Cornus sanguinea*, hazel *Corylus avellana*, hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa*.
- 6.1.5 Any new tree/ woodland planting should comprise native berry producing species, which will provide an additional winter food resource for birds.
- 6.1.6 Consideration should be given to the incorporation of additional bat roosting opportunities within any new school complex buildings. It is recommended that at least five bat boxes are installed, which could include Schwegler 2F bat boxes and Schwegler 1FR bat tiles. It should be noted that should a bat roost be confirmed within any of the mature trees to be removed, specific mitigation will be required to provide replacement roosting opportunities, in addition to this suggested enhancement measure.
- 6.1.7 Consideration should be given to the installation of bird nesting boxes to provide additional nesting opportunities. This could include the use of nesting boxes for swifts, such as the Schwegler triple cavity swift box, which could be attached to the walls of new school buildings to provide nesting sites for this declining summer visitor. Any boxes should be placed at least 4m high, preferably away from prevailing winds and direct sunlight and with a clear flight path.
- 6.1.8 In addition, consideration should be given to the creation of a hibernaculum along the western boundary of the site. This hibernaculum would provide shelter and hibernation habitat for common reptile species, in addition to common amphibian species (if present), small mammals and invertebrates, such as stag beetle.
- 6.1.9 Good horticultural practices should be used when managing any vegetation on site. This would include the use of peat-free composts, mulches and soil conditioner, and avoiding the use of herbicides, pesticides and fertilisers within landscape planting areas.



6.1.10 Finally, it may be possible to incorporate a 'Wildlife Area' within the masterplan layout for the school complex. This could include areas of wildflower meadow, along with the creation of a new wildlife pond. This would be of great value to a wide variety of wildlife, including bats, birds, amphibians and invertebrates. This Wildlife Area could also be used as an educational resource for school children, and would help considerably in contributing towards a net gain in biodiversity for the site.

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# **Further surveys**

- 7.1.1 No further surveys are considered necessary at this feasibility stage. However, should it not be possible to retain the areas of woodland and mature trees (in particular, the poplar trees along the western boundary, indicated by Target Notes 1 to 5 on Figure 3) within the masterplan design, it would be appropriate to undertake surveys to confirm the presence/ likely absence of roosting bats.
- 7.1.2 A combination of tree climbing and emergence/ dawn re-entry surveys is likely to be required. Tree climbing can be undertaken at any time of year, but emergence surveys can only be undertaken during the bat 'active season' between April and September. These surveys would be required in advance of any subsequent planning application being submitted. Should a bat roost be confirmed, a licence is likely to be required from Natural England for the tree to be felled, and an appropriate mitigation strategy would need to be devised.



# 8 Conclusions

- 8.1.1 There are no potential significant ecological constraints that would preclude the development of Rosehill Recreation Ground as a secondary school complex.
- 8.1.2 Should the site be taken forward for future development, the majority of the proposed school is likely to be situated on hard standing or amenity grassland, considered to be of negligible ecological value. Nevertheless, the more valuable habitats within the site contribute to the Parks and Open Space Sutton Biodiversity Action Plan, in addition to the Woodland and Scrub Sutton Biodiversity Action Plan, and are therefore considered as priority habitats within the Borough of Sutton. In addition, the site lies directly adjacent to Sutton to St Helier Railway Line SINC, designated for the mixed woodland, scrub and grassland it supports. An appropriate buffer zone should be incorporated within the masterplan layout to protect this feature of nature conservation value.
- 8.1.3 The sensitive design of any future masterplan should also retain the boundary features and any mature trees in order to minimise potential impacts on foraging, commuting and roosting bats, and nesting birds. In addition, the implementation of a CEMP would protect features of ecological value during the construction phase.
- 8.1.4 Should it not be possible to retain the mature trees within the Masterplan layout, further surveys would be required in order to determine the presence or likely absence of roosting bats to determine mitigation requirements. This would be required in advance of submission of a future planning application.
- 8.1.5 Recommendations are provided for enhancement of the biodiversity value of the site. This includes the incorporation of additional tree/ woodland planting and hedgerow enhancement, the provision of bat and bird boxes, and the creation of hibernacula. In addition, consideration should be given to the creation of a 'Wildlife Area' within any future masterplan design for the school complex. The creation of new habitats and features, such as wildflower grassland and a pond would be expected to result in a net gain in biodiversity. This could also be used as an educational resource for the school.
- 8.1.6 The adoption of the mitigation and enhancement measures outlined above would ensure the scheme can be considered in line with planning policy DM17 of the London Borough of Sutton Local Development Framework "Site Development Policies DPD" (March 2012), which states that The Council will grant planning permission for developments that create, conserve or enhance biodiversity.

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JNCC (2010) Handbook for Phase 1 habitat survey - a technique for environmental audit, ISBN 0 86139 636 7

Oldham. R.S., Keeble L., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.



# Figures

Figure 1: Ordnance Survey Map Showing Location of Site (shaded in red) (OS Licence 100050456) (see Page 3)

Figure 2: Aerial Photo of the Site (shaded in red) (see Page 3)

Figure 3: Phase 1 Habitat Map

Figure 4: Ecological Constraints and Opportunities Plan





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#### **Target Notes and Hedgerows** Appendix A

No.	Description
TN1	Mature hybrid black poplar tree with a major rot cavity 6m above ground level on the western facing limb. Classified as Category 1 suitability for roosting bat species.
TN2	Mature hybrid black poplar tree which had been topped at 10m above ground level and contained many woodpecker holes and areas of lifted bark. Classified as Category 1 suitability for roosting bat species.
TN3	Mature hybrid black poplar tree highly clad with ivy and with several high woodpecker holes. Classified as Category 1 suitability for roosting bat species.
TN4	Mature hybrid black poplar tree highly clad with ivy and with a major limb drop cavity with a hazard beam. Classified as Category 1 suitability for roosting bat species.
TN5	Mature hybrid black poplar tree with several minor rot holes on the east and south eastern facing limbs. Classified as Category 1 suitability for roosting bat species.
TN6	Electricity pylons.
Hedgerow No.	Description
H1	A species-poor intact hedgerow growing along the fence line. Species present included elder, ivy and several introduced shrub species, including cotoneaster. This hedgerow was considered NOT IMPORTANT under the Hedgerow Regulations.
H2	A species-poor, intact, managed hedgerow that had been flailed to a height of 1m and width of 1.5m. Species present included hawthorn Crataegus monogyna and ivy, with the occasional smooth leaved elm Ulmus minor. This hedgerow was considered NOT IMPORTANT under the Hedgerow Regulations.
H3	A species-poor, intact, managed hedgerow that had been cut to a height of 1m and width of 2m. This hedgerow follows the southern side of the stream. Species present included smooth leaved elm and ivy. This hedgerow was considered NOT IMPORTANT under the Hedgerow Regulations.
H4	A species-poor, intact, managed hedgerow that had been cut to a height of 1m and width of 2m. This hedgerow follows the eastern side of the wet ditch. Species present included smooth leaved elm, ivy and the occasional holly. This hedgerow was considered NOT IMPORTANT under the Hedgerow Regulations.
H5	A species-poor, intact, managed privet hedgerow that had been cut to a height of 1m and width of 1m. This hedgerow was considered NOT IMPORTANT under the Hedgerow Regulations.
H6	A species-poor, intact, managed beech Fagus sp. hedgerow that had been cut to a height of 1m and width of 1m. This hedgerow was considered NOT IMPORTANT under the Hedgerow Regulations.



# Appendix B Site Photographs



Photograph 1. View of amenity grassland and chain link fence of H2



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Photograph 3. View of amenity grassland and parkland trees.



Photograph 4. View west towards SNCI and railway with two mature poplars





Photograph 5. View of H1 and ditch within north of site



Photograph 6. View of bowls club pavilion building

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# Appendix







# Appendix





Sutton 8FE Secondary School Transport Assessment

# Notice

This document and its contents have been prepared and are intended solely for the London Borough of Sutton's information and for use in relation to the development of a potential new 8 Form Entry Secondary School.

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## **Document history**

Job number:		Document ref:				
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Rev 1.0	Draft for comment	NAU	RLF	RLF	-	06/03/15
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Sutton 8FE Secondary School Transport Assessment

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Sutton 8FE Secondary School Transport Assessment

# 1. Introduction

## 1.1. Background

Atkins Highways and Transport (Atkins) has been appointed to provide transport consultancy services to support a planning application for a potential new secondary school at the existing Rosehill Recreation Ground in Rosehill, Sutton, the location of which is illustrated in Figure 1-1.

The proposed development involves the construction of a new 8 Form Entry<sup>1</sup> (FE) secondary school. The proposed school will have capacity for 1,575 pupils (comprising 1,200 11-16 year olds and 375 sixth form students), with approximately 196 members of staff.

This Transport Report has been prepared to support the planning application to provide a new secondary school. This Report has been tailored to consider both traffic and parking impacts that may arise as a result of the proposals and thus to determine whether the local traffic networks could accommodate the proposals, and what additional measures may be required to off-set any undue impacts. The principles of a Framework School Travel Plan (STP) have also been identified as part of this Report.

## 1.2. Methodology

The proposed development has been considered against the thresholds outlined for a Transport Assessment (TA) within Transport for London's (TfL) TA Best Practice, Guidance Document (April 2010).

Following Transport for London guidance and scoping discussions with the London Borough of Sutton (LBS) Highways department, it was considered that a Transport Assessment (TA) would be the most appropriate methodology to be used to support the planning application. Details of the agreed scope are provided in Appendix A.

## 1.3. Report Structure

The following sections of this report describe the work that was undertaken during the study and the resulting conclusions. The report is structured as follows:

- Section 2 Planning Policy Context;
- Section 3 Existing Conditions;
- Section 4 Proposed Development;
- Section 5 Trip Generation;
- Section 6 Impact Assessment;
  Section 7 Mitigation Measures; and
- Section 7 Miligation Measures, and
   Section 8 Summary and Conclusions.

<sup>&</sup>lt;sup>1</sup> The number of classes in each year group.



# 2. Planning Policy and Guidance

This section outlines the planning policy and guidance which are relevant to the site and associated TA. The relevant national, regional and local planning policies have been reviewed, and the main aims and objectives of policies which are specifically relevant to the development are summarised below.

#### 2.1. National Planning Policy Framework

#### 2.1.1. Overview

The National Planning Policy Framework (NPPF) was published and came into effect in March 2012. The NPPF applies to England and is designed to supersede and simplify previous national planning policies. It is intended as a framework for the development of local and neighbourhood plans. However, existing Local Plan policies should not be considered out of date because they were adopted prior to the NPPF's publication.

The NPPF emphasises that the purpose of planning is to help achieve sustainable development; i.e. that which results in positive growth and economic, environmental and social progress. The NPPF is therefore based upon a presumption in favour of sustainable development, which should be allowed to proceed without delay. Therefore, proposed development that accords with an up to date Local Plan should be approved, while that which conflicts should be refused.

#### 2.1.2. Land Use and Transport Policies

The NPPF sets out twelve core land-use planning principles, which should underpin both plan-making and decision-taking. One of the principles states that planning should:

"Actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable".

The development proposals will provide additional secondary school provision within an existing residential area, which will provide the opportunity for local children to attend a school close to their place of residence and will therefore maximise opportunities to walk and cycle.

#### 2.1.3. Promoting Sustainable Transport

The NPPF sets out policies to achieve sustainable development under 13 headings, one of which is titled "Promoting sustainable transport". Within this section, the NPPF states that:

- "All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:
  - Opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
  - Safe and suitable access to the site can be achieved for all people; and
  - Improvements can be undertaken within the transport network that cost effectively limit the significant
    impacts of the development. Development should only be prevented or refused on transport grounds
    where the residual cumulative impacts of development are severe";
- "Plans and decisions should ensure developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised";
- "Developments should be located and designed where practical to:
- Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones; and
- Consider the needs of people with disabilities by all modes of transport".
- "All developments which generate significant amounts of movement should be required to provide a Travel Plan".

This TA will consider the school's location in terms of access by sustainable modes including journeys on foot, by cycle, bus and train.

## 2.2. The London Plan

## 2.2.1. Overview

The Mayor of London is responsible for strategic planning in London. As part of this duty, the Mayor is charged with preparing a Spatial Development Strategy for London, named the London Plan. The London Boroughs' development plans must be in "general conformity" with the London Plan.

The current London Plan was adopted in October 2013. The Plan sets out an "integrated economic, environmental, transport and social framework for the development of London over the next 15-20 years". It describes the Mayor's authority in major planning decisions in London and outlines proposals for implementation and funding within the Plan periods. Various supplementary strategies, including the Mayor's Transport Strategy (MTS, 2010), have also been produced, all of which are intended to be consistent with the London Plan.

The Mayor's vision is for London to "excel among global cities – expanding opportunities for all its people and enterprises, achieving the highest environmental standards and quality of life and leading the world in its approach to tackling the urban challenges of the 21st century, particularly that of climate change".

#### 2.2.2. Plan Objectives

In order to fully implement this vision, the London Plan is based on six objectives. Those with which the current school proposals relate are as follows;

- Ensure that London is a city that meets the challenges of economic and population growth in ways that
  ensure a sustainable, good and improving quality of life and sufficient high quality homes and
  neighbourhoods for all Londoners, and help tackle the huge issue of deprivation and inequality among
  Londoners, including inequality in health outcomes;
- Ensure that London is a city of diverse, strong, secure and accessible neighbourhoods to which Londoners
  feel attached, which provide all of its residents, workers, visitors and students whatever their origin,
  background, age or status with opportunities to realise and express their potential and a high quality
  environment for individuals to enjoy, live together and thrive; and
- Ensure that London is a city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities with an efficient and effective transport system which actively encourages more walking and cycling, makes better use of the Thames and supports delivery of all the objectives of this Plan.

Policy 3.18 Education Facilities outlines that access to a high quality school education is a fundamental determinant of the future opportunities and life chances of London's children and young people. It suggests that proposals for new schools should be given priority and only be refused in the presence of demonstrable negative impacts which clearly outweigh benefits.

The Plan aims to take an integrated approach to transport provision and development. Other transport policies within the Plan which are relevant to secondary schools include:

- Policy 6.3: Development proposals should ensure that impacts on transport capacity and the transport network, at both a corridor and local level, are fully assessed. Development should not adversely affect safety on the transport network;
- Policy 6.9: Developments should provide secure, integrated and accessible cycle parking facilities in line with the minimum standards, provide on-site changing facilities and showers for cyclists, facilitate the Cycle Super Highways, and facilitate the central London cycle hire scheme;
- Policy 6.10: Development proposals should ensure high quality pedestrian environments and emphasise the quality of the pedestrian and street space;
- Policy 6.13: The maximum standards set out should be applied to planning applications. In addition, developments must ensure that one in five spaces (both active and passive) provide an electrical charging point to encourage the uptake of electric vehicles, provide parking for disabled people, meet the minimum cycle parking standards set out and provide for the needs of businesses for delivery and servicing; and
- There should be one cycle parking space per 10 staff and one space per 10 pupils provided at secondary schools.

The school will develop an active STP which will promote walking, cycling and the use of public transport. Provision of cycle parking will be considered as part of this Report.

## 2.3. The Mayor's Transport Strategy

#### 2.3.1. Overview

The Mayor's Transport Strategy (MTS) was published by the Greater London Authority in May 2010 and provides the overall policy framework for transport in London. The policies and proposals within the strategy have a broad horizon covering the next twenty years and cover all forms of transport. The strategy also provides the context for the more detailed plans produced by various implementation agencies, in particular TfL, the London Boroughs and the DT Rail Group.

#### 2.3.2. Vision and Goals

The vision of the MTS is that:

"London's transport system should excel among those of world cities, providing access to opportunities for all its people and enterprises, achieving the highest environmental standards and leading the world in its approach to tackling urban transport challenges of the 21st century".

The Mayor identifies six goals to meet this vision. Those of relevance to the development proposals are to:

- · Support economic development and population growth;
- Enhance the quality of life for all Londoners;
- Improve the safety and security of all Londoners;
- Improve transport opportunities for all Londoners; and
- · Reduce transport's contribution to climate change and improve its resilience.

#### 2.3.3. Policy Context

Those strategic policies in the MTS which are relevant to the school proposals are:

- Policy 1: The Mayor, through TfL and working with stakeholders, will seek to develop London's transport system in order to accommodate sustainable population and employment growth;
- Policy 9: The Mayor through TfL and with other transport stakeholders, will use the local and strategic development control process to seek to ensure that:
- a) All high trip generating developments are located in areas of high public transport accessibility, connectivity and capacity;
- b) The design and layout of development sites maximise access on foot, cycle and to public transport facilities; and
- c) Access for deliveries and servicing maximise the opportunities for sustainable freight distribution.
- Policy 11: The Mayor, through TfL and working with other stakeholders, will seek to;
- Reduce the need to travel;
- Encourage the use of more sustainable, less congesting modes of transport;
- Set appropriate parking standards; and
- Through investment in infrastructure, service improvements, promotion of smarter travel initiatives and further demand management measures as appropriate, aim to increase public transport, walking and cycling.

The development proposals will deliver educational provision for a growing local population, contributing to sustainable development through the promotion of smarter choices.

#### 2.4. London Borough of Sutton's Local Development Framework

The Core Planning Strategy for the LBS was adopted in December 2009. It sets out a long-term vision, spatial strategy and core policies for shaping the Borough's development up to 2024. It includes the following strategic objectives linked to transport:

- To reduce car dependence, congestion and the impacts of air pollution on the Borough's environment and improve health and well-being; and
- To promote social inclusion by ensuring equality of opportunity and accessibility to essential local services and facilities... including education... throughout the Borough.

The Site Development Policies Document (2012) Appendix 3 states that schools should provide a maximum of four car parking spaces per five staff members. In terms of cycle parking at schools, this should ideally be covered and provide for:

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One per 10 staff; and

• One per 10 pupils (at least 10 percent of pupils should be provided for).

In addition, as a general rule, one motorcycle space should be provided for every 20 car parking spaces

The provision of on-site parking has been considered within this TA.

## 2.5. Sub-Regional Transport Plan

Over the past two years, the South London Boroughs, South London Partnership and other stakeholders in the region have worked closely together in developing a sub-regional Transport Plan. The purpose of the plan is to set out the transport strategy to address the particular challenges faced by each of the London subregions. The plans are informed by the Mayor's Transport Strategy (MTS) and by local authority transport priorities for improvement. The new school in Sutton will, where practicable, comply with the policies of the MTS, including the provision of an active STP.

## 2.6. Sutton Transport Plan

The Sutton Transport Plan forms part of Sutton's second Local Implementation Plan (LIP) and sets out how the Council intends to implement the second MTS published in May 2010. The Plan covers the period 2011/12-2013/2014 and beyond to 2031, and supersedes the council's first LIP which was published in May 2007. The new school in Sutton will, where practicable, comply with the policies of the Sutton Transport Plan.

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# 3. Existing Conditions

## 3.1. Introduction

This section presents a review of the existing conditions, including:

- Site description;
- Surrounding road network;
- Pedestrian and cyclist facilities;
- Public transport accessibility;
- Collision data;
- Existing traffic conditions;
- Existing local school travel patterns.

#### 3.2. Site Description

The proposed site is within the existing Rosehill Recreation Ground in Rosehill, Sutton, the location of which is illustrated in Figure 1-1. The Recreation Ground is located in a mainly residential area in the Ward of Sutton North, although it should be noted that its northern edge borders the St Helier Ward. As indicated in Figure 1-1, the Recreation Ground is located approximately 1.5km north of Sutton Town Centre, 2.5km north-west of Carshalton and 1.5km south of Morden.

The Rosehill Recreation Ground is bounded by the A217 Reigate Avenue to the north, Rose Hill to the east, residential properties (accessed from Cranleigh Gardens) to the south, and the "Sutton Loop" Railway Line (part of Thameslink) to the west.

An aerial photo of the existing Recreation Ground is shown in Figure 3-2 and its existing layout is illustrated in Figure 3-3.

Currently, Rosehill Recreation Ground is broadly comprised of three areas:

- Open space, shown in Figure 3-1, approximately 10.9Ha, primarily used by dog walkers and visitors to the
  other uses on-site, includes a basketball court. This area is outlined in green in Figure 3-2;
- Recreation pitches, approximately 4.6Ha, includes Rose Hill Bowling Green, multi-use pitch, tennis courts, putting green and all weather football pitch, outlined in blue in Figure 3-2;
- Leased buildings, includes the Sports Village. It should be noted that this area will remain as existing, and
  would not be changed as part of any proposals for a school. This is shown Figure 3-2 outlined in red.

In addition, Rosehill Community Centre is located in the area bounded by the three coloured lines (east of the Sports Village). For the purposes of this assessment, the areas bounded by the green and blue lines will hereby be referred to as "the Site".
Figure 3-1 View of the site from the northern edge

Figure 3-2 Aerial view of the site





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# 3.2.1. Access

There are currently four vehicular access points to the Recreation Ground, one of which also provides a footway for pedestrians, and four pedestrian only access points. The locations of the accesses are indicated in Figure 3-4.



# 3.2.2. Existing Trip Generation

Currently, the Rosehill Recreation Ground is mainly visited by users of the Community Centre / Sports Village and dog walkers. In is not anticipated that any proposals would affect the operation of the Community Centre or Sports Village. As such, the existing site will be treated as non-vehicle trip generating for the purposes of the assessment.

# 3.3. Surrounding Road Network

This section of the report outlines the character of the roads in the vicinity of the site, as highlighted in Figure 3-5 and described in more detail below.

The Borough's three strategic "Red" Routes, which link central London to the M25 (A24 and A217) and provide an east-west route across the Borough (A232) all run within approximately 2.5km of the site, with the A217 running directly adjacent to the northern edge of the site. The locations of these Red Routes are indicated in Figure 1-1.

The site is not in proximity of the London Congestion Charge Zone.



Reigate Avenue, shown in Figure 3-6, is part of the TfL Red Route Network. It links Rose Hill Roundabout with Sutton Common Road, bordering Rose Hill Park on its western side. The carriageway has a width of approximately ten metres. The total number of lanes varies between four and three, with the southbound carriageway varying between one or two lanes. The speed limit in the vicinity of the site is 40mph and stopping and/or parking is not allowed (except within marked bays) between 7am and 7pm.

Due to the roads strategic nature parking is strictly enforced. There are thirty parking spaces in the northbound direction located between Glastonbury Road and Cleeve Way. In the southbound direction there is space for six cars at the northern end of the road and another six spaces at the junction between Sutton Common Road and Reigate Avenue, one of which is reserved for disabled users. An example of provided on-street parking spaces is provided in Figure 3-7.

Figure 3-6 Reigate Avenue from from Sutton Common Road looking Northbound



Figure 3-7 Parking spaces in northbound direction of Reigate Avenue



Foot- and cycle-ways are provided in both directions, and are approximately five metres wide in total. Both facilities, an example of which is shown in Figure 3-7 above, are in good condition.

There are two signalised pedestrian crossings provided in the vicinity of the site; one located at the junction between Reigate Avenue and Sutton Common Road, and one located on Cleeve Way. Additionally there is an overpass that crosses the Reigate Avenue, adjacent to at Clastonbury Road, as shown in Figure 3-8 below.



There are no bus stops or bus lanes provided in the section of Reigate Avenue between Sutton Road and Rosehill Roundabout.

#### 3.3.1.2. Rosehill

Rosehill borders the sites eastern side, linking Rosehill Roundabout in the north to Angel Hill in the south. The majority of the road is single carriageway, with a carriageway width of approximately seven metres. The speed limit in the vicinity of the site is 30 mph.

There is no parking restriction in the vicinity of the site. As such, informal parking occurs, mainly in the southbound direction as shown in Figure 3-9 below.

There are footways provided in both directions in the vicinity of the site. The footways are approximately three meters wide, however, in some locations trees encroaching on the footways halve the effective width. There are signalised pedestrian crossings at the northern and southern end of Rose Hill, in addition to informal crossings with dropped kerbs and pedestrian refuges also being available, an example of which is shown in Figure 3-10.

There is a bus lane provided in the northbound direction for approximately 200 metres on the approach to Rosehill Roundabout. Bus stops are provided close to Rosehill Roundabout, at the junction with Rose Hill Park West and near the junction with Cranleigh Gardens. The bus stops provide shelters and timetable information. The northbound stop at Cranleigh Gardens is shown in Figure 3-11.

Figure 3-9 Informal Parking observed in Southbound carriageway on Rosehill



Figure 3-10 Pedestrian refuge at the south end of Rose Hill



Figure 3-11 Bus stop with Shelter in northbound carriageway of Rose Hill



#### 3.3.1.3. Sutton Common Road

Sutton Common Road, shown in Figure 3-12, is located to the south of the site. It links Reigate Avenue in the west to Rosehill in the east, via Angel Hill. The road provides access to Sutton Common Railway Station. It is predominantly a residential road with a speed limit of 30mph and circulation is restricted to vehicles over 7.5 tonnes exceed for access.

There are footways in good condition provided in both directions, ranging between two and three metres wide.

On street parking is available on the westbound carriage for residents permit holders only. The provision is in the form of marked parking bays half on the footway and half on the road. An example of the parking provision is shown in Figure 3-12.



Figure 3-12 Sutton Common Road looking eastbound

3.3.1.4. Glastonbury Road

Glastonbury Road is located to the west of school site. It links Reigate Avenue to the east to Forest Road and Green Lane to the north. The road is residential in natural and the speed limit is 30mph. Carriageways in this residential area approximately seven metres wide. Footways are wide and sufficient for comfortable walking. Parking in Glastonbury Road is mainly unrestricted, with the exception of School Keep Clear markings outside

Abbey Primary School and double yellow line restrictions at junctions. The road is traffic calmed, with speed bumps provided at regular intervals, and example of which is shown in Figure 3-13 below.

### Figure 3-13 Glastonbury Road



#### 3.3.1.5. Local Residential Roads

There is network of local, residential roads surrounding the site, including Hunston Road and Hexham Road to the north which are linked to Glastonbury Road, and Rosehill Park West and Aultone Way to the east which are linked to Rose Hill.

Parking restrictions are limited on the majority of the roads, with the exception of double yellow line restrictions at junctions. The form of on-street parking provision varies across the roads, with a mixture of marked bays on-street, on-footway and half on the footway / half on-street, and unrestricted space. An example of both unrestricted space and on-footway bays is shown in Figure 3-14.

The majority of local residential roads provide footways on both sides, which are wide and in good condition.

#### Figure 3-14 Hunston Road



# 3.4. Pedestrian and Cycle network

There are numerous pedestrian and cycle facilities in the vicinity of the site, although currently there is no cycle parking provided for the area of open space or recreation pitches.

There are a number of recommended cycle routes identified in TfL's London Cycling Guide 10 within the vicinity of the site. The recommended routes are summarised below, with an extract of the Guide shown in Figure 3-15:

- Quieter roads that have been recommended by other cyclists, shown in yellow, include:
- Rosehill Gardens;
- Rosehill Park West between Rosehill Gardens and Grennell Road;
- Aultone Way; - Angel Hill Drive:
- Sections of Sutton Common Road, - Glastonbury Road; and
- Forest Road / Love Lane.
- Greenways (shared use routes), shown in green, include:
  - Through Rosehill Recreation Ground: and
  - Through Rosehill Park East.
- · Cyclist routes separated from the road, shown in brown, include:
  - Reigate Avenue; and
- St Helier Avenue.

### Figure 3-15 TfL Recommended Cycle Routes



As described above, foot- and cycle-ways are provided on both sides of Reigate Avenue. Footways are provided on the majority of roads within the vicinity of the site, including on both sides of Rosehill, Sutton Common Road, Glastonbury Road, and the majority of the local residential roads.

There are numerous formal crossing points within the vicinity of the site, including two signalised crossings and an overpass facilitating controlled crossing of Reigate Avenue, a zebra crossing on Sutton Common Road, adjacent to Sutton Common Train Station, and signal controlled crossings at the Rosehill Roundabout. Informal crossing points, with dropped kerbs and pedestrian refuges, are provided on Rosehill.

From observations during a site visit, footpaths were deemed wide enough to accommodate the existing usage. The footway along Reigate Avenue is especially wide, in good condition and able to accommodate pedestrians despite the heavy traffic experienced on the roadside. There is a pedestrian overpass which can accommodate crossings on Reigate Avenue, located approximately half way between Rosehill Roundabout and the junction between Reigate Avenue and Sutton Common Road. Other than this crossing, there are pedestrian crossings located at both ends of Reigate Avenue.

There is a footway provided on both sides of Rosehill. As outlined above, there are some locations at which trees are present, which effectively reduces the footway width to half. Due to higher pedestrian numbers in the area, there are several informal crossings with dropped kerbs and pedestrians refuges provided along the road. This, combined with slower average speeds due to the presence of bus stops, allows for a safe environment for pedestrians.

Along the minor residential roads surrounding the site the width of the footways varies. In some cases the width is shared with on-footway parking. Nevertheless, from site observations, it can be concluded that the sufficiently slow vehicle speeds do not pose a danger to pedestrians.

# 3.5. Public Transport

#### 3.5.1. Rail

The nearest station to the site is Sutton Common Station, located approximately 650 metres ("as the crow flies") to the south of the centre of the open space part of the site, and 400 metres walk distance from the south-eastern edge of the site.

Sutton Common Station is served by Thameslink and Southern services running through the Wimbledon Loop. The services available at the station are summarised in Table 3-1.

Southern services operate during the AM Peak and terminate at London Bridge. Thameslink services provide a continuous half hourly service throughout the day terminating at Sutton (Anticlockwise) and St Albans (Clockwise).

	1	Table 3-	<ol> <li>Rail sei</li> </ol>	Rail services in the vicinity of the school			
Station	Operator	Origin	Destination	Distance from Site (m) <sup>2</sup>	Peak Frequency	Journey Time (to/from origin)	Journey Time (to/from destination)
Sutton Common	Thameslink	Sutton	London Bridge	960	2 Trains per hour	7 minutes	50 minutes
Sutton Common	Southern	Sutton	St Albans	960	2 Trains per hour	7 minutes	1 hour 30 minutes

### 3.5.2. Bus

There are seven bus routes which stop within the vicinity of the school site.

There is a bus lane provided in the northbound direction on Rosehill for approximately 200 metres on the approach to Rosehill Roundabout. Bus stops are provided close to Rosehill Roundabout, at the junction with Rose Hill Park West and near the junction with Cranleigh Gardens. The bus stops provide shelters and timetable information. Examples of two stops are shown in Figure 3-16 below.





The routes cover a wide area, providing access to numerous local centres and residential areas. Table 3-2 beTable 3-2 Bus services in the vicinity of the school sitelow summarises the frequency of the bus routes as well as their nearest stop to the site, with the location of the routes illustrated in Figure 3-17.

Table 3-2	Bus services	in the	vicinity	of th	e school	site
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Route	Origin	Destination	Nearest Stop	Distance (m) <sup>3</sup>	Peak Frequency
151	Shotfield	Worcester Park Station	Rose Hill Park West	150	6 buses / hr
154	Whitgift Centre	Morden Station	Rose Hill Park West	150	5 buses / hr
164	Sutton Station	Wimbledon	Rose Hill Park West	150	6 buses / hr
280	Belmont Station	St Georges Hospital	Rose Hill Park West	150	7 buses / hr
470	Epsom	Colliers Wood Station	Sutton Common Station	650	2 buses / hr
157	Crystal Palace Bus Station	Morden Station	Wrythe Lane	650	6 buses / hr
S4	Wilson's School	St Helier Station	Wrythe Lane	650	2 buses / hr

<sup>&</sup>lt;sup>3</sup> The layout of the school is not yet known, therefore, distance to bus stop has been calculated from the centre of site as indicated in Figure 3-17 above.

<sup>&</sup>lt;sup>2</sup> The layout of the school is not yet known, therefore, the distance to the railway station has been estimated from the centre of the site.

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**3.5.3. Underground, Tram, DLR and Riverboat services** There are no London Underground, tram, DLR or riverboat services in the vicinity of the school site.

# 3.5.4. Taxis

There nearest taxi rank is located on Wrythe Lane, outside St Helier Hospital, as indicated in Figure 3-18. The taxi rank is located approximately 850 metres walk distance from the site.



# 3.5.5. Public Transport Accessibility Level (PTAL)

A Public Transport Accessibility Level (PTAL) assessment is the standard approach used by TfL to measure the accessibility of a site by means of public transport.

As mentioned previously, the lack of information on the location of the school building adds uncertainty to the location of the entrance to the school. As such, distances to stops have been calculated from the centre of the site.

A detailed analysis of the site using TfL methodology ("*Measuring Public Transport Accessibility Levels: PTALs Summary*") returns an accessibility index of 11.47, which equates to a PTAL rating of 3, equating to "moderate" accessibility to the site by public transport. The calculation is presented in Appendix B.

This result is also returned when using the TfL online interactive tool (http://www.webptals.org.uk/).

# 3.6. Existing Traffic Conditions

A number of surveys were undertaken to determine current traffic and parking conditions in the vicinity of the site, as summarised below.

In undertaking the traffic surveys, a number of factors are considered prior to any collection of data. General conditions considered prior to traffic data being commissioned include:

- · Checking that there are no significant road works in the vicinity;
- · Whether there are any outside factors influencing sustainable travel, such as rail or bus strikes; and
- Ensuring data is not collected during school or public holidays.

All these parameters were checked prior to commissioning of the traffic surveys and there were no outside travel influences identified during the period the traffic surveys were undertaken. Following receipt of the traffic data the actual weekly conditions were then checked and these include:

- Weather conditions; and
- · School attendance in the local area.

Traffic flow data was collected over the period 1<sup>st</sup> to 7<sup>th</sup> of December 2014 using Automatic Traffic Counts (ATCs) on:

- Reigate Avenue, located just north of the underpass below the train tracks;
- Sutton Common Road, outside Sutton Common Railway Station;
- Rosehill, outside the junction between Rose Hill and Aultone Way;
- Rosehill Park West, southwest of the junction between Rosehill Park West and Rosehill Gardens

The ATC counted the number of vehicles using these roads each day over this period. The number of vehicles was converted into Passenger Car Units (PCU) using TfL standards.

Parking surveys were undertaken in the vicinity of the site on December 2<sup>nd</sup> from 07:30 to 09:30 and 14:00 to 17:00 hours. Figure 3-19 below summarises the location of the on-street parking surveys, which included a combination of restricted and unrestricted parking locations.

The full survey results are provided in Appendix C.



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 16
 Connegh Gardens

 19
 Astegin Gardens

 20
 Autom Way

 21
 Wavefrey Variau

 22
 Montros Gardens

#### 3.6.1. Traffic Flows

17 Rose Hill (Rosehill Gardens to Waverley Ave

Two way flows were analysed from the ATC data to determine the peak day; the highest flows corresponded to Friday 5<sup>th</sup> December.

Table 3-3 summarises the hourly traffic flows (PCUs) recorded during Peak Periods (07:00-10:00 hours and 14:00-18:00 hours) on December  $5^{\rm th}$ , the identified worst-case day.

Max PM	16:00-17:00	16:00-17:00	16:00-17:00	15:00-16:00	16:00-17:00
Max AM	07:00-08:00	08:00-09:00	08:00-09:00	08:00-09:00	08:00-09:00
17:00-18:00	2,173	894	1,173	130	4,369
16:00-17:00	2,270	905	1,173	135	4,483
15:00-16:00	2,187	875	1,123	158	4,343
14:00-15:00	1,990	760	1,005	105	3,861
09:00-10:00	1,886	763	955	110	3,714
08:00-09:00	2,221	878	1,059	200	4,358
07:00-08:00	2,327	803	862	131	4,122
Period	Reigate Avenue	Sutton Common Rd	Rose Hill	Roseniii Park West	Total

Table 3-3 Two-Way Peak Period Traffic Flows – December 5<sup>th</sup> (PCUs)

From the data outlined in Table 3-3, it can be seen that the AM Peak Hour is 08:00-09:00 hours on the network as a whole and on three out of four surveyed roads, although it should be noted that the flows on Reigate Avenue only differ by 106 PCUs between 07:00-08:00 and 08:00-09:00 hours. The PM Peak Hour is 16:00-17:00 on the network as a whole and on three out of four surveyed roads, with flows on Rosehill Park West only differing by 23 PCUs between 15:00-16:00 and 16:00-17:00 hours.

It is evident from the ATCs that traffic flows on Reigate Avenue are significantly heavier than on the other surveyed roads. As mentioned previously, Reigate Avenue is a TiL Red Route and as such it's a key part of the network, where larger volumes of traffic are expected at peak times.

#### 3.6.2. Link Capacity Assessment

A link capacity assessment of the existing situation on the roads around the potential school site was undertaken using the methodology set out in DMRB TA 79/99. According to the guidance, a 60/40 directional split is to be used in each of the Peaks. These values are then compared to theoretical maximum capacities of the links, based on their classification and carriageway width to determine whether they are operating under, at or over theoretical capacity.

For the purposes of this assessment, Reigate Avenue has been assumed to be classified as "UAP2" with a width of 10 metres, Sutton Common Road is assumed to be "UAP3" with a width of 6.75 metres, Rose Hill "UAP4" with a width of 6.1 metres.

DfT guidance states that a ratio of flow to capacity of below 85% indicates that the link operates satisfactorily. Above 85% it is approaching capacity and beyond 100% it is over capacity and queues and delays may result. Table 3-4 below summarises the link capacity assessment results.

	Table 3-4	Link Capacity	Assessment	: Existing Si	tuation	
Period	Location	Width (metres)	Traffic Flow	Lanes / Direction	Capacity	Flow to Capacity Ratio
	Reigate Avenue	10	1,332	2	1,650	81%
08:00-	Sutton Common Road	6.75	527	1	1,110	47%
09:00	Rose Hill	7.3	636	1	1,140	56%
	Rosehill Park West	6.1	120	1	900	13%
	Reigate Avenue	10	1,362	2	1,650	83%
16:00-	Sutton Common Road	6.75	543	1	1,110	49%
17:00	Rose Hill	7.3	704	1	1,140	62%
	Rosehill Park West	6.1	81	1	900	9%

The highest flow to capacity ratio is 83% on Reigate Avenue in the PM Peak. Out of the other three assessed roads. Rose Hill displays the highest Flow to Capacity Ratio (62% in the PM Peak). The results of the

assessment indicate that there is theoretically spare capacity on the road network in the vicinity of the site to accommodate additional traffic during the identified Peak Hours.

## 3.6.3. Junction Modelling

Capacity assessments of the key junctions in the area most likely to be impacted by the development have been undertaken for the existing situation. The full junction modelling results are contained within Appendix D with a summary of the results presented below. Key network indicators are reported as the figures that indicate how a junction is working, including Degree of Saturation (DoS) / Ratio of Flow to Capacity (RFC), queue lengths and delay. For a junction to be working within its theoretical capacity then the DoS / RFC figure should ideally be below 85 percent. Figures over this and approaching 99 percent indicate that the junction is nearing its practical capacity, and figures of 100 percent and over indicate that the junction is operating over capacity.

#### Rosehill Roundabout

A base year LinSig model has been developed for the Rosehill Roundabout for the AM (worst-case) Peak. The model is based on:

- Traffic data was from a manual classified count survey conducted on 2<sup>nd</sup> December 2014;
- Signal specifications obtained from TfL;
- Green times for stages from site observations which were found to be matching with the controller timings received from TfL;
- Degree of Saturation (DoS) and under-utilised green time (UGT) analysed for approach arms from survey videos.

The base model was prepared using the controller timings and observed UGT applied. Table 3-5 summarises modelled and observed DoS for the purposes of validation.

Table 3-5	Observed and Modelled DoS Comparison: Rosehill Roundabout
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Lane Description	Modelled DoS (%)	Observed DoS (%)*
St Helier Ave Entry Nearside	41.5%	44%
St Helier Ave Entry Offside	75.2%	74%
St Helier Avenue circ. Right Ahead Nearside	47.9%	
St Helier Avenue circ. Right Ahead Middle	88.7%	
St Helier Avenue circ. Right Offside	33.7%	
A217 Bishopford Road North Nearside	51.8%	47%
A217 Bishopford Road North Offside	74.7%	71%
A217 Bishopford Road North circ. Left	47.4%	
A217 Bishopford Road North circ. Right Nearside	48.3%	
A217 Bishopford Road North circ. Right Middle	32.5%	
A217 Bishopford Road North circ. Right Offside	31.6%	
Wrythe Lane	99.7%	94%
Wrythe Lane circ. Left	49.3%	
Wrythe Lane circ. Ahead	49.4%	
Wrythe Lane circ. Right Middle	81.6%	
Wrythe Lane circ. Right Offside	9.6%	
Rose Hill	93.6%	93%
A217 Reigate Avenue	91.3%	94%
A217 Reigate Avenue	95.9%	95%
A217 Reigate Avenue circ. Left	59.0%	
A217 Reigate Avenue circ. Right Middle	38.7%	

Lane Description	Modelled DoS (%)	Observed DoS (%)*
A217 Reigate Avenue circ. Right Middle	55.3%	
A217 Reigate Avenue circ. Right Offside	4.6%	
Green Lane Nearside	98.3%	100%
Green Lane Offside	94.9%	100%
Green Lane circ. Nearside	41.9%	
Green Lane circ. Middle	58.0%	
Green Lane circ. Offside	14.9%	

As indicated in Table 3-5 above, the modelled DoS levels are comparable to observed levels. As such, the model is considered appropriate for use for the purposes of future year assessment.

The base model DoS and mean maximum queue results are summarised in Table 3-6 below. The full results are provided in Appendix D.

# Table 3-6 Rosehill Roundabout: Base Model Results Summary

Lane Description	DoS (%)	Mean Max Queue (PCU)	Av. Delay per PCU (s/PCU)
St Helier Ave Entry Nearside	41.5%	3	26.3
St Helier Ave Entry Offside	75.2%	6	44.4
St Helier Avenue circ. Right Ahead Nearside	47.9%	4	6.0
St Helier Avenue circ. Right Ahead Middle	88.7%	21	27.8
St Helier Avenue circ. Right Offside	33.7%	5	6.3
A217 Bishopford Road North Nearside	51.8%	4	25.4
A217 Bishopford Road North Offside	74.7%	8	33.8
A217 Bishopford Road North circ. Left	47.4%	12	11.0
A217 Bishopford Road North circ. Right Nearside	48.3%	6	11.8
A217 Bishopford Road North circ. Right Middle	32.5%	1	3.7
A217 Bishopford Road North circ. Right Offside	31.6%	2	5.2
Wrythe Lane	99.7%	16	103.9
Wrythe Lane circ. Left	49.3%	6	5.9
Wrythe Lane circ. Ahead	49.4%	4	12.1
Wrythe Lane circ. Right Middle	81.6%	12	24.6
Wrythe Lane circ. Right Offside	9.6%	1	10.9
Rose Hill	93.6%	9	48.0
A217 Reigate Avenue	91.3%	14	46.7
A217 Reigate Avenue	95.9%	17	65.0
A217 Reigate Avenue circ. Left	59.0%	10	3.3
A217 Reigate Avenue circ. Right Middle	38.7%	2	4.8
A217 Reigate Avenue circ. Right Middle	55.3%	2	5.9
A217 Reigate Avenue circ. Right Offside	4.6%	1	6.9
Green Lane Nearside	98.3%	10	136.1
Green Lane Offside	94.9%	8	123.6
Green Lane circ. Nearside	41.9%	7	6.3

Lane Description	DoS (%)	Mean Max Queue (PCU)	Av. Delay per PCU (s/PCU)
Green Lane circ. Middle	58.0%	5	5.6
Green Lane circ. Offside	14.9%	1	3.6

The base modelling results indicate that Rosehill Roundabout is currently operating at approaching capacity on a number of approaches, including Wrythe Lane, Rose Hill, Reigate Avenue and Green Lane. Delays of over one minute on average per PCU are indicated on Wrythe Lane (104 secs), the A217 Reigate Avenue (65 secs) and Green Lane (max 136 secs).

#### Angel Hill Priority Junctions

Base year PICADY models have been developed for the two northern-most two priority junctions at Angel Hill:

- Angle Hill South / Angel Hill West / Angel Hill North; and
- Angel Hill North / Waverley Avenue / Angel Hill South / Tesco Access.

The base models were prepared using traffic data from a manual classified count survey conducted on 2<sup>nd</sup> December 2014. Table 3-7 summarises modelled and observed average queues (PCUs) for the purposes of validation.

#### Table 3-7 Observed and Modelled Queue Comparison: Angel Hill Priority Junctions

Arm	Modelled Q (PCUs)	Observed Average Queue (PCUs)
Angel Hill South	-	-
Angel Hill West	1	2
Angel Hill North	2	2
Angel Hill North	1	1
Waverley Avenue	1	2
Angel Hill South	1	1
Tesco Access	1	-

As indicated in Table 3-7 above, the modelled DoS levels are comparable to observed levels. As such, the model is considered appropriate for use for the purposes of future year assessment.

The base models Ratio of Flow to Capacity (RFC) and maximum queue results are summarised in Table 3-8 below. The full results are provided in Appendix D.

### Table 3-8 Angel Hill Priority Junctions: Base Model Results Summary

Arm	RFC (%)	Q (PCUs)
Angel Hill South	-	-
Angel Hill West	32%	1
Angel Hill North	41%	2
Angel Hill North	2%	1
Waverley Avenue	31%	1
Angel Hill South	20%	1
Tesco Access	5%	1

The base modelling results indicate that the two priority junctions are currently operating with significant reserve capacity on all arms. The maximum RFC value reported is 41%, with an associated queue of two PCUs, on Angel Hill North at the Angle Hill South at the generated Hill North incrion.

#### Angel Hill Signalised Junction

It was raised in the scoping stage that the Angel Hill signalised junction may need to be tested should a significant proportion of development traffic be forecast to use it during the Peak Hours. A sensitivity test has therefore been undertaken in Section 6.3.3 to determine the proportional impact of the development on the junction.

## 3.6.4. Traffic Speeds

Speeds were also recorded as part of the ATCs. The mean and 85<sup>th</sup> percentile speeds recorded across the week of the surveys are summarised in Table 3-9 below.

Location	Direction	Speed Limit (mph)	Mean Speed (mph)	85 <sup>th</sup> Percentile (mph)
Reigete Avenue	NB	40	38.0	44.1
Reigale Avenue	SB	40	40 34.6	39.4
Sutton Common Bood	NB	- 30	26.0	30.2
Sutton Common Road	SB		25.7	30.0
Roos Hill	NB	20	27.3	32.2
Rose Hill	SB	30	26.1	30.9
Reachill Dark West	NB	20	23.7	29.3
Roseniii Park west	SB	30	22.9	29.5

Table 3-9 Mean and 85th percentile Speeds around the Site

The surveys indicate that average and 85<sup>th</sup> percentile speeds are within, or very close to, the posted limits in both directions on Sutton Common Road and Rosehill Park West during the survey period.

On Rose Hill, the 85<sup>th</sup> percentile speed was 32.2 mph northbound, although the average speed was less than the posted speed limit of 30mph. Similarly, the 85<sup>th</sup> percentile speed on Reigate Avenue was 44.1mph northbound, with an average speed of less than the posted limit of 40mph.

It should be noted that the recorded speeds are averaged across the entire survey periods, including both peak and off-peak times. On Reigate Avenue, it is not considered that an 85<sup>th</sup> percentile speed of 44.1mph would jeopardise the safety of pedestrians crossing using the formal signalised or the footbridge.

#### 3.6.5. On Street Loading and Parking

The parking beat survey results have been assessed to determine current levels of parking demand in the vicinity of the site.

The number of spaces identified with the surveyed area, a total of 759, are summarised in Table 3-11 below, with reference to the locations illustrated in Figure 3-19 and the parking restriction descriptions outlined in Table 3-10.

Table 3-10 Description	of parking restrictions
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10010 0	beet parting rectioned
Marking	Restriction
Unrestricted	Unrestricted on-street space
Footway Parking Bay	Unrestricted marked bays wholly or partially on footway
Single Yellow	Mon to Fri 10-11 & 14-15
Disabled	Restricted to blue badge holders only
Parking Bay	Mon to Sat 8:00-06:30 30mins (ID13 1Hr), no return in 2Hrs
Red Route Parking Bay	No Stopping 7-19, except 7-16 1hr, no return in 2Hrs

#### Sutton 8FE Secondary School Transport Assessment

Ref	Street Name	Unrestricted	Footway Parking Bay	Single Yellow	Disabled	Parking Bay	Red Route Parking Bay
1	Reigate Ave (B279 - Glastonbury Rd)	3		-	1		6
2	Glastonbury Road	30					
3	Hexham Road		23				
4	Garendon Road	9	13		2		
5	Hunston Road	17	29		3		
6	Halesowen Road	1	22				
7	Keynsham Road	11			1		
8	Kirksted Road	11			1		
9	Reigate Ave (Glastonbury Rd - Rose Hill)	35			1		
10	Rose Hill (Roundabout to Rosehill Ave)	1					
11	Rose Hill Service Road				1	15	
12	Rosehill Avenue	14				8	
13	Rose Hill (Rosehill Ave to Rosehill Park)	59				4	
14	Rosehill Park West	61					
15	Rosehill Gardens	63					
16	Rose Hill (Rosehill Park - Rosehill Gdns)	50					
17	Rose HIII (Rosehill Gdns - Waverley Ave)	51					
18	Cranleigh Gardens	34					
19	Ashleigh Gardens	38					
20	Aultone Way	58					
21	Waverley Avenue	66					
22	Montrose Gardens	26		4			

Private and confidential Atkins Transport Assessment | 1.0 | March 2015 | 5134710 For the purposes of analysis, the parking survey results have been grouped into areas, namely:

- "Western Residential Area": includes Glastonbury Road, Rexham Road, Garendon Road, Hunston Road, Halesowen Road, Keynsham Road, and Kirksted Road;
- Reigate Avenue;
- Rose Hill;
- "Eastern Residential Area": includes Rosehill Park West, Rosehill Gardens and Aultone Way; and
   "Southern Residential Area": includes Cranleigh Gardens, Ashleigh Gardens, Waverley Avenue, and
- Montrose Gardens.

The recorded parked vehicle occupancy (the proportion of spaces which were recorded as being used) for the above areas are summarised below in Figure 3-20 to Figure 3-25.



The results summarised in Figure 3-20 indicate that the number of vacant spaces within the "western residential area" varies across the day. Parked vehicle occupancy was recorded to exceed capacity on Glastonbury Road on a number of occasions, indicating that illegal parking piace. However, the maximum parked vehicle occupancy was not recorded to exceed capacity on any other surveyed road in this area, with significant spare capacity being recorded on Kirksted Road, Garendon Road, Hunston Road, and Halesowen Road.



The results summarised in Figure 3-21 indicate that parked vehicle occupancy remains fairly constant on Reigate Avenue. The number of vacant spaces closer to Rosehill Roundabout is fairly limited throughout the survey period compared to the Southern end of Reigate Avenue, which peaks at only 40% occupancy. This may well be due to the proximity of services to the northern end compared to the southern end, where it is mostly a residential area.



The results summarised in Figure 3-22 indicate that vehicles within this survey area generally park between Rosehill Avenue & Rosehill Park, and Rosehill Gardens & Waverley Avenue. Parked vehicle occupancy in these two locations was recorded to be fairly constant throughout the survey periods, with a maximum parked vehicle occupancy of 30% recorded between Rosehill Avenue and Rosehill Park.





The results summarised in Figure 3-23 indicate that the number of vacant spaces within the "western residential area" varies across the day, although there are fairly limited vacant spaces on Aultone Way recorded throughout the survey periods. The maximum parked vehicle occupancy on other roads within this area was recorded as 41% on Rosehill Park West, indicating that there is significant spare capacity for onstreet parking on Rosehiul Park West and Rosehill Gardens during the survey periods.



The results summarised in Figure 3-24 indicate that the number of vacant spaces within the "southern residential area" was fairly constant throughout the survey periods. Ashleigh Gardens was recorded to have the highest parked vehicle occupancy, although the maximum of 66% indicates that even on this road this is significant spare capacity for on-street parking during the survey periods.

## Figure 3-25 Total Parking Stress in the Vicinity of the Site



Figure 3-25 above illustrates the total parked vehicle occupancy across the entire surveyed area. The results indicate that, overall, on-street parking is undertilised in the area during the morning and afternoon Peak Periods. The maximum parked vehicle occupancy recorded was 50% at 16:30 hours. Overall, there is a dip in parked vehicle occupancy from the beginning of the survey, with the lowest parked vehicle occupancy recorded around 09:15 hours. The overall results indicate that there is significant spare capacity within the area to support an increase in on-street parking demand.

# 3.7. Collision Data

Collision data has been obtained from TfL for the last five years to August 2014, covering the roads in the vicinity of the site.

Figure 3-26 Accidents in the vicinity of the site for the last 5 years to 31 August 2014

The recorded collisions are shown illustratively in Figure 3-26, and summarised below.



Source. Transport for London

There were 176 collisions recorded in the vicinity of the site in the past five years, of which 158 were slight, 14 were serious and 4 were fatal.

The majority of the collisions took place at junctions, with a significant proportion occurring at Rosehill Roundabout. It should however be noted that the roundabout forms part of a TfL Red Route, with larger volumes of traffic using the roundabout at all times.

With regard to the fatal collisions, three out of the four casualties were pedestrians. However, only one of fatalities took place on a weekday.

Contributory factors of the recorded accidents are varied, with no discernible trends. As such, there is no reason to suggest that the recorded collisions are related to highway layout, and therefore that number of collisions would increase with the development of a new secondary school provided safe routes are planned.



# 4. Proposed Development

# 4.1. Background

The proposed development involves the construction of a new 8FE secondary school to accommodate 1,575 pupils (comprising 1,200 11-16 year olds and 375 sixth form students). Based on existing data for other schools in the area, it is estimated that there will be approximately 196 members of staff employed at the school.

It is anticipated that the school will take seven years to reach its fully expanded capacity, admitting 8FE (240 pupils) per year, with the first year starting in September 2017.

At this stage, proposals for the school are currently not fully developed. As such, a number of assumptions based on the operation of similar schools within the area have been made for the purposes of assessment:

- The school will start at 09:00 and finish at 16:00 Monday to Friday with a range of "normal" before and after school clubs;
- Pupils and staff will be able to enter the site on foot from both Rosehill and Reigate Avenue;
- No on-site parking will be provided for pick-ups and drop offs;
- Vehicular access to the site will be via Rosehill, making use of the existing Rosehill Bowling Club access;
- It is assumed that all pupils attending the new school will be from the London Borough of Sutton, and their home locations will be distributed in a similar pattern to current pupils in the borough.

# 4.2. Site Layout

The site layout has not currently been developed. Potential areas for development are the current open space (outlined in green in Figure 4-1) and the current recreation pitches (outlined in blue in Figure 4-1).

Figure 4-1 Existing Situation: Aerial Photo



# 4.3. Parking and Drop Off

LBS' Site Development Policies Document (2012) outlines maximum levels of car parking and minimum levels of cycle parking to be provided for all new developments or changes of use.

For schools, the standards state that car parking should be provided at a maximum of four car parking spaces per five staff members. As a general rule, one motorcycle space should also be provided per 20 car parking spaces. In addition, where more than 20 spaces are provided, a minimum of 5% should be reserved for disabled people, and one in five spaces (both active and passive) should provide an electrical charging point.

Using the aforementioned parking standards, a maximum of 156 car parking spaces should be provided on site for staff, including 8 disabled spaces and provision for 31 electrical charging points. A further 8 motorcycle spaces should also made available. No on-site parking will be provided for parents or sixth form pupils, who will need to utilise on-street space to drop-off and pick-up pupils and / or park. It should be noted that this provision has been calculated using estimated staff numbers, and not taking account of the ratio of part time and full time staff. The required number of spaces should be refined following confirmation of staffing levels at the proposed school and agreed with the Local Authority.

Cycle parking should be covered and provide for one space per 10 staff and 10 pupils. The standards outlined above indicate that a minimum of 20 staff and 158 pupil cycle parking spaces should be provided at the proposed school. The cycle parking should be covered, lit and secure, and located appropriately near pedestrian only accesses to the school.

# 4.4. Construction

A Construction Management Plan for the school site should be prepared and agreed with the Local Authority prior to commencement of construction. Construction should take place in the daytime only, with construction vehicles travelling to and from the site outside of Peak Hours to minimise disruption to local residents and on the local road network.

## 4.5. Deliveries and Servicing

At this stage, delivery and servicing arrangements at the site are not able to be confirmed. As such, a Framework Delivery and Servicing Plan has been developed as part of this Report, and is contained in Appendix E.

Once more details of the operation of the school are available, a full Delivery and Servicing Management Plan should be developed.

# 5. Trip Generation and Distribution

A new secondary school is required to accommodate additional pupils across the Borough. The way that pupils will travel to the school is dependent on a number of factors such as the distance to school, accessibility to sustainable modes of transport, safety and availability of walk / cycle routes, and time constraints for Parents at pick-up / drop-off times. As the school is yet to be constructed, and therefore no fixed catchment area or pupil postcode data is available, it is not possible to confirm exactly what the pupil mode share of the school will be.

As it is not possible to confirm a catchment area for the school prior to construction, existing mode shares for local secondary schools have been considered in order to estimate the pupil mode share of the proposed school, as outlined within this section.

# 5.1. Trip Generation

#### 5.1.1. Mode Share

Both staff and pupil mode shares and postcodes have been supplied for the following local secondary schools:

- Greenshaw High School, Grennell Road, Sutton;
- Overton Grange School, Stanley Road, Sutton;
- Wallington Boys School, Croydon Road, Wallington; and
- Carshalton Boys, Winchcombe Road, Carshalton.

The characteristics of the above schools are summarised in Table 5-1 below.

Table 5-1 Local School Characteristics					
School	Distance from Site	Number of Pupils	Pupil Age Range	Accessibility	
Greenshaw High School	600m	1,665	11-18	Lower than the site; limited bus stops in the vicinity of the school and 1km from Train Station	
Overton Grange	2.7km	1,300	11-19	Slightly lower than site; bus stops in vicinity of the school and 1km from Train Station	
Wallington Boys	4km	1,035	11-18	Similar to site; bus stops in vicinity of the school and 1km from Train Station with direct bus link from outside School.	
Carshalton Boys	1.3km	1,258	11-19	Similar to site; bus stops in vicinity of the school and 1.5km from Train Station	

Based on the above, the identified schools are considered to be comparable to the proposed school overall. The mode shares for the schools are summarised in Table 5-2 and Table 5-3 below.

Table 5-2	Local Schoo	l Pupil Mode	Shares (	%)

Mode	Greenshaw High School	Overton Grange	Wallington Boys	Carshalton Boys				
Car	11%	12%	14%	11%				
Car Share	2%	2%	3%	1%				
Park and Stride	7%	9%	5%	0%				
Rail / Tram / Tube	1%	3%	15%	1%				
Bus <sup>4</sup>	23%	25%	52%	51%				
Cycle	2%	2%	0%	3%				
Scooter	1%	3%	0%	0%				
Walk	53%	44%	10%	32%				
	Figures may not sum to 100% due to rounding							

# 

	Table 5-3 Local School Staff Mode Shares						
Mode	Greenshaw High School	Overton Grange	Wallington Boys	Carshalton Boys			
Car	36%	79%	42%	52%			
Car Share	7%	3%	0%	11%			
Park and Stride	2%	0%	9%	0%			
Rail / Tram / Tube	15%	3%	13%	0%			
Bus	10%	6%	15%	0%			
Cycle	5%	2%	9%	0%			
Scooter	0%	0%	0%	0%			
Walk	22%	7%	12%	37%			
	Figures may not	sum to 100% due to rou	nding				

Car mode share for pupils is very similar at all the schools, with sustainable travel modes making up the majority of the trips in the four schools. The staff have a much higher proportion of car trips. This could be due to a number of factors, such as staff being required to carry books to and from the school and home locations being more spread out than pupils.

It has been assumed that the new school will have mode shares similar to the weighted average (based on the number of pupils) of the existing schools, as summarised in Table 5-4 below.

Table 5-4	Mode Shares: Weight	ed Average
Mode	Pupils	Staff
Car	12%	51%
Car Share	2%	6%
Park and Stride	5%	2%
Rail / Tram / Tube	4%	8%
Bus <sup>4</sup>	36%	7%
Cycle	2%	4%
Scooter	1%	0%
Walk	37%	21%

Figures may not sum to 100% due to rounding

# 5.1.2. Multimodal trips

The estimated mode share, outlined in Table 5-4, has been used to estimate the trip generation of the new school when fully occupied. The number of trips estimated to be generated by 1,575 pupils and 196 staff are summarised in Table 5-5 below.

Table 5-5 Estimated School Trip Generation					
Mode	Pupils Trips	Staff Trips			
Car	188	100			
Car Share	31	12			
Park and Stride	86	4			
Rail / Tram / Tube	68	16			
Bus <sup>5</sup>	569	14			
Cycle	30	7			
Scooter	17	0			
Walk	586	41			
Figures may not add to 1,575 or 196 due to rounding					

Table 5-5 Estimated School Trip Generatio

Over three quarters of the trips by the pupils are estimated to be by sustainable modes. This is considered to be appropriate, bearing in mind the age of pupils (11-16 years old) and accessible location of the school. In comparison, only a third of staff trips are estimated to be undertaken by sustainable modes. Unlike pupils, staff may need to travel from further away and carry large amounts of materials.

Assuming a worst-case of two pupils per car share vehicles, it is estimated that the school will generate 290 pupil-related vehicles and 110 staff-related vehicles.

# 5.2. Distribution

London Borough of Sutton provided home postcodes of all the students attending LB Sutton secondary schools, as illustrated in Figure 5-1.

The postcode data indicates that currently approximately 36% of the students attending a secondary school in Sutton do not reside in the Borough. However, it should be noted that several faith schools are present within Sutton and these may attract pupils from further distances.

Figure 5-2 provides a zoomed view of postcode locations within the London Borough of Sutton.

<sup>4</sup> Public and School Bus

<sup>5</sup> Public and School Bus

Figure 5-1 LBS Secondary School Students Home Postcodes



Figure 5-2 Secondary School Students Home Postcodes within Sutton



When considered individually, catchment areas vary significantly between schools, with some schools providing places for a smaller area around their location on, and some providing Borough-wide places. As such, in order to consider a worst-case, it has been assumed that pupils admitted to the new school will be distributed in a similar manner to current secondary school students who live in the Borough.

Pupils within the borough home locations were analysed and divided into six different "zones". The zones were created with consideration to potential routes to and from the site from across the borough. The zones, and the proportion of secondary school pupils which live in each zone, are illustrated in Figure 5-3 below.

Figure 5-3 LBS Secondary School Pupils' home postcode distribution



# 5.3. Peak Hour Trips

All pupils are anticipated to travel to school between 08:00-09:00 hours, and from school between 16:00-17:00 hours as a worst case. Staff are considered likely to arrive at the school prior to 08:00 hours, and leave after 16:00 hours.

As such, the school is anticipated to generate 290 vehicles in the identified Peak Hours (08:00-09:00 and 16:00-17:00 hours).

Using the zoning system described in Section 5.2, the vehicle trips have been distributed throughout the borough, taking into account two-way trips (where a vehicle will need to undertake an "arrival" trip and "departure" trip to drop-off or pick-up pupils). The resultant trips per zone are illustrated in Figure 5-4.



# 5.4. Background Traffic Growth

Historic DfT Annual Average Daily Traffic Flows have been extracted from the DfT's website<sup>6</sup> for the four closest available sites; two on the A232 (south of the site), one on the A217 Bishopsford Road (north-east of the site) and one on the A297 St Helier Avenue (north of the site).

The total annual average daily traffic flows for the sites between 2008 and 2013 (the most recent year available) are illustrated in Table 5-5 below.

#### Figure 5-5 Total Annual Average Daily Traffic Flows



The recorded flows indicate an overall decrease in traffic at the sites. In addition, decreases are also indicated at each individual site.

The extracted results indicate that traffic has been steadily decreasing within the vicinity of the site. As such, it is not deemed appropriate to include background growth as part of this assessment.

### 5.4.1. Committed Development

The Transport Assessment for the redevelopment of the Old Gas Works, Sutton, has been interrogated to determine if any additional traffic is likely to impact the proposed development.

The proposed development is estimated to generate 59 arrival trips and 45 departure trips on High Street (north) between 08.45 - 09.45 hours on a weekday. Assuming a flat profile over the hour, this would equate to 15 arrival trips and 11 departure trips between 08.45 - 09.00 hours (the times that are mostly likely to coincide with a school).

The Old Gas Works development is therefore considered unlikely to impact the school development, and as such has not been included within this assessment.

# 6 http://www.dft.gov.uk/matrix/Default.aspx

# 6. Impact Assessment

Having established the number of trips generated by the proposed new school, the impact of the additional into the local network can be considered.

### 6.1. Pedestrians and Cyclists

It is expected that pedestrians will account for large proportion of the trips generated by the new school. In total, it is estimated that 586 pupils and 41 staff members will walk to and from the school.

Numerous pedestrian facilities are provided on Reigate Avenue, including signalised crossings and a footbridge. It is considered that these crossing will be sufficient to accommodate demand from pupils and staff walking from the north-west, west and south-west of the school.

A zebra crossing is provided on Sutton Common Road, which is considered likely to be sufficient to accommodate demand for pupils and staff walking from the south of the school.

Signlised crossings are provided at the northern and southern ends of Rosehill, in addition to a number of informal crossing points with central islands, including adjacent to both Rosehill Park West and Aultone Way. Although it is anticipated that demand will be accommodated at the existing crossings points, there may be a requirement to provide a school crossing partol close to the school on this road to accommodate demand from pupils and staff travelling from the east of the school, depending on the catchment of the school. The potential requirement for mitigation in this location is discussed in Section 7.

47 cycles are anticipated to be generated by the school. The dedicated cycle route provided on Reigate Avenue is considered sufficient to accommodate cyclists travelling to and from the north, west and south-west of the site. A number of residential roads in the vicinity of the site are designated as quieter roads recommended by other cyclists, providing routes for cyclists from the east (including Rosehill Gardens, Rosehill Park West and Aultone Way) and south (including Angel Hill Drive and Sutton Common Road). Measures to encourage cycling, and identify any further infrastructure requirements, will be included as part of the Framework Travel Plan.

### 6.2. Public Transport

#### 6.2.1. Rail / Tram / Underground

A total of 84 rail / underground trips are anticipated to be generated by the school. Compared to the standards capacities of trains, and frequency of services available, it is anticipated that additional demand will be accommodated on the existing services.

#### 6.2.2. Bus

The school is estimated to generate a total of 583 bus trips, of which 569 are anticipated to be in Peak Hours. The number of buses which currently pass the site has been used to estimate current Peak Hour capacity at 2,260 passengers per hour<sup>7</sup>. It is anticipated that existing bus services will accommodate initial additional demand generated by the school. As the school approaches full capacity, bus usage will however need to be monitored to ensure that demand can be accommodated, and that any service changes required are identified.

#### 6.3. Road Network

The trips generated by the proposed development (illustrated in Figure 5-4) have been routed assuming that vehicles will travel via the shortest routes and that trips with route choice will be split 50/50 on Reigate Avenue & Rosehill, and 50/50 on Waverley Avenue & Angel Hill (north). The resultant number of additional

<sup>7</sup> Based of 30 buses per hour with a capacity of 70 passengers (double decker) and 4 buses per hour with a capacity of 40 passengers (small single decker) two-way vehicle trips generated on key links in the vicinity of the site in each Peak Hour are summarised in Table 6-1 below.

Table 6-1 Additional Vehicle Trips Generated by the Development by Link

Link	Peak Hour Two-way Trips
A217 Reigate Avenue	131
Rose Hill (northern section)	131
Wrythe Lane	202
A217 Bishopsford Road	60
Angel Hill (south)	88
Angel Hill (north of Waverley Avenue)	44
Waverley Avenue	44

The additional trips have been added to the surveyed baseline Peak Hour flows to produce future (with development) forecast traffic flows.

#### 6.3.1. Link Capacity Assessment

Table 6.2

The analysis in Section 3.6.2 indicates that Sutton Common Road and Rosehill Park West currently operate significantly under theoretical capacity in the identified Peak Hours. With a maximum flow to capacity ratio of 49% (Sutton Common Road in the PM Peak), the assessment indicates that both Roads have significant reserve capacity to accommodate additional school trips.

With the school proposed to be accessed via Rose Hill and Reigate Avenue, it is clear that a significant proportion of school-generated trips could use these roads for pick-ups and drop-offs. As the assessed flow to capacity ratios are higher on these two roads (maximum of 62% on Rose Hill and 83% on Reigate Avenue), a link capacity assessment for the future assessment has been undertaken using the methodology set out in DMRB TA 79/99 (outlined in Section 3.6.2), Table 6-2 below summarises the link capacity assessment results.

Period	Location	Width (metres)	Traffic Flow	Lanes / Direction	Capacity	Flow to Capacity Ratio
08:00-	Reigate Avenue	10	1,411	2	1,650	86%
09:00	Rose Hill	7.3	715	1	1,140	63%
	<b>D</b> 1 4 4	10			4.050	070/
16:00- 17:00	Reigate Avenue	10	1,441	2	1,650	87%
	Rose Hill	7.3	783	1	1,140	69%

Link Conseity Assessment: Euture Seeneric

With the additional school trips, Rose Hill is predicted to continue to operate under theoretical capacity, with a maximum flow to capacity ratio of 69% (PM Peak) returned. Reigate Avenue is predicted to operate at approaching capacity, however it should be noted that the results for both the AM and PM Peak Hours are close to the 85% threshold for this "category" (a maximum of 2% over) and represent an increase of only 5% on existing operation.

Based on the above, it is anticipated that additional traffic generated by the school can be accommodated on the existing road network, however measures to encourage Parents to utilise via Rose Hill rather than Reigate Avenue where possible should be identified within the Framework Travel Plan.

#### 6.3.2. Future Junction Modelling

The base junction models, summarised in Section 3.6.3, have been used to assess the likely future operation of key junctions within the vicinity of the development. As outlined above, future (with development) forecast traffic flows have been estimated from surveyed baseline flows and the identified additional trips generated by the development. These future forecast traffic flows have been applied to the baseline models to assess the impact of the development on the identified junctions. The full junction modelling results are contained within Appendix D with a summary of the results presented below.

#### Rosehill Roundabout

The existing junction analysis results, summarised in Table 3-6, indicate that Rosehill Roundabout is currently operating at approaching capacity on a number of arms, including Wrythe Lane, Rose Hill, Reigate Avenue and Green Lane. Delays of over one minute on average per PCU are indicated on Wrythe Lane (104 secs), the A217 Reigate Avenue (65 secs) and Green Lane (max 136 secs).\*

Considering the baseline modelling results, it is clear that the addition of any traffic will likely cause the junction to operate over capacity. With the existing cycle time, some approaches were getting over saturated. As such, whilst no changes have been proposed in the physical structure of the junction, the LINSIG model has been optimised for the stage green times for this future assessment and the existing cycle time of 60 seconds has been optimised to 72 seconds.

The future forecast (with development) model DoS and mean maximum queue results are summarised in Table 6-3 below, with the base modelling results also presented for the purposes of comparison.

### Table 6-3 Rosehill Roundabout: Future Forecast Model Results Summary

Lane Description	DoS (%)		Mean Max Queue (PCU)		Av. Delay per PCU (s/PCU)	
	Base	Future	Base	Future	Base	Future
St Helier Ave Entry Nearside	41.5%	45.7%	3	3	26.3	32.6
St Helier Ave Entry Offside	75.2%	82.7%	6	7	44.4	60.9
St Helier Avenue circ. Right Ahead Nearside	47.9%	46.7%	4	3	6.0	4.2
St Helier Avenue circ. Right Ahead Middle	88.7%	86.0%	21	15	27.8	13.9
St Helier Avenue circ. Right Offside	33.7%	38.3%	5	2	6.3	2.9
A217 Bishopford Road North Nearside	51.8%	59.1%	4	6	25.4	32.1
A217 Bishopford Road North Offside	74.7%	82.8%	8	10	33.8	46.3
A217 Bishopford Road North circ. Left	47.4%	46.4%	12	1	11.0	2.3
A217 Bishopford Road North circ. Right Nearside	48.3%	51.8%	6	4	11.8	8.1
A217 Bishopford Road North circ. Right Middle	32.5%	33.2%	1	2	3.7	4.9
A217 Bishopford Road North circ. Right Offside	31.6%	29.6%	2	3	5.2	4.7
Wrythe Lane	99.7%	95.5%	16	14	103.9	69.7
Wrythe Lane circ. Left	49.3%	52.8%	6	2	5.9	2.7
Wrythe Lane circ. Ahead	49.4%	50.4%	4	8	12.1	14.7
Wrythe Lane circ. Right Middle	81.6%	82.2%	12	14	24.6	25.3
Wrythe Lane circ. Right Offside	9.6%	9.4%	1	1	10.9	13.5
Rose Hill	93.6%	96.9%	9	12	48.0	59.2
A217 Reigate Avenue	91.3%	93.4%	14	17	46.7	55.2
A217 Reigate Avenue	95.9%	97.4%	17	22	65.0	75.9
A217 Reigate Avenue circ. Left	59.0%	63.1%	10	10	3.3	3.7
A217 Reigate Avenue circ. Right Middle	38.7%	35.6%	2	2	4.8	5.2
A217 Reigate Avenue circ. Right Middle	55.3%	59.0%	2	2	5.9	6.3

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Lane Description	DoS (%)		Mean Max Queue (PCU)		Av. Delay per PCU (s/PCU)	
	Base	Future	Base	Future	Base	Future
A217 Reigate Avenue circ. Right Offside	4.6%	7.8%	1	1	6.9	5.4
Green Lane Nearside	98.3%	83.4%	10	6	136.1	73.3
Green Lane Offside	94.9%	94.8%	8	7	123.6	121.3
Green Lane circ. Nearside	41.9%	42.4%	7	5	6.3	5.2
Green Lane circ. Middle	58.0%	60.1%	5	14	5.6	14.2
Green Lane circ. Offside	14.9%	18.7%	1	3	3.6	7.4

The results indicate that, with the proposed signal timing adjustments, the roundabout will continue to operate at approaching capacity with the addition of development trips. Whilst the results indicate varying positive and negative impacts across arms, the most significant differences between base and future results are summarised below:

- St Helier Avenue worsens, with an increase in DoS on of 7.5% (75.2% to 82.7%) and in delay of 16.5 secs (44.4 to 60.9 secs). However, an increase in Mean Max Queue of only one PCU is reported. Although an increase in DOS is reported, the addition of development flows (with the proposed signal timing adjustments) does not increase the operation of the arm to "approaching capacity", and the Mean Max Queue is only recorded to increase by one PCU. As such, this negative impact is considered acceptable;
- The St Helier Avenue circulatory improves, with a decrease in delay 13.9 secs (27.8 to 13.9 secs), in Mean Max Queue of six PCUs (21 to 15 PCUs) and in DoS of 2.7% (88.7% to 86.0%). Whilst the decrease in DoS reported is deemed negligible and the operation of the arm remains "approaching capacity", a decrease in Mean Max Queue of six PCUs and in delay of 13.9 seconds is a positive impact on the link;
- The A217 Bishopford Road entry worsens, with an increase in DoS of 8.1% (74.7% to 82.8%), and in
  delay of 12.5 secs (33.8 to 46.3 secs). However, an increase in Mean Max Queue of only two PCUs is
  reported. Although an increase in DoS is reported, the addition of development flows (with the proposed
  signal timing adjustments) does not increase the operation of the arm to "approaching capacity", and the
  Mean Max Queue is only recorded to increase by two PCUs. As such, this negative impact is considered
  acceptable;
- The A217 Bishopford Road circulatory improves, with a decrease in Mean Max Queue of 11 PCUs (12 to 1 PCUs), and in delay of 8.7 secs (11 to 2.3 secs). (The associated decrease in DoS is 1.0%). Whilst the decrease in DoS reported is deemed negligible, a decrease in Mean Max Queue of 11 PCUs is a substantial positive impact on the link;
- Wrythe Lane improves, with a decrease in DoS of 4.2% (99.7% to 95.5%) and in delay of 34.2 secs (103.9 to 69.7 secs). (The associated decrease in Mean Max Queue is two PCUs). Whilst the decrease in DoS reported does not change the operation of the arm from "approaching capacity", a decrease in delay of 34.2 secs is a substantial positive impact on the link;
- Rose Hill worsens, with an increase in DoS of 3.3% (93.6% to 96.9%) and in delay of 11.2 secs (48 to
  59.2 secs). However, an increase in Mean Max Queue of only three PCUs is reported. Although an
  increase in DoS is reported, the addition of development flows (with the proposed signal timing
  adjustments) does change the operation of the arm from "approaching capacity", and the Mean Max
  Queue is only recorded to increase by three PCUs. As such, this negative impact is considered
  acceptable;
- The A217 Reigate Avenue worsens, with an increase in DoS of 1.5% (95.9% to 97.4%), in delay of 10.9 secs (65.0 to 75.9 secs), and in Mean Max Queue of five PCUs. Although an increase in DoS is reported, the addition of development flows (with the proposed signal timing adjustments) does not change the operation of the arm from "approaching capacity"; and
- Green Lane improves, with a decrease in DoS of 14.9% (98.3% to 83.4%), in delay of 62.8 secs (136.1 to 75.9 secs), and in Mean Max Queue of four PCUs. The decrease in DoS reported, which reduces the operation of the arm from "approaching capacity" to "under capacity", and a decrease in delay of over one minute is a substantial positive impact on the link.

Overall, both the maximum DoS and average delay results recorded in the base reduce in the future forecast (99.7% on Wrythe Lane DoS in the base as compared to 97.4% on the A217 Reigate Avenue in the future forecast, and 136 secs average delay to 121.3 secs, both on Green Lane).

Whilst negative impacts are recorded on the entry arms on St Helier Avenue, the A217 Bishopford Avenue, Rosehill and the A217 Reigate Avenue, the addition of development flows (with the proposed signal timing adjustments) does not change the "operational classification" of any of the arms, and associated Mean Max Queue length increases on the arms are considered unsubstantial, with a maximum increase of five PCUs (on the A217 Reigate Avenue) recorded.

Substantial improvements are recorded on a number of locations, including the A217 Bishopford Road circulatory (decrease in Mean Max Queue of 11 PCUs), Wrythe Lane (decrease in delay of 34.2 secs) and Green Lane (reduction in DoS resulting in the operation of the arm reducing from "approaching capacity" to "under capacity" and a decrease in delay of over one minute).

#### Angel Hill Priority Junctions

The existing junction analysis results, summarised in Table 3-8, indicate that the two Angel Hill priority junctions current operate with significant reserve capacity on all arms. The maximum RFC value reported is 41%, with an associated queue of two PCUs, on Angel Hill North at the Angle Hill South / Angel Hill West / Angel Hill North junction.

The future forecast (with development) model RFC and queue length results are summarised in Table 6-4 below, with the base modelling results also presented for the purposes of comparison.

Table 6-4	Angel Hill Priority Junctions: Future Forecast Model Results Summary
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A	RFC	(%)	Q (PCUs)		
Ann	Base	Base Future		Future	
Angel Hill South			-	-	
Angel Hill West	32%	32%	1	1	
Angel Hill North	41%	43%	2	2	
Angel Hill North	2%	2%	1	1	
Waverley Avenue	31%	37%	1	1	
Angel Hill South	20%	28%	1	1	
Tesco Access	5%	6%	1	1	

The results indicate that both of the junctions will continue to operate with significant reserve capacity on all arms with the inclusion of the additional development traffic. The maximum RFC value reported is 43% on Angel Hill North at the Angle Hill South / Angel Hill West / Angel Hill North junction, just 2% higher than in the existing situation. Queue lengths are not reported to increase.

#### 6.3.3. Angel Hill Sensitivity Test

It was raised in the scoping stage that the Angel Hill signalised junction may need to be tested should a significant proportion of development traffic be forecast to travel via it (resulting in a 5%+ increase in traffic flows in the Peak Hours due to the development).

As outlined in Table 6-1, an additional 88 vehicle movements are anticipated to be generated on Angel Hill south, 44 of which will travel to / from this link via Angel Hill North and 44 via Waverley Avenue. As such, a total additional, 88 two-way trips are anticipated to travel via the Angel Hill signalised junction.

Existing traffic flow levels at the Angel Hill signalised junction have been determined from a manual classified count survey conducted on 2<sup>nd</sup> December 2014, and are summarised in xxx below.

#### Table 6-5 Angel Hill Signalised Junction Existing AM Peak Hour Flows (PCU)

Location	Existing Flow (PCU)
Angel Hill (North of signals)	816
All Saints Road	383
Sutton Common Road	557
Angel Hill (South of signals)	No data
Total	1,756 +

As outlined above, an additional 88 vehicle movements are predicted to travel through the Angel Hill signalised junction. This would equate to a 4.8% increase in traffic flows at the junction not taking consideration Angel Hill south of the signals (as there is no available data for this arm). As such, should all arms of the junction be taken into account, it is clear that the impact of the additional vehicle movements would equate to a less than 5% increase in traffic.

### 6.4. Parking

The impact of the new school proposal has been considered in relation to the existing parking situation around Rosehill Recreation Ground.

The school is anticipated to generate 290 vehicles in the identified Peak Hours (08:00-09:00 and 16:00-17:00 hours).

Of the total 759 legal parking spaces identified, the maximum total parked vehicle occupancy recorded in any one 15-minute period was 50%. This equates to a minimum of 379 spaces being vacant.

As such, it is anticipated that estimated parking demand generated by the school can be accommodated within surrounding on-street parking. Controls to restrict parking in particularly sensitive areas, such as outside the schools pedestrian entrances, are discussed in Section 7.

# 7. Mitigation

As identified in Section 6, a number of measures may be required to minimise the impact of additional demand generated by the school on a number of modes.

In addition to measures discussed below, sustainable measures should be implemented at the school to encourage sustainable travel and further minimise any impacts on the local networks. Principles for a Framework Travel Plan have been identified in Section 7.5.

### 7.1. Pedestrians

Whilst a number of crossings are currently provided on Rosehill, there may be a requirement to provide a school crossing patrol close to the school on this road, depending on the catchment of the school and dispersal of pupils walking to / from the east. It is recommended that the school liaise with the School Crossing Patrol team once catchments have been confirmed to agree the requirement for a crossing patrol.

School warning signs should also be implemented on approaches to the school accesses.

Although the width of the central islands provided on Rosehill is currently sufficient, it is recommended that those adjacent to Rosehill Park West and Aultone Way are widened if practicable to ensure that a number of pupils could be safely accommodated at the same time. This would be subject to agreement with the Local Authority Highways department, which could be determined during the reserved matters stage of the application.

# 7.2. Bus

It is anticipated that existing bus services will accommodate initial additional demand generated by the school. As the school approaches full capacity, bus usage will however need to be monitored to ensure that demand can be accommodated, and that any service changes required are identified.

# 7.3. Parking

It is anticipated that estimated parking demand generated by the school can be accommodated within surrounding on-street parking.

In order to maximise pupil safety and maintain visibility, School Keep Clear (zig-zag) markings should be introduced at the school's pedestrian entrances, restricting stopping between Peak pick-up and drop-off times (e.g. 08:30-09:00 hours and 16:00-16:30 hours). The locations of these restrictions will need to be determined following confirmation of the school's access proposals.

The locations and timings of the restrictions would be subject to agreement with the Local Authority Highways department, which could be determined during the reserved matters stage of the application.

# 7.4. Road Network

It is anticipated that the additional vehicle trips generated at the school can be accommodated at the existing junctions, with the exception of the Rosehill Roundabout.

The existing junction analysis results indicate that Rosehill Roundabout is currently operating at approaching capacity on a number of arms. Considering the baseline modelling results, it is clear that the addition of any traffic will likely cause the junction to operate over capacity. As such, the junction has been tested for the future forecast (with development) scenario with optimised for the stage green times and in increase in cycle time from 60 to 72 seconds.

It is therefore recommended that signal timing adjustments are made at Rosehill Roundabout. This would be subject to agreement with the Local Authority Highways department and TfL, which could be determined during the reserved matters stage of the application.

# 7.5. Framework School Travel Plan Principles

A Framework School Travel Plan (FSTP) should be developed by the school prior to occupation, and developed into a full STP following occupation. The full STP will seek to provide for the access and travel needs of all staff, parents, pupils and where possible, visitors without impacting on the operation of the school. Research shows that people are able to make alternative travel arrangements for range of trips and therefore objectives and targets should reflect the need for greater travel choice.

Principles for the FSTP have been identified below.

#### 7.5.1. Aims

The FSTP should include initial aims for the STP, such as:

- Influence parents travel behaviour as this will impact upon how the children travel to school;
- · Mitigate against any congestion due to the traffic generated from the school;
- Prevent parents parking inconsiderately; and
- · Create a safe and sustainable community driven by the pupils and staff.

#### 7.5.2. Objectives

An effective STP can deliver a significant impact upon travel patterns by staff, parents, pupils and visitors in favour of sustainable and active travel modes. Specific objectives should be included in the FSTP, for example:

- Objective 1 Increase the proportion of pupils travelling to and from the school by active travel modes;
- Objective 2 Increase the number of staff using sustainable methods of travel, including car sharing;
- Objective 3 Improve the road safety of pupils through education; and
- Objective 4 Improve accessibility to the school for all.

As part of the development of the school, there will be opportunities to maximise opportunities to walk or cycle to the school.

#### 7.5.3. Provisional Targets

Targets are used to monitor whether STP's are meeting their objectives. They should be SMART (Specific, Measurable, Achievable, Realistic and Timebound). Modal share is the key target to monitor the proportions of journeys to the site by different modes. Provisional Targets, such as increasing cycle use by five percent, should be identified within the FSTP.

Following the completion of the first annual school travel survey following occupation the Provisional Targets should be updated to more accurately reflect travel patterns at the school.

Through providing pupils and staff with viable options for sustainable travel, such as car sharing and providing cycle parking, accessibility to the School via all modes should be improved.

#### 7.5.4. Travel Plan Measures & Initiatives

The development will be the opening of a new school thus requiring new travel patterns to and from the site. This can be targeted from the start with the induction of sustainable travel. In order to ensure that sustainable travel is considered prior to travel 'habits' being formed it is essential to provide information before the school opens and within the first term in order to encourage sustainable modes of transport.

A range of initiatives which could be implemented to enable achievement of the mode targets should be identified within the FSTP for both staff and pupils. These could include initiatives such as working with LBS to deliver safe walking routes to school, educating parents on the needs to comply with traffic regulations when dropping off or picking up pupils, providing information about the STP on the school website and the development and promotion of a car share database for staff.

#### 7.5.5. Monitoring and Review

A strategy should be developed in the FSTP for the regular monitoring of the progress of the STP against objectives and targets and highlight any deficiencies in/changes required to the STP or any additional measures required.

The strategy for the monitoring and review process could include:

- A survey of the staff and pupil transport to and from school is to be undertaken as soon as possible following occupation of the School;
- Following the development of the STP, a review is to be undertaken in the first and second years of the school's operation considering effectiveness of measures and any additional constraints, issues and measures;
- An update of the full STP is to be completed annually, taking on-board any opportunities, constraints and issues identified at the new site once the school has been in operation for two terms; and
- The person responsible for ensuring the annual monitoring is completed will be the Travel Plan Coordinator.

Following occupation, the STP should be reviewed regularly with targets addressed at each review and annual surveys undertaken. Each review of the STP should take into consideration the additional pupils joining the school each year until it has reached capacity, as well as new developments in education and transport.

#### 7.5.6. Action Plan

The FSTP should include a proposed programme for implementation of the STP. This programme will provide the framework for the STP to be developed in more detail and should be flexible to meet the requirements of the school.

Potential elements of the programme for implementation could include:

- · Appointment of a Travel Plan Coordinator once staff have been appointed to work at the school;
- Creation of a Steering Group within 3 months of the school opening;
- · Baseline travel surveys within 3 months of the school opening; and
- Monitoring surveys and report to be undertaken annually following the baseline travel survey.

#### 7.5.7. Delivering the STP

The FSTP should include a delivery strategy for the STP. This should define the role of the appointed Travel Plan Coordinator (TPC), such as:

- Ensure targets are being achieved, travel surveys are carried out and analysed, and measures / initiatives are implemented;
- Overseeing the development and implementation of the STP;
- Marketing the STP and preparing awareness campaigns;
- Setting up and coordinating a Steering Group;
- Acting as a single point of contact for all STP queries;
- Liaising with SCC in regards to travel issues; and
- Coordinating the monitoring and review of the STP.

# 7.6. Delivery and Servicing Plan

As previously mentioned, a DSP should be developed to provide guidance on the servicing activities once the site is operational. A Framework for this document, which will be used for the development of the full DSP once more detailed information on the school is available, is provided in Appendix E.

# 7.7. Construction Logistics Plan

A Construction Management Plan and Construction Travel Plan will be prepared by the construction company following appointment and agreed in advance of the works taking place.

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The Construction Management Plan (CMP) will outline the potential scope of construction works, the means by which construction vehicles will access the site and mitigation proposed to reduce the impact of construction vehicles on the safe operation of the local highway network and the amenity of local residents. The CMP will provide more detail in respect of the volume, type and timing of construction vehicle movements and will include a plan showing the contractor's compound and turning/loading/unloading area. It will also outline how construction management measures and restrictions will be monitored and enforced. The individual access requirements of local residents will need to be considered as part of this plan.

A Construction Travel Plan will also be required, addressing the mode of travel and parking arrangements of construction staff. This will include measures to encourage car sharing to reduce the traffic and parking impact of construction vehicles. Additional measures will be included to encourage construction staff to travel by public transport, walk or cycle where practical.

# 8. Summary and Conclusions

Atkins has been appointed to provide transport consultancy services to support a planning application for a potential new secondary school at the existing Rosehill Recreation Ground in Rosehill, Sutton. This Transport Report has been prepared to support the planning application to provide the new 8FE secondary school, which when fully occupied will accommodate up to 1,575 pupils (comprising 1,200 11-16 year olds and 375 sixth form students), with approximately 196 members of staff.

#### 8.1. Summary

This Report has been undertaken to assess the impact that the proposals would have on the local networks (including highway, pedestrian and public transport) and parking levels within the vicinity of the site. The analysis has been based on Automatic Traffic Counts and parking beat surveys conducted in 2014, and operational information from local secondary schools.

The number of trips generated by the school have been predicted by applying average mode share figures (calculated from the mode shares of local secondary school) to the total number of staff and pupils being advised for the school.

#### Pedestrians

The assessment indicates that pedestrians will account for a large proportion of the trips generated by the school, with 586 pupils and 41 staff members estimated to travel on foot. Whilst it is anticipated that existing pedestrian infrastructure is appropriate to accommodate pedestrian demand from the north, west and south of the site, a potential requirement for enhanced facilities on Rosehill (for pedestrians traveling from the east of the site) has been identified. A number of recommendations have therefore been made within this Report, including liaison with the School Crossing Patrol team to agree the requirement for a crossing patrol, the implementation of School warning signs on approaches to the school accesses, and widening of two central islands on Rosehill. These measures will be subject to agreement with the Local Authority Highway department, which could be determined during the reserved matters stage of the application.

#### Cyclists

47 cycles are anticipated to be generated by the school. Although a mixture of dedicated cycle infrastructure (e.g. the cycle route on Reigate Avenue) and recommended cycle routes are deemed appropriate to accommodate this relatively modest increase, measures to encourage cycling and identify any further infrastructure requirements should also be included as part of the Travel Plan.

#### **Public Transport**

The assessment indicates that additional rail / tram / underground trips will be accommodated on existing services. A significant number of bus trips are also predicted to be generated by the school. Whilst it is anticipated that existing service will accommodate initially additional demand, as the school approaches full capacity bus use will likely need to be monitored to ensure that demand can be accommodated, and any service changes required identified.

#### Local Highway Network

With regards to the local road network, it is estimated that a total of 290 vehicles will be generated in the identified Peak Hours (08:00-09:00 and 16:00-17:00 hours). It is anticipated that additional traffic generated by the school can be accommodated on the existing road network, however measures to encourage Parents to utilise via Rose Hill rather than Reigate Avenue where possible should be identified within the Framework Travel Plan.

Detailed junction modelling was undertaken for the Rosehill Roundabout and the two priority junctions at Angel Hill south of the potential site. The existing junction analysis results indicate that Rosehill Roundabout is currently operating at approaching capacity on a number of arms. Delays of over one minute on average per PCU are indicated on Wrythe Lane, the A217 Reigate Avenue and Green Lane. Considering the baseline modelling results, it is clear that the addition of any traffic will likely cause the junction to operate over capacity. As such, whilst no changes have been proposed in the physical structure of the junction, the LINSIG model has been optimised for the stage green times for the future assessment and the existing cycle time of 60 seconds has been optimised to 72 seconds. Overall, both the maximum DoS and average delay results recorded in the base reduce in the future (with development) forecast. Whilst negative impacts are recorded on a number of entry arms, the addition of development flows (with the proposed signal fiming adjustments) does not change the "operational classification" of any of the arms, and associated Mean Max Queue length increases on the arms are considered unsubstantial, with a maximum increase of five PCUs recorded. Substantial improvements are recorded on a number of locations, including the A217 Bishopford Road circulatory, Wrythe Lane and Green Lane (reduction in DoS resulting in the operation of the arm reducing from "approaching capacity" to "under capacity" and a decrease in delay of over one minute).

The junction analysis for the Angel Hill priority junctions indicate that they currently operate with significant reserve capacity on all arms, with a maximum RFC value of 41% and associated queue of two PCUs reported. The results indicate that both of the junctions will continue to operate with significant reserve capacity on all arms with the inclusion of the additional development traffic. The maximum RFC value reported is 43%, just 2% higher than in the existing situation. Queue lengths are not reported to increase.

#### Parking

In terms of on-street parking, it was ascertained that on the day of the parking surveys overall parked vehicle occupancy within the surveyed area reached a maximum of 50% in any one 15-minute period, equating to over 350 spaces being vacant. As such, it is anticipated that estimated parking demand generated by the school can be accommodated within surrounding on-street parking. In order to maximise pupil safety and maintain visibility, it is recommended that School Keep Clear (zig-zag) markings should be introduced at the school's pedestrian entrances, restricting stopping between Peak pick-up and drop-oft times. The locations of these restrictions will need to be determined following confirmation of the school's access proposals, and the locations and timings of the restrictions would be subject to agreement with the Local Authority Highway department, which could be determined during the reserved matters stage of the application.

#### Framework Travel Plan

In addition to measures discussed above, sustainable measures should be implemented at the school to encourage sustainable travel and further minimise any impacts on the local networks. Principles for a Framework Travel Plan have therefore been identified. The principles should be used to develop a Framework School Travel Plan prior to occupation, which will in turn should be used as the basis of the development of a full School Travel Plan following occupation.

# 8.2. Conclusions

At this stage, the proposals for the school are not fully developed. As such, this Report is based on information available and assumptions estimated using data obtained from other local secondary schools.

It is anticipated that the vehicle trips generated by the school will be accommodated on the local road network, parking demand accommodated within existing on-street parking provision, and rail / tram underground trips accommodated on existing services without significant negative impact.

Whilst it is anticipated that existing buses services will accommodate initially additional demand, as the school approaches full capacity bus use will likely need to be monitored to ensure that demand can be accommodated, and any service changes required identified.

There may be a requirement to provide a school crossing patrol close to the school on Rosehill, or enhancement of existing informal crossing points, depending on the catchment of the school and dispersal of pupils walking to / from the east. It has been recommended that two of the informal crossing points on Rosehill are widened, subject to agreement with the Local Highway Authority, and liaison with the School Crossing Patrol Team undertaken. In order to improve pupil safety, the implementation of school warning signs / School Keep Clear (zig-zag) markings has also been recommended, subject to agreement with the Local Highway Authority.

Principles for the Framework Travel Plan have been identified. These principles should be used to develop a Framework School Travel Plan when more information regarding the schools' operation is available, prior to occupation.

This analysis represents a robust case in terms of impact on the highway network and parking stress on the surrounding roads. It does not take any account of the proposed measures that a School Travel Plan would implement, and is based on the current distribution of all pupils living within the London Borough of Sutton.







# Appendix B. PTAL Calculation

# Appendix C. Survey Results





# Appendix D. Junction Modelling Results

# Appendix E. Framework Delivery and Servicing Management Plan



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