

laminated clay and sand deposits are common in the lower part of the succession. The component formations are the Upnor Formation, Reading Formation and Woolwich Formation.

3.1.1 Mining and Natural Ground Hazards

Table 2. Mining and Natural Ground Subsidence Hazards from Envirocheck Data

Section	Risk Assessment
Coal Mining Affected Areas	In an area that might not be affected by coal mining
Non-Coal Mining Areas of Great Britain	Rare
Potential for Collapsible Ground Stability Hazards	Very Low
Potential for Compressible Ground Stability Hazards	No Hazard
Potential for Ground Dissolution Stability Hazards	No Hazard Identified
Potential for Landslide Ground Stability Hazards	Very Low
Potential for Running Sand Ground Stability Hazards	Very Low
Potential for Shrinking or Swelling Clay Ground Stability Hazards	Low

It should be noted that the assessment provided within the data represents a generic assessment only. Detailed assessment of the geotechnical characteristics of the soils encountered at the site is presented in Section 8 of this report.

Screening of the site was also undertaken by Terra Firma for past underground mining hazards. The screening report is included in Appendix C.

Based on this initial screen the site is not considered to be located within an area that has experienced past underground mining, as detailed on the Terra Firma TerraSearch Assure certificate.

3.1.2 Radon

Table 3. Radon

Section	Risk Assessment
Radon Affected Areas	The site is reported to be within an area where less than 1% of properties are at or above the action level requiring radon gas protection measures to be installed in new buildings.
Radon Protection Measures	No radon protection measures are reported by the British Geological Survey to be necessary in the construction of new dwellings or extensions.

3.1.3 Groundwater Source Protection Zones

The site does not lie within an Environment Agency Source Protection Zone with regard to the protection of the quality of groundwater that is abstracted for potable supply.

3.1.4 Groundwater and Surface Water Abstraction Licences

The closest groundwater abstraction licence is recorded to lie 812m to the west of the site. The abstraction is for 'general farming and domestic'.

The closest surface water abstraction licence is recorded to lie 320m to the south west of the site. The abstraction is for spray irrigation.

3.1.5 Surface Water Features

The nearest recorded significant surface water feature is an unknown surface water feature, located 93m to the east of the site, which appears from the mapping to be a small pond.

3.1.6 Flooding

The site lies within an Environment Agency Flood Zone 1. The Environment Agency define a Flood Zone 1 as land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).

The site lies within an area where the British Geological Survey report the "Potential for Groundwater Flooding of Property Situated Below Ground Level" and "Potential for Groundwater Flooding to Occur at Surface".

The GeoSmart Groundwater Flood Risk (GW5) Map (GeoSmart, 2017)³ states that the risk of groundwater flooding at the site is 'negligible'.

Given the disparity of information given within the various datasets in relation to the susceptibility of the site to groundwater flooding, it may be prudent to consider undertaking a detailed flood risk assessment for the site.

3.2 Agency & Hydrological Data

The data has been reviewed and none of the entries within this section are considered to pose a significant risk to the site.

3.3 Waste

The data has been reviewed and any entries referring to locations on, or in close proximity to, the site that may pose a potential risk are discussed within the following table.

³ GeoSmart Information Limited, 2017. National Groundwater Flood Risk Map (GW5)

Table 4. Waste Data

Section	Discussion
Licensed Waste Management Facilities	Macaree Stephen licensed waste management facility is located 105m west of the site. Site Category: End of Life Vehicles. Issued: 5th July 2004. Surrendered: 2nd June 2014. Licence Status: Surrendered. Hills Colin licensed waste management facility is located 114m west of the site. Site Category: End of Life Vehicles. Issued: 2nd June 2004. Licence Status: Expired.

Given the nature of these records, their distance from the site and the time elapsed since the licences expired, neither is considered to pose a significant risk to the site.

3.4 Hazardous Substance

The data has been reviewed and none of the entries within this section are considered to pose a significant risk to the site.

3.5 Industrial Land Use

The data has been reviewed and any entries referring to locations on, or in close proximity to, the site that may pose a potential risk are discussed within the following table.

Table 5. Industrial Land Use

Section	Discussion
Contemporary Trade Directory Entries	A & B Autos (active) garage services located 14m north west of the site. MMBVW Audi Breaking (inactive) car breakers & dismantlers located 16m south west of the site. Parris Repairs & service (active) garage services located 19m south west of the site. A N G Commercial (inactive) salvage dealers located 40m south west of the site.

3.6 Sensitive Land Use

The data has been reviewed and no sensitive land uses relevant to the proposed development have been identified within 500m of the site.

4. HISTORICAL MAP REVIEW

Historical Ordnance Survey maps covering the area of the site have been reviewed and are summarised in the following table.

It is noted that each map presents information applicable at the time of the survey (or revision date) and is subject to surveying and cartographic errors and/or advances. Revisions to maps are made at irregular intervals and it is possible that significant developments may have taken place on or within the vicinity of the site that are not shown on the maps.

'In the Vicinity of the Site' generally refers to features of relevance within approximately 250m of the site boundary but may also include more distant features if considered to be pertinent to the assessment of the development history.

Table 6. Summary of Significant Features Identified on Historical Maps

Map Details	On-Site	In the Vicinity of the Site
1876 1:2,500	The site comprises part of an open field with trees along the northern and eastern boundaries.	Further open fields lie beyond the northern, western and southern boundaries. A road runs from north towards south outside the eastern boundary and an area of mixed woodland and scrubland lies beyond.
1962 1:10,000		A number of structures are shown outside the northern and western boundaries of the site. Nurseries are shown beyond 100m to the south.
1971 1:2,500	Three small structures are shown in the north western corner of the site.	A residential property is shown outside the north west of the site. Nurseries are shown outside the north and south west of the site. An access road for the nurseries runs immediately outside the western boundary.
1977-1989 1:2,500	Two of the structures in the north west of the site are not shown; however, they are shown on the 1979 map so it appears they were demolished after 1979.	
2000 1:10,000		A small pond is shown ~90m east of the south eastern corner of the site.

5. PRELIMINARY CONTAMINATION RISK ASSESSMENT

5.1 Introduction

The risk assessment considers the potential sources of contamination identified, the receptors that may be present in view of the development proposals and the contaminant pathways by which these may be linked. A complete pollutant linkage is only deemed to exist where all three are present and a site is considered suitable for use where no complete pollutant linkages are identified.

Where a complete pollutant linkage is deemed to be present, an assessment of the level of risk associated with the pollutant linkage has been carried out in line with current guidance⁴.

The level of risk is determined using the risk matrix presented in the following table. Classifications of probability, consequence and risk are presented in Appendix D.

Table 7. Risk Assessment Matrix

		Probability			
		Very Low	Low	Moderate	High
Consequence	Very Minor	Negligible	Very Low	Low	Low/Moderate
	Minor	Very Low	Low	Low/Moderate	Moderate
	Moderate	Low	Low/Moderate	Moderate	High
	Severe	Low/Moderate	Moderate	High	Very High

5.2 Basis of Assessment

The development is understood to comprise new residential buildings together with areas of private garden where end users can expect to come into contact with the underlying soils, where soil derived dusts may be generated and where the growing of fruit and vegetables may feasibly occur.

The proposed development layout is shown in Appendix A. Should the proposed development plans be altered, a revised risk assessment may be required.

The findings of the preliminary contamination assessment have been used to inform the ground investigation works which are discussed in the following section of the report.

5.3 Potential Contamination Sources Identified

The following potential sources of contamination have been identified by the preliminary contamination risk assessment:

- Potential for site to have formed part of adjacent nurseries,
- Potential for made ground associated with historical demolition, compacted crushed surfacing material and waste materials in north of site, and
- Motor vehicle dismantler and vehicle workshops outside south western part of site.

⁴ Contaminated Land Risk Assessment: A guide to good practice, CIRIA C552, 2001.

5.4 Preliminary Conceptual Model

The preliminary conceptual model for the proposed development is presented in Appendix E.