

Land at Kenward Road, Yalding

Geo-Environmental Preliminary Risk Assessment

Hallam Land Management Ltd

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Executive Summary

Development Summary and Existing Conditions Overview		
Development Summary	The removal of existing polytunnels on land north of Kenward Road and the construction of up to 112 dwellings (Class C3), associated infrastructure and landscaping, together with the change of use of land south of Kenward Road to provide informal / recreational open space, sustainable urban drainage features, landscaping, and ancillary works / infrastructure.	
Historical Site Uses	The potentially significant contaminative land uses onsite consist of Agriculture, with potential contaminative uses offsite consisting of Roads, an Old Quarry, Pumping Station Works and Railway Line.	3

Ground Conditions		Section	
Geology	With reference to the British Geological Survey (BGS) map, the Site is shown to be underlain by mudstone, with Superficial Deposits in the southern parcel consisting of clay and silt.		
Mining	The Site is not reported to be in an area affected by Coal Mining, Mining Instability, Man-Made Mining Cavities and is situated within areas of Rare, Highly Unlikely Non Coal Mining Areas of Great Britain. There is one Natural Cavity and one BGS Recorded Mineral Sites recorded within 1,000m of the Site boundary.	5	
Radon	The Site is situated within a low probability radon area.	5	
Hydrogeology	The mudstone onsite is shown to form unproductive strata ,with the clays and silt forming a Secondary (undifferentiated) Aquifer. The southern parcel is shown to be situated within a 'medium-low' groundwater vulnerability risk, with the northern parcel shown to be unproductive.	7	

Contaminative Risks		Section	
Potential Contaminative Risks Onsite	 None of the following have been identified onsite: Contaminated Land Register Entries and Notices Enforcement and Prohibition Notices Integrated Pollution Controls Local Authority Integrated Pollution Prevention and Control Local Authority Pollution Prevention and Controls Local Authority Pollution Prevention and Control Enforcement Integrated Pollution Prevention and Control Pollution Incidents to Controlled Waters Prosecutions Relating to Authorised Processes Prosecutions Relating to Controlled Waters Registered Radioactive Substance Substantiated Pollution Incident Register Water Industry Act Referrals 	8	
Hazardous Risks	 None of the following have been identified onsite: Control of Major Accident Hazards Sites Explosive Sites Notification of Installations Handling Hazardous Substances Planning Hazardous Substance Consents Planning Hazardous Substance Enforcements 	8	
Waste	 None of the following have been identified onsite: BGS Recorded Landfill Sites Historical Landfill Sites Integrated Pollution Control Registered Waste Sites Licensed Waste Management Facilities (Landfill Boundaries) Licensed Waste Management Facilities (Locations) Local Authority Recorded Landfill Sites Potentially Infilled Land (Non-Water Potentially Infilled Land (Water) Registered Landfill Sites Registered Waste Transfer Sites 	8	
Unexploded Ordnance	Site is situated within a Moderate Bomb Risk area.		

Summary		Section
Summary	The site is considered to have a Low-Moderate risk, due to the limited potential contamination risks identified in proximity of the Site and the Moderate risk of Unexploded Ordnance. Intrusive site investigation undertaken to confirm geo-environmental and geotechnical properties. This should inform and update the Initial Conceptual Site Model and, if required, consider remedial activities. Appropriate foundations should be designed. Construction workers should be provided with and use personal protective equipment (PPE), respiratory protective equipment (RPE) and be informed of good hygiene measures as protection against direct contact with potential ground contamination;	
	Construction works should be undertaken in accordance with the Control of Asbestos Regulations 2012; A Construction Environmental Management Plan should be undertaken to manage the risks of construction works impacting upon off-site sensitive receptors; Excavated material should be assessed for their potential for reuse on- site, with a Materials Management Plan produced, or if excess to requirements the waste classification of the material should be determined prior to off-site disposal at a licensed facility. Any imported soils for use on Site should be appropriately validated for use and origin certificates with appropriate	

1 Introduction

- 1.1 Brookbanks is appointed by Hallam Land Management Ltd to complete a Phase I Geo-Environmental Preliminary Risk Assessment for a proposed development at Land at Kenward Road, Yalding.
- 1.2 The objective of the study is to research the likely geo-environmental and chemical characteristics of the soil and groundwater environment.
- 1.3 This Preliminary Environmental Risk Assessment has been undertaken in general accordance with the Land Contamination: Risk Management Guidance (LCRM: Environment Agency, October 2020). The objective of the study is to research the likely geo-environmental and geotechnical characteristics of the soil and groundwater environment and includes the following:
 - Collation of available current and historical information about the Site and the potential contaminants expected to be present;
 - Formulation of an Initial Conceptual Site Model; and
 - Record of findings and recommendations for further action.
- 1.4 No previous geo-environmental or geotechnical investigations are known to have occurred at the Site.
- 1.5 The Site is located on approximate National Grid Reference (NGR) 569752, 150517.

2 Background Information

Location and Details

- 2.1 The Site comprises two parcels of agricultural land on the western edge of the village Yalding. The 9.51ha Site lies on the western edge of the village and is split into two parcels of land
- 2.2 The first parcel, to the north of Kenward Road, comprises approximately 4.878ha of land that is extensively covered by polytunnels for the growing of soft fruit. The topography of this northern parcel gently rises from Kenward Road northwards. To the east are existing residential properties in Medway Avenue whilst to the north and west are further agricultural fields (with those to the west also covered with polytunnels), and to the south are residential properties fronting Kenward Road.
- 2.3 The second parcel, to the south of Kenward Road, comprises approximately 4.362ha of agricultural land. The topography of this southern parcel is generally flat, although it slopes gently down to the River Beult where the land is more natural in character, comprising largely overgrown scrub and trees. To the east are existing residential properties in Oast Close whilst to the south is the River Beult, and to the west is further agricultural land, now covered extensively by large polytunnels.
- 2.4 The additional 0.27ha is adopted highway land on Kenward Road.



2.5 The site location and boundary is shown indicatively on Figure 2-1.

Figure 2-1: Site Location

Development Criteria

2.6 The proposed development is for the removal of existing polytunnels on land north of Kenward Road and the construction of up to 112 dwellings (Class C3), associated infrastructure and landscaping, together with the change of use of land south of Kenward Road to provide informal / recreational open space, sustainable urban drainage features, landscaping, and ancillary works / infrastructure.

Sources of Information

- 2.7 The following information has been gathered during the study:
 - Environmental Search
 - Published Geology
 - The BGS Lexicon of Named Rock Units
 - Published Information
 - UXO Pre-desk Study Assessment
 - Local Plan (Adopted 25 October 2017) -
 - Emerging Maidstone Local Plan Review -
- Landmark Envirocheck Reports, October 2021
- British Geological Survey
- British Geological Survey
- Environment Agency
- Zetica UXO, January 2022
- Maidstone Borough Council
- Maidstone Borough Council

3 Historical Site Uses

- 3.1 In appraising the Site history, published Ordnance Survey maps have been reviewed dating from 1885 up to the present day. A selection of large scale maps used in this report, are contained within **Appendix A.** Inspection of the Ordnance Survey maps has revealed that since 1885, the Sites have largely remained undeveloped.
- 3.2 The historical activities described above, and further activities shown within the surrounding area are presented in **Table 3-1**.

Site Use / Activity	Date First Shown	Date Last Shown	Approximate Distance (m)	Direction
Kenward Road	1870	Still Present	Bounds	South of the northern Parcel and North of the southern parcel
Old Quarry	1898	1909	400m	North East
Sewage Treatment Works	1965	1991	500m	West
Pumping Station	1991	Still Present	500m	West
Works	1965	Still Present	900m	South West
Railway Station and Line	1898	Still Present	1000m	South West

Table 3-1: Onsite and Offsite Historical Site Uses

- 3.3 On review of the Site and surrounding area, the area has remained largely unchanged. The quarry shown in 1898 is no longer evident by 1909. The Sewage Treatment Works alters in 1991 to the pumping station as shown. In relation to the Sites, the historical map search suggests that the land has previously been set as forest and agricultural land.
- 3.4 The following potentially significant contaminative land uses are on or within close proximity of the site and will be further assessed within Section 9: Agricultural, Roads (Kenward Road), Old Quarry, Pumping Station Works and Railway Line.

4 Ground Conditions

Geology

4.1 With reference to the British Geological Survey (BGS) map, the Site is shown to be underlain by mudstone of the Weald Clay Formation. With regards to the superficial deposits, the southern parcel is overlain by clay and silt of the River Terrace Deposits (undifferentiated). In addition, in the south of the southern parcel, an outcrop of Alluvium clay, silt, sand and peat is highlighted.



4.2 The Site geology is illustrated below on Figure 4-1 and Figure 4-2.

Figure 4-1: BGS Published Bedrock Geology



Figure 4-2: BGS Published Superficial Deposits

4.3 A summary of the Site geology is provided in **Table 4-1**.

Stratum	Area Covered	Estimated Thickness of Strata (from BGS Lexicon	Typical Description (from BGS Lexicon Data)
Weald Clay Formation	Entire Site	Between 122m and 460m in depth. Indicated to be around 240m thick south of Maidstone.	"Dark grey thinly-bedded mudstones (shales) and mudstones with subordinate siltstones, fine- to medium-grained sandstones, including calcareous sandstone shelly limestones and clay ironstones."
River Terrace Deposits (Undifferentiated)	Majority of southern parcel	Not Recorded	<i>"Sand and gravel, locally with lenses of silt, clay or peat."</i>
Alluvium	Within the south of the southern parcel	Not Recorded	"It is the unconsolidated detrital material deposited by a river, stream or other body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta, or as a cone or fan at the base of a mountain slope. Normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present."

Table 4-1: Summary of onsite Geology

Natural Faults and Hazards

- 4.4 BGS mapping for the area indicates no geological faults running through the Site or in very close proximity.
- 4.5 BGS records include the following ratings (as shown in **Table 4-2**) for a number of potential ground stability hazards on or within 250m of the Site boundary:

Ground Stability Hazard	Hazard Potential
Collapsible Ground Stability	No Hazard*/ Very Low*/ Low* / High*
Compressible Ground	No Hazard*/ High*
Ground Dissolution	No Hazard*
Landslide	Very Low* / Low*
Running Sand	No Hazard* / Very Low*/ Low*
Shrinking and Swelling Sand	No Hazard* / Low*/ Very Low*

Table 4-2: Estimated Soil Chemistry

*stability hazard reported on Site

Mining

- 4.6 The Site is not reported to be in an area affected by **Coal Mining**.
- 4.7 There are no areas of **Mining Instability** within the Site boundaries.
- 4.8 There are no **Man-Made Mining Cavities** reported within 1,000m of the Site boundary.
- 4.9 There is one Natural Cavities identified within 1,000m of the Site boundary, which is detailed below in Table4-3:

Cavity Type	Easting: Northing	Distance (m)	Direction
Gulls/Fissures due to Cambering	570000, 151000	319	North East

Table 4-3: Natural Cavities

- 4.10 The Site is reported to be situated within areas of Rare, Highly Unlikely Non Coal Mining Areas of Great Britain.
- 4.11 There is one **BGS Recorded Mineral Sites** recorded within 1,000m of the Site boundary, which is further detailed in **Table 4-4**:

Site Name – Location	Status	Commodity	Distance (m)	Direction
Nettlested - Nettlested, Maidstone, Kent	Ceased	Limestone	410	North East

Table 4-4: BGS Recorded Mineral Sites

Ground Gases and Vapours

4.12 The Envirocheck dataset has provided records of registered landfills, and other potential sources of ground gases/vapours within 1,000m of the Site. These are further detailed within the Waste section of Section 7.

Radon

- 4.13 Current Building Regulations endorsed by UK Health Security Agency detail that all new buildings or extensions require radon protective measures where the development is in an area of high radon.
- 4.14 According to UK Health Security Agency, the Site is shown to reside in a low probability radon area, where less than 1% of homes are estimated to be at or above the action level.
- 4.15 It is reported that no radon protection measures are necessary for the construction of new developments within the Site.

Estimated Soil Chemistry

4.16 The Envirocheck report provides the following estimated soil chemistry* on Site, whereby the soil is described as 'rural,' as shown in **Table 4-5**.

Potentially Harmful Elements	BGS Estimated Soil Chemistry Concentration (mg/kg)
Arsenic	<15 - 25
Cadmium	< 1.8
Chromium	60 - 90
Lead	<100
Nickel	15 - 30

Table 4-5: Estimated Soil Chemistry

* The British Geological Survey (BGS) Estimated Soil Chemistry dataset provides modelled estimates of ambient background concentrations of Potentially Harmful Elements (PHE) in topsoil: Arsenic (As), Cadmium (Cd), Chromium (Cr), Nickel (Ni) and Lead (Pb). The data has been created by combining high resolution geochemical data (from the BGS G-BASE and Imperial College Wolfson geochemical survey database) and the soil parent material maps derived from the BGS DiGMapGB geological data and covers the whole of Great Britain (excluding London).

4.17 A Phase II Site Investigation will provide confirmation of the levels on Site, by analysing the soil chemistry onsite.

5 Hydrology

5.1 This section provides an overview of the risk of contamination to hydrological network.

Flood Risk

Fluvial

- 5.2 The Environment Agency's (EA) National Generalised Modelling (NGM) Flood Zones Plan indicates predicted flood envelopes of Main Rivers across the UK. In many circumstances, the NGM is based on basic catchment characteristic data and modelling techniques. Where appropriate, more accurate Section 105 / SFRM models are produced using more robust analysis techniques.
- 5.3 The mapping below on **Figure 5-1** shows that the northern parcel lies within Flood Zone 1; being an area of Low Probability of flooding and outside both the 1 in 100 (1% AEP) and 1 in 1,000 (0.1% AEP) year flood events.
- 5.4 The southern parcel lies partially within flood zones 2 and 3 on land adjacent to the River Beult.



Figure 5-1: EA Flood Zone Plan showing 1 in 100 & 1 in 1,000 year floodplains

Overland Flow (Pluvial)

- 5.5 The mapping above identifies that most of the Site has a very low risk of surface water flooding. However, the southern parcel is shown to having a very low to high risk of surface water flooding.
- 5.6 Initial investigations suggest that the risk of overland flow relates primarily to the topography of the site; low areas of the site naturally store water limiting the surface runoff in concentrated areas. As part of the development, the topography will be altered, providing a rationalised surface for water runoff.



5.7 **Figure 5-2**, illustrates areas of low to high risk from surface water flooding:

Figure 5-2: EA Long Term Flood Risk Maps – Flood risk from Surface Water (Gov.Uk website)

Discharge Consents

5.8 There are thirty-nine **Discharge Consents**, reported within 1,000m of the proposed site. Fifteen Discharge Consents are reported within 500m of the Site boundary, and these are further detailed in **Table 5-1**.

Operator – Location	Status	Effective Date	Receiving Water	Discharge Type	Distance (m)	Direction
Southern Water Services Ltd - Tatt P.S., Yalding, Kent, ME18	Revoked	1st April 1991	The River Beult	Public Sewage: Storm Sewage Overflow	Onsite	South
Southern Water Services Ltd – Yalding, Kent	Not Supplied	1st April 1991	Not Supplied	Sewage Effluent Discharge-Storm Effluent	15	North
Southern Water Services Ltd - To A Tributary Of The Barden, Yalding, Kent	Not Supplied	1st April 1991	Not Supplied	Sewage Effluent Discharge-Crude Effluent	18	North
Southern Water Services Ltd - Tatt Yalding Ceo Yalding, Maidstone, Kent, ME18 6HT	Varied under EPR 2010	5th August 2016	The River Beult	Sewage Discharges - Pumping Station - Water Company	37	South
Southern Water	Varied under	5th August	The River	Public Sewage:	37	South

Services Ltd - Tatt Yalding Ceo Yalding, Maidstone, Kent, ME18 6HT	EPR 2010	2016	Beult	Storm Sewage Overflow		
Southern Water Services Ltd - Tatt P.S., Yalding, Kent	New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)	15th August 1996	Freshwater River	Public Sewage: Storm Sewage Overflow	37	South
Southern Water Services Ltd - Tatt Yalding Ceo Yalding, Maidstone, Kent, ME18 6HT	New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)	15th August 1996	Freshwater River	Sewage Discharges - Pumping Station - Water Company	37	South
Southern Water Services Ltd - Tatt Yalding Ceo Yalding, Maidstone, Kent, ME18 6HT	Pre National Rivers Authority Legislation where issue date < 01/09/1989	14th December 1976	Freshwater Stream/River	Public Sewage: Storm Sewage Overflow	37	South
Southern Water Services Ltd - Tatt Yalding Ceo Yalding, Maidstone, Kent, ME18 6HT	Pre National Rivers Authority Legislation where issue date < 01/09/1989	14th December 1976	Freshwater Stream/River	Sewage Discharges - Unspecified - Water Company	37	South
Southern Water Services Ltd - Yardley Park Road, YALDING , Kent	Not Supplied	Not Supplied	Not Supplied	Sewage Effluent Discharge-Storm Effluent	391	West
Clock House Farm Limited - Kenward Farm Wshp Kenward Road, ., Yalding, Kent, ME18 8JP	New issued under EPR 2010	1st September 2020	River Medway	Trade Discharges - Cooling Water	410	West
Southern Water Services Ltd - Yalding P.S., Yalding Kent	New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)	15th August 1996	Freshwater River	Public Sewage: Storm Sewage Overflow	463	West

Southern Water Services Ltd - Yalding P.S., Yalding Kent	New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)	15th August 1996	Freshwater River	Sewage Discharges - Pumping Station - Water Company	463	West
Southern Water Services Ltd - Yalding P.S., Yalding Kent	Post National Rivers Authority Legislation where issue date > 31/08/1989	1st April 1991	Freshwater River	Public Sewage: Storm Sewage Overflow	463	West
Mr Richard Sutton - 1 & 2 Orchard Cottages 1 And 2 Orchard Cottages, Lughorse Lane, Yalding, Kent, ME18 6EB	New issued under EPR 2010	27th April 2016	Ditch Trib Of The River Beult	Sewage Discharges - Final/Treated Effluent - Not Water Company	483	East

Table 5-1: New and Existing Discharge Consents (between 0 – 500m of the Site boundary)

5.9 A further twenty four Discharge Consents are reported between 501m and 1,000m of the Site boundary.

Water Quality

- 5.10 The Environment Agency monitor 40,000km of rivers across England. To help protect these areas each stretch of river was monitored between 1990 and 2009 and given a river quality grade. The General Quality Assessment (GQA) scheme was based upon the chemical quality of the water and graded from A to E, with A representing a river with very good water quality and E, a river with very poor water quality.
- 5.11 The Envirocheck has reported the following **River Quality Data** with 1,000m of the Site boundary:
 - Beult (Medway Conf Bethesden), shown on the Site boundary to have a River Quality Grade of B.
 - Medway (Allington Sluices Ensfield Bridge), approximately 207m south west of the Site to have a River Quality Grade of B.
 - Teise (Medway Conf Dundle), approximately 713m south west of the Site to have a River Quality Grade of B.

Pollution Incidents

5.12 The Envirocheck datasets have provided information with regards to registered incidences of pollution onsite. This information is further provided within Section 8 of this report.

Surface Water Abstraction

5.13 There are twenty five **Surface Water Abstraction** permits recorded within 1,000m of the Site boundary, and these are further detailed in **Table 5-2**.

Operator - Location	Abstraction Type	Permit Start Date	Permit End Date	Distance (m)	Direction
Clock House Farm Limited - River Beult At Court Lodge Farm, Yalding	Water may be abstracted from a river or stream reach, or a row of wellpoints	13th May 2019	Not Supplied	16	South
J A Worley Ltd - River Beult At Court Lodge Farm, Yalding	Water may be abstracted from a river or stream reach, or a row of wellpoints	6th December 2006	Not Supplied	16	South
Clock House Farm Limited - River Beult At Court Lodge Farm, Yalding	Water may be abstracted from a river or stream reach, or a row of wellpoints	13th May 2019	Not Supplied	279	South West
J A Worley Ltd - River Beult At Court Lodge Farm, Yalding	Water may be abstracted from a river or stream reach, or a row of wellpoints	6th December 2006	Not Supplied	279	South West
Southern Water Services Ltd - River Medway At Yalding Intake	Water may be abstracted from a single point	22nd November 2017	Not Supplied	366	West
Southern Water Services Ltd - River Medway At Yalding Intake	Water may be abstracted from a single point	2nd April 1992	Not Supplied	377	West
Clock House Farm Limited - Kenward Farm Abstraction Point	Water may be abstracted from a single point	8th July 2020	Not Supplied	405	West
Clock House Farm Limited - Points B-C, River Beult At Congelow Farm, Yalding	Water may be abstracted from a river or stream reach, or a row of wellpoints	27th February 2017	Not Supplied	569	South East
Mr M C Gibb - Points B-C, River Beult At Congelow Farm, Yalding	Water may be abstracted from a river or stream reach, or a row of wellpoints	20th October 2006	Not Supplied	569	South East
Mr B.E. Wingrove - Points B- C, River Beult At Congelow Farm, Yalding	Water may be abstracted from a river or stream reach, or a row of wellpoints	19th October 2006	Not Supplied	569	South East
Syngenta Ltd - Point 3, River Medway At Yalding	Water may be abstracted from a single point	6th December 2006	Not Supplied	639	West

Syngenta Ltd - Point 3, River Medway At Yalding	Water may be abstracted from a single point	6th December 2006	Not Supplied	639	West
Syngenta Ltd - Point 3, River Medway At Yalding	Water may be abstracted from a single point	6th December 2006	Not Supplied	639	West
Syngenta Ltd - Point B, Borehole At Zeneca Site, Yalding	Water may be abstracted from a single point	21st December 2000	Not Supplied	717	West
Syngenta Ltd - Points C-D, River Medway At Yalding	Water may be abstracted from a river or stream reach, or a row of wellpoints	21st December 2000	Not Supplied	720	South West
B E Wingrove - Congelow Farm, YALDING	Not Supplied	Not Supplied	Not Supplied	740	South East
Syngenta Ltd - Point 2, River Medway At Yalding	Water may be abstracted from a single point	6th December 2006	Not Supplied	749	West
Syngenta Ltd - Point 2, River Medway At Yalding	Water may be abstracted from a single point	6th December 2006	Not Supplied	749	West
Syngenta Ltd - Point 2, River Medway At Yalding	Water may be abstracted from a single point	6th December 2006	Not Supplied	749	West
Syngenta Ltd - Point A, Seepage Trench At Zeneca Site, Yalding	Water may be abstracted from a single point	21st December 2000	Not Supplied	834	West
Syngenta Ltd - Point 1, River Medway At Yalding	Water may be abstracted from a single point	6th December 2006	Not Supplied	910	West
Syngenta Ltd - Point 1, River Medway At Yalding	Water may be abstracted from a single point	6th December 2006	Not Supplied	910	West
Syngenta Ltd - Point 1, River Medway At Yalding	Water may be abstracted from a single point	6th December 2006	Not Supplied	910	West
l Milstead – Green Farm, Nettlestead	Not Supplied	Not Supplied	Not Supplied	935	West
Syngenta Ltd - Points A-B, River Medway At Yalding	Water may be abstracted from a river or stream reach, or a row of wellpoints	21st December 2000	Not Supplied	975	South West

Table 5-2: Surface Water Abstractions (between 0 – 1,000m of the Site boundary)

6 Hydrogeology

Bedrock and Superficial Aquifer Designations

6.1 The underlying mudstone of the Weald Clay Formation is shown to have an unproductive strata across the Site. The River Terrace Deposits (undifferentiated) forms a Secondary (undifferentiated) Aquifer. This is further illustrated below in **Figure 6-1** and **Figure 6-2**:



Figure 6-1: BGS Bedrock Geology Aquifer Designation



Figure 6-2: BGS Superficial Aquifer Designation

6.2 The EA provides the following definitions for Principal Aquifers, Secondary Aquifers and Unproductive Strata:

Secondary Aquifers - These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types:

Secondary Undifferentiated - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

Unproductive: These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow."

6.3 The Site is shown not to be located within a groundwater Source Protection Zone.

Groundwater Vulnerability

- 6.4 The EA Groundwater Vulnerability Zones (GVZ) Mapping summarises the overall risk to groundwater, taking into account groundwater vulnerability, the types of aquifer present (superficial and/or bedrock) and their designation status, as discussed previously.
- 6.5 The site is shown (**Figure 6-3**) to be situated within a 'medium-low' risk in the southern parcel, in terms of groundwater vulnerability. The northern parcel is shown to be unproductive.



Figure 6-3: EA Groundwater Vulnerability Zones Map (Magic Maps, 2022)

6.6 The EA provides the following definition for the underlying GVZ:

High - These are high priority groundwater resources that have very limited natural protection. This results in a high overall pollution risk to groundwater from surface activities. Operations or activities in these areas are likely to require additional measures over and above good practice pollution prevention requirements to ensure that groundwater isn't impacted.

Groundwater Abstractions

6.7 There are two Groundwater Abstraction permits recorded within 1,000m of the Site boundary, these are further detailed in **Table 6-1**

Operator - Location	Abstraction Type	Permit Start Date	Permit End Date	Distance (m)	Direction
Syngenta Ltd - Point B, Borehole At Zeneca Site, Yalding	Water may be abstracted from a single point	21st December 2000	Not Supplied	717	West
Syngenta Ltd - 9/40/03/0163/ - Point A, Seepage Trench At Zeneca Site, Yalding	Water may be abstracted from a single point	21st December 2000	Not Supplied	834	West

Table 6-1: Groundwater Abstractions (between 0 – 1,000m of the Site boundary)

6.8 The Envirocheck Report has provided confirmation of any recorded groundwater discharge consents within 1,000m of the Site. These are further detailed in the Discharge Consents section, within Section 5 of this report

7 Potential Contaminative Uses & Statutory Registers

7.1 There are twelve **Pollution Incidents to Controlled Waters** recorded within 1,000m of the Site boundary and this is further detailed in **Table 7-1**:

Property Type - Location	Incident Date	Pollutant	Incident Severity	Receiving Water	Distance (m)	Direction
Road (Road Traffic Accident) - Vicarage Road, Yalding	4th June 1998	Oils - Petrol	Category 3 - Minor Incident	Not Given	298	East
Miscellaneous Premises: Other - Medway Tributary At, The Lees, Yalding	11th August 1996	Oils - Diesel (Including Agricultural)	Category 3 - Minor Incident	Not Given	682	South West
Not Given - Stream Adjacent To, Vicarage Lane, Yalding	11th January 1993	Miscellaneous - Natural	Category 3 - Minor Incident	Not Given	682	South East
Other Transport - Westview Road, Swanley	3rd November 1994	Oils - Petrol	Category 3 - Minor Incident	Not Given	770	North West
Industrial: Other - Yalding	10th May 1995	Chemicals - Pesticides	Category 2 - Significant Incident	Not Given	800	South West
Domestic/Residential - Pond At Salters Cross	15th May 1992	Cesspit Contents	Category 3 - Minor Incident	Not Given	815	South East
Ships/Boats - 400 Yds U/S Of, Yalding Bridge, Yalding	22nd September 1996	Oils - Unknown	Category 3 - Minor Incident	Not Given	862	South West
Miscellaneous Premises: Unknown - Hampstead Marina	24th July 1997	Oils - Other Oil	Category 3 - Minor Incident	Not Given	863	West
Chemical industry - C Yalding, Yalding	4th August 1992	Chemicals - Acid	Category 3 - Minor Incident	Not Given	900	West
No Premises Identified - Hempstead Lock, Yalding	16th October 1999	No Pollutant	Category 3 - Minor Incident	Potential River	921	West
Other Transport - Hampstead Lane, Yalding	17th September 1994	Oils - Other Oil	Category 3 - Minor Incident	Not Given	923	West
Not Given - East Farleigh To Yalding	7th July 1992	Miscellaneous - Natural	Category 3 - Minor Incident	Not Given	955	West

Table 7-1: Pollution Incidents to Controlled Waters

7.2 There are three **Integrated Pollution Controls** recorded within 1,000m of the Site boundary and this is further detailed in **Table 7-2**:

Name - Location	Date	Status	Distance (m)	Direction
Astrazeneca Uk Ltd - Yalding, Maidstone, Kent, ME18 6HN	24th November 1998	Authorisation revoked	948	West
Astrazeneca Uk Ltd - Yalding, Maidstone, Kent, ME18 6HN	24th September 1998	Authorisation superseded by a substantial variation	948	West
Astrazeneca Uk Ltd - Yalding, Maidstone, Kent, ME18 6HN	29th December 1993	Authorisation superseded by a substantial or non-substantial variation	948	West

Table 7-2: Integrated Pollution Controls

7.3 There is one **Substantiated Pollution Incident Register** recorded within 1,000m of the Site boundary and this is further detailed in **Table 7-3**:

Authority	Incident Date	Pollutant	Water Impact	Air Impact	Land Impact	Distance (m)	Direction
Environment Agency - South East Region, Kent & South London Area	26th January 2003	Oils - Diesel (Including Agricultural)	Category 1 - Major Incident	Category 4 - No Impact	Category 3 - Minor Incident	569	South West

Table 7-3: Substantiated Pollution Incident Register

- 7.4 None of the following have been recorded within 1,000m of the Site boundary:
 - Contaminated Land Register Entries and Notices
 - Enforcement and Prohibition Notices
 - Local Authority Integrated Pollution Prevention and Control
 - Local Authority Pollution Prevention and Controls
 - Local Authority Pollution Prevention and Control Enforcement
 - Integrated Pollution Prevention and Control
 - Prosecutions Relating to Authorised Processes
 - Prosecutions Relating to Controlled Waters
 - Registered Radioactive Substance
 - Water Industry Act Referrals

Hazardous Substances

7.5 There is one **Control of Major Accident Hazards Sites** recorded within 1,000m of the Site boundary and this is further detailed in **Table 7-4**:

Name - Location	Status	Distance (m)	Direction
Syngenta Limited Hampstead Lane, Maidstone, Kent, Me18 6HN	Record Ceased To Be Supplied Under COMAH Regulations	948	West
			1

Table 7-4: Control of Major Accident Hazards Sites

7.6 There is one **Planning Hazardous Substance Consents** recorded within 1,000m of the Site boundary and this is further detailed in **Table 7-5**:

Name - Location	Hazardous Substance	Application Date	Decision	Distance (m)	Direction
Zeneca Agrochemicals - Hampstead Lane, Yalding	Toxic	10th August 1999	Deemed Consent Granted	825	West

Table 7-5: Planning Hazardous Substance Consents

- 7.7 There are no records of the following on or within a 1,000m radius of the Site boundary:
 - Explosive Sites
 - Notification of Installations Handling Hazardous Substances (NIHHS)
 - Planning Hazardous Substance Enforcements
- 7.8 There are twenty **Contemporary Trade Directory Entries** recorded within 1,000m of the Site boundary. eleven of these are situated within 500m of the Site boundary. These are further detailed in **Table 7-6**.

Name – Location	Classification	Status	Distance (m)	Direction
Conshae Construction Ltd - Conshae House, Yalding Hill, Yalding, Maidstone, ME18 6JB	Electrical Engineers	Inactive	107	East
Royal Tunbridge Wells Spa Co - 1, Acott Fields, Yalding, Maidstone, Kent, ME18 6DQ	Swimming Pool Contractors, Repairers & Service	Inactive	110	South
Lastec (Uk) Ltd - Court Lodge Farm, Kenward Road, Yalding, Maidstone, Kent, ME18 6JP	Lawnmowers & Garden Machinery - Sales & Service	Inactive	147	North West
Lastec - Court Lodge Farm,Kenward Rd, Yalding, Maidstone, Kent, ME18 6JP	Lawnmowers & Garden Machinery - Sales & Service	Inactive	147	North West
Kontact Engineering Services - Court Lodge Farm, Kenward Road, Yalding, Maidstone, Kent, ME18 6JP	Fork Lift Trucks	Inactive	148	North West
A R Transport - Court Lodge Farm, Kenward Road, Yalding, Maidstone, Kent, ME18 6JP	Road Haulage Services	Inactive	148	North West
Lastec Uk Ltd - Court Lodge Farm, Kenward Road, Yalding, Maidstone, ME18 6JP	Lawnmowers & Garden Machinery - Sales & Service	Active	153	North West
Yalding Forge - Forge, High Street, Yalding, Maidstone, Kent, ME18 6HX	Farriers	Inactive	167	South East
Parkinson Ltd - 3, Randall Cottages, High Street, Yalding, Maidstone, Kent, ME18 6HZ	Domestic Appliances - Servicing, Repairs & Parts	Inactive	215	South East
Parkinson Ltd - 3, Randall Cottages, High Street, Yalding, Maidstone, Kent, ME18 6HZ	Washing Machines - Servicing & Repairs	Active	215	South East
Wood-Mizer Uk - Hopfield Barn, Kenward Road, Yalding, MAIDSTONE, Kent, ME18 6JP	Machinery - Industrial & Commercial	Inactive	251	North West

Table 7-6: Contemporary Trade Directory Entries located between 0 and 500m

7.9 A further nine **Contemporary Trade Directories** are situated between 501m and 1,000m from the Site boundary. These are further provided in **Table 7-7**:

Active	Inactive
Garage Services	Air Conditioning & Refrigeration Contractors
Paint Varnish & Lacquer	Lighting Manufacturers
Brewery Supplies	Garage Services
-	Brewers
-	Chemicals - Distributors & Wholesalers
-	Air Conditioning & Refrigeration Contractors

Table 7-7: Contemporary Trade Directory Entries located between 501 and 1,000m

7.10 There are no Fuel Station Entries recorded within 1,000m of the Site boundary.

Waste

- 7.11 The Site is located within the Local Authority Landfill Coverage of Kent County Council, who have supplied Landfill data.
- 7.12 There is one **Historical Landfill Sites** recorded within 1,000m of the Site boundary, which is further detailed in **Table 7-8**:

Name – Location	First Input Date	Last Input Date	Distance (m)	Direction
ICI – Zenecca - Maidstone, Kent	14th November 1977	Not Supplied	617	West
Table 7-8: Historical Landfill Sites				

- 7.13 There is one **Licensed Waste Management Facilities (Landfill Boundaries)** within 1,000m of the Site. It is the Former, C, Syngenta Works, Hampstead Lane, Yalding, Kent, ME18 6HN, situated 977m west of the Site.
- 7.14 There is one **Local Authority Recorded Landfill Sites** situated within 634m west of the Site boundary. Information of which is further provided in **Table 7-9**:

Location	Last Reported Status	Types of Waste	Distance (m)	Direction
Yalding	Not Supplied	Effluent Disposal	634	West

Table 7-9: Local Authority Recorded Landfill Sites

7.15 There is one **Potentially Infilled Land (Non-Water**) recorded within 500m of the Site Boundary, and there are five **Potentially Infilled Land (Water)** recorded within 500m of the Site Boundary. These are further detailed below in **Table 7-10**:

Use	Date of Mapping	Distance (m)	Direction
Unknown Filled Ground (Pond, marsh, river, stream, dock etc) – Water	1872	1	North
Unknown Filled Ground (Pond, marsh, river, stream, dock etc) – Water	1898	29	South West
Unknown Filled Ground (Pond, marsh, river, stream, dock etc) – Water	1872	233	North West
Unknown Filled Ground (Pond, marsh, river, stream, dock etc) – Water	1998	280	South West
Unknown Filled Ground (Pond, marsh, river, stream, dock etc) – Water	1898	307	West
Unknown Filled Ground (Pit, quarry etc) – Non Water	1991	401	North East
	1		

Table 7-10: Potentially Infilled Land

- 7.16 There are no provided reports of the following within 1,000m of the Site boundary:
 - Registered Landfill Sites
 - BGS Recorded Landfill Sites
 - Integrated Pollution Control Registered Waste Sites
 - Licensed Waste Management Facilities (Locations)
 - Registered Waste Transfer Sites

Unexploded Ordnance (UXO)

7.17 The Zetica Regional Unexploded Bomb Risk Map for the Site has outlined the proposed development is potentially located within a Moderate Bomb Risk area affected by UXO activity, as illustrated in **Figure 7-1**.



Figure 7-1: Zetica Regional Unexploded Bomb Risk Assessment Map for the Site

7.18 A 'Pre-Desk Study Assessment' (PDSA) Bomb Search can be requested from Zetica UXO, in which the risk of encountered items of UXO during intrusive works on Site will be assessed as part of the next phases (intrusive and development).

8 Environmental Setting

- 8.1 There are four **Ancient Woodlands** identified within 1000m of the Site boundary. These are further detailed below:
 - An Unnamed Woodland, approximately 318m north east of the Site covering an area of circa 6,653m²
 - Long Shaw, approximately 899m east of the Site covering an area of circa 8,923m²
 - An Unnamed Woodland, approximately 995m south west of the Site covering an area of circa 5,886m²
 - Henhouse Wood & Shaw, approximately 1000m north east of the Site covering an area of circa 22,258m²
- 8.2 One **Area of Adopted Green Belt** is recorded within 1,000m of the Site boundary, and this is located within Maidstone Borough Council Development Control, since the 25th of October 2017.
- 8.3 There are two **Nitrate Vulnerable Zones (NVZ)** is situated onsite within 1000m of the Site Boundary. These are further detailed below:
 - Groundwater Vulnerability, Maidstone, 184m north of the Site
 - Surface Water Vulnerability, Teise NVZ, 547m south west of the Site
- 8.4 One **Site of Special Scientific Interest** is recorded adjacent to the Site, and in close proximity to the Site boundary. This is River Beult and has been designated since 16th May 1994.
- 8.5 None of the following are reported within 1,000m of the Site boundary:
 - Areas of Outstanding Natural Beauty
 - Environmentally Sensitive Areas
 - Forest Parks
 - Local Nature Reserve
 - Marine Nature Reserves
 - National Nature Reserves
 - National Parks
 - Nitrate Sensitive Areas
 - Ramsar Sites
 - Special Areas of Conservation
 - Special Protection Area
 - World Heritage Sites

9 Initial Conceptual Site Model

- 9.1 Guidance has been published by the Department of the Environment, Food, and Rural Affairs (DEFRA) in order to ascertain if and when the 'Environmental Protection Act 1990: Part 11A Contaminated Land (2000)' is applicable via Contaminated Land Statutory Guidance (April 2012). The Statutory Guidance applies the "suitable for use" approach, which recognises that the risks presented by any given level of contamination will vary greatly according to the use of the land, and a wide range of other factors, such as the underlying geology of the site. Risks, therefore, need to be assessed on a site-by-site basis.
- 9.2 The "suitable for use" approach consists of three elements:
 - Ensuring that land is suitable for its current use in other words, identifying land where contamination is causing unacceptable risks to human health and the environment, assessed on the basis of the current use and circumstances of the land, and returning such land to a condition where such risks no longer arise ("remediating" the land): the new contaminated land regime provides general machinery to achieve same.
 - Ensuring that land is made suitable for any new use, as planning permission is given for that new use in other words, assessing the potential risks from contamination, on the basis of the proposed future use and circumstances, before official permission is given for the development and, where necessary to avoid unacceptable risk to human health and the environment, remediating the land before the new use commences; this is the role of the town and country planning and building control regimes.
 - Limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to the current use or future use of the land for which planning permission is being sought in other words, recognising that the risks from contaminated land can be satisfactorily assessed only in the context of specific uses of the land (whether current or proposed), and that any attempt to guess what might be needed at some time in the future for other uses is likely to result either in premature work (thereby risking distorting social, economic and environmental priorities) or in unnecessary work (thereby wasting resources).
- 9.3 The National Planning Policy Framework (2023) endorses the 'suitable for use' approach, as it states that:
 - "183. Planning policies and decisions should ensure that:
 - "a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);
 - "b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and
 - "c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.
 - "184. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner."
- 9.4 Also addressed within the DEFRA guidance is the issue of 'contaminated land'. Before the Local Authority can make the judgement that any land appears to be Contaminated Land on the basis that Significant Harm is being caused, or that there is a Significant Possibility of Significant Harm (SPOSH) being caused, the authority must therefore identify a Significant Pollutant Linkage.
- 9.5 This means that each of the following has been identified:
 - A Contaminant Source

- A Pathway
- A Receptor

and that:

• The Contaminant is causing Significant Harm to that Receptor.

Or

- There is a Significant Possibility of Significant Harm being caused by the Contaminant to the Receptor.
- 9.6 Where any of the three elements of the Source-Pathway-Receptor (SPR) are not present, there is no risk and therefore land cannot be classified as statutory 'contaminated land'. Where Potential Pollutant Linkages (PPL) are identified for the site, these should be considered further.
- 9.7 In terms of controlled waters, DEFRA: Contaminated Land Statutory Guidance (April 2012) notes the following:

"A.35 Section 78A (9) defines the pollution of controlled waters as: 'The entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter'.

A.36 Before determining that pollution of controlled waters is being, or is likely to be, caused, the local authority should be satisfied that a substance is continuing to enter controlled waters or is likely to enter controlled waters. For this purpose, the local authority should regard something as being "likely" when they judge it more likely than not to occur.

- A.37 Land should not be designated as contaminated land where:
 - (a) A substance is already present in controlled waters;
 - (b) Entry into controlled waters of that substance from land has ceased; and
 - (c) It is not likely that further entry will take place.
- A.38 Substances should be regarded as having entered controlled waters where:
 - (a) They are dissolved or suspended in those waters; or
 - (b) If they are immiscible with water they have direct contact with those waters on or

beneath the surface of the water.

- A.39 The term "continuing to enter" should be taken to mean any entry additional to any which has already occurred."
- 9.8 The Land Contamination Risk Management (LCRM), provides the technical framework for applying a risk management process, based on the 'suitable for use' approach, when dealing with land affected by contamination.
- 9.9 This report also follows the CIRIA C552 documentation for *Contaminated Land Risk Assessment: A guide to good practice.*
- 9.10 In 2008, R&D Publication 66 'Guidance for the Safe Development of Housing on Land Affected by Contamination' was published by the National House Builders Council (NHBC), the EA and the Chartered Institute of Environmental Health. Whilst written to be relevant to housing development it is also applicable

to other forms of development where sites are land affected by contamination. The guidance describes in detail the process and activities involved for the identification and assessment of hazards for a Phase 1 assessment.

- 9.11 At Phase 1 stage, it is necessary to develop an initial conceptual site model to understand the possible relationships between contaminants, pathways and receptors. If a hazardous source, via an exposure pathway to a potential receptor can be established then there is a 'pollutant linkage,' which is preliminarily risk assessed using parameters summarised in Table 10-1, below. At this stage, the conceptual model is prepared without site specific soils, groundwater or gas testing and as such, the findings should be treated only as first and general indications of possible SPR linkages.
- 9.12 The primary potential sources of contamination are indicated below:
 - Agricultural Use Soil and Water Contamination • Existing Roads (including Kenward Road) Soil and Water Contamination Soil and Water Contamination Old Quarry • Pumping Station Works Soil and Water Contamination Railway Line
- 9.13 The potential receptors at the site are:
 - End users / site occupiers
 - Adjacent users / occupiers
 - Controlled waters
 - Flora and fauna
 - Buildings & construction materials
- 9.14 The potential pathways at the site are primarily:
 - Direct ingestion of soil / water / fruit or vegetable
 - Inhalation of dust / vapours
 - Direct skin contact with the ground / water
 - Regression of plant growth due to phytotoxic contamination
 - Vertical and lateral migration of contamination
- 9.15 While limited information is available at this stage the methodology has been developed to help identify the potential contamination risk and linkages. The severity of damaging effects and the likelihood of any linkage have been considered.
- 9.16 Given the potential consequence and likelihood, a risk rating is given, based on the following matrix:

		Consequence				
		Severe	Moderate	Mild	Minor	
lity od)	Highly Likely	Very High	High	Medium	Low	
ibabi eliho	Likely	High	Medium	Medium/Low	Low	
Pro (Lik	Possible	Medium	Medium/Low	Low	Very Low	
	Unlikely	Medium/Low	Low	Very Low	Very Low	
		1			1	

Table 9-1: Risk Ratings

- - Soil and Water Contamination

9.17 The risk ratings are described on the next page.

Very High:	There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without appropriate remediation action.
High:	Harm is likely to arise to a designated receptor from an identified hazard at the site without appropriate remediation action.
Medium:	It is possible that without appropriate remediation action harm could arise to a designated receptor. It is relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely that such harm would be relatively mild.
Low:	It is possible that harm could arise to a designated receptor from an identified hazard. It is likely that, at worst if any harm was realised any effects would be mild.
Very Low:	The presence of an identified hazard does not give rise to the potential to cause harm to a designated receptor.

9.18 A summary of the potential SPR linkages on site and within close proximity of the site are detailed in Table 9-2. The numbers next to the Pathway are commented on further from Paragraph 10.17 below.

Source	Pathway	Receptor	Risk Rating	Potential Mitigation
Contaminated soils	Direct Ingestion & contact ⁽¹⁾		Low	-
On-site: • Agricultural	Inhalation of dust ⁽²⁾	Site workers & occupiers	Low	-
Off-site:	Direct skin contact ⁽³⁾		Low	-
Agricultural	Vertical & lateral migration (4)	Controlled waters	Low	-
 Existing Roads (including Kenward Road) 	Direct uptake ⁽⁵⁾	Flora	Low	-
 Old Quarry Pumping Station Works Railway Line 	Direct contact ⁽⁶⁾	Building materials	Low	-
Contaminated groundwater	Direct Ingestion & contact ⁽⁷⁾	Site workers &	Low	-
On-site: • Agricultural	Direct skin contact ⁽⁸⁾	occupiers	Low	-
Off-site:	Vertical & lateral migration ⁽⁹⁾	Controlled waters	Low-Medium	-
Existing Roads (including	Direct uptake ⁽¹⁰⁾	Flora	Low-Medium	-
Kenward Road) • Old Quarry • Pumping Station • Works	Direct contact ⁽¹¹⁾	Building materials	Low	
Elevated gas On-site: Potential mudstone	Vertical & Lateral Mitigation	Site workers & occupiers	Low	-
Geology Off-site: Potential mudstone Geology	(12)	Adjacent occupiers	Low	-

Table 9-2: Site SPR Summary

- 9.19 The following paragraphs outline the comments from the pathways identified in **Table 9-2** above.
- 9.20 **(1) Direct Ingestion & Contact** Historically undeveloped Site, which is currently in agricultural use. Agricultural use may have included the use of pesticides and fertilizers which may pose minor potential contamination. An assessment of the soils may be required at the detailed design stage.
- 9.21 (2) Inhalation of Dust Historically undeveloped Site, which is currently in agricultural use. Agricultural use may have included the use of pesticides and fertilizers which may pose minor potential contamination. An assessment of the soils may be required at the detailed design stage.
- 9.22 (3) Direct Skin Contact Historically undeveloped Site, which is currently in agricultural use. Agricultural use may have included the use of pesticides and fertilizers which may pose minor potential contamination. An assessment of the soils may be required at the detailed design stage.
- 9.23 (4) Vertical and Lateral Migration The Superficial deposits shown on the Site form a Secondary Aquifer (Undifferentiated). Groundwater flow into site is possible however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 9.24 (5) Direct Uptake Historically undeveloped Site, which is currently in agricultural use.
- 9.25 **(6) Direct Contact** Historically undeveloped Site, which is currently in agricultural use. Agricultural use may have included the use of pesticides and fertilizers which may pose minor potential contamination. An assessment of the soils may be required at the detailed design stage.
- 9.26 **(7)** Direct Ingestion & Contact The Superficial deposits shown on the Site form a Secondary Aquifer (Undifferentiated). Groundwater flow into site is possible however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 9.27 (8) Direct Skin Contact The Superficial deposits shown on the Site form a Secondary Aquifer
 (Undifferentiated). Groundwater flow into site is possible however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 9.28 (9) Vertical & Lateral Migration The Superficial deposits shown on the Site form a Secondary Aquifer (Undifferentiated). Groundwater flow into site is possible however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 9.29 **(10) Direct Uptake** The Superficial deposits shown on the Site form a Secondary Aquifer (Undifferentiated). Groundwater flow into site is possible however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 9.30 **(11) Direct Contact** The Superficial deposits shown on the Site form a Secondary Aquifer (Undifferentiated). Groundwater flow into site is possible however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site.
- 9.31 (12) Vertical and Lateral Migration: Site Workers & Occupiers Historically undeveloped Site, which is currently in agricultural use. The Superficial Deposits for the Site are situated on Secondary Aquifers (Undifferentiated), with the Bedrock Geology forming Unproductive Strata. Groundwater flow into site is possible however none of the surrounding off-site sources have the potential to detrimentally impact the proposed site. No potential sources for gassing have been identified within an influencing distance of the proposed development.
- 9.32 (12) Vertical and Lateral Migration: Adjacent Occupiers Historically undeveloped Site, which is currently in agricultural use. The Superficial Deposits for the Site are situated on Secondary Aquifers (Undifferentiated), with the Bedrock Geology forming Unproductive Strata. Groundwater flow into site is possible however none

of the surrounding off-site sources have the potential to detrimentally impact the proposed site. No potential sources for gassing have been identified within an influencing distance of the proposed development.

10 Discussion & Summary

Discussion

10.1 A review of readily available Site environmental data, including historical mapping and statutory registers and consultation with appropriate authorities has identified the following:

On-Site and Offsite

10.2 The Site comprises **Agricultural Land** which may include the following typical contaminants: Nitrogen, potassium and phosphorous contained within fertilisers; chemicals from pesticides and herbicides; coliform and non-coliform bacteria from the livestock waste and manure application; and hydrocarbons from oil and fuel leakages from machinery. Taking into consideration the existing underlying geology and groundwater vulnerability, this feature generally provides a **Low** rating for risk. However, this may vary depending on persistence of the chemicals used and further assessment of the Site's soils may be required at the detailed design stage to establish baseline ground conditions.

Off-Site

- 10.3 Potential contaminants from leakages and spillages from vehicles on the Existing Roads (including Kenward Road) may include: heavy metals, oils, fuels and Polycyclic Aromatic Hydrocarbons. The risk rating is considered to be Low as the road is not considered to be a major road and associated highway ditches which would intercept any potential contaminated runoff.
- 10.4 The historical mapping identified an **Old Quarry** between 1898 and 1909 approximately 400m north of the Site. Potential contaminants may have included: metals, acids, highly corrosive mineralised waters, metal sulphides and hazardous / non-hazardous chemicals. On review, this does not appear to be infilled, and therefore the source of gas/vapours is considered to be low. Due to the long period of time of inactivity, the distance from the Site and topography, it has been assessed that the Former Quarries do not provide a plausible pathway and therefore provide a *Low* risk rating.
- 10.5 A **Sewage Pumping Station Works** is shown approximately 500m west of the Site. Potential contaminants may have included: metals, inorganic/organic compounds, acids/alkalis, asbestos, pathogenic micro-organisms, methane, carbon dioxide and hydrogen sulphide. It is anticipated that the Works is a modern construction so it is unlikely that releases would occur, and there isn't a pathway for contamination, as groundwater is negligible. The Sewage Pumping Station is considered to be a **Low** risk rating.
- 10.6 An **existing Railway Line** is shown, approximately 1000m south west of the Site. Potential contaminants may include: degreasing solvents, PCBs from engines and electrical equipment, heavy metals, oils, fuels, waste ash and clinker. The Railway line is shown to be a considerable distance from the Site and is therefore considered to be a *Negligible* rating for risk.

Summary

- 10.7 After reviewing the historical mapping, geological data, hydrological data, sensitive land uses, industrial land uses, waste and hazardous substances, there are potential sources of contamination from agricultural practices, which may need an Site Investigation for confirmatory checks. A Site Investigation will be undertaken for geotechnical purposes and will includes contamination assessments.
- 10.8 The underlying ground conditions are not considered to be sensitive, with the Sites Superficial Deposits situated on a Secondary Aquifers (Undifferentiated).
- 10.9 The overall contaminative risk at the site is considered to be Low-Moderate, due to the limited potential contamination risks identified in proximity of the Site and the Moderate risk of Unexploded Ordnance. In order to confirm the baseline ground conditions, it is recommended that a Phase II ground investigation is carried out across the Site.

11 Local Policies Compliance

- 11.1 This section provides a summary of the compliance of the proposed development against the *Maidstone Borough Local Plan (Adopted October 2017)* and the *Emerging Maidstone Local Plan Review*.
- 11.2 Policy DM3 (Natural Environment) from the *Maidstone Borough Local Plan* has since been updated and moved to the strategic polices in the *Emerging Maidstone Local Plan Review*. This policy is now LPRSP14(A) (Natural Environment) and is specific to this report, with the Local Plan stating:

"Maidstone's natural environment is a fundamental part of the borough's economic wealth and social wellbeing, the benefits of which are far-reaching. It is essential to ensure natural assets remain robust and viable"

11.3 **Table 11-1** below provides specific Policies of LPRSP14(A) in relation to the Site compliance.

Policy	Strategy for Compliance
Policy LPRSP14(A) – Natural Environment (formerly Policy DM3 (Natural Environment 1 (i)) states: "Protect positive landscape character, areas of Ancient Woodland, veteran trees, trees with significant amenity value, important hedgerows, features of biological or geological interest, and the existing public rights of way network from inappropriate development and avoid significant adverse impacts as a result of development;"	The report has identified that, in relation to contamination, the Site will not have an impact on Ancient Woodlands, with the nearest Ancient Woodland identified 318m north-east of the Site. There are no geologically interesting features to protect, but CEMP will consider all issues further
Policy LPRSP14(A) – Natural Environment (formerly Policy DM3 (Natural Environment 1 (iii)) states:	The Site is not situated within a Groundwater Source Protection Zone.
"Control pollution to protect ground and surface waters where necessary and mitigate against the deterioration of water bodies and adverse impacts on Groundwater Source Protection Zones, and/or incorporate measures to improve the ecological status of water bodies as appropriate"	The site identified to pose low risk of contamination so development won't create pollution. However, CEMP will be produced to ensure that ground and surface waters (and other things) are protected. As a result, this won't impact the ecological status of the adjacent river.

Table 11-1: Local Policy Compliance

12 Limitations

- 12.1 The conclusions and recommendations contained herein are limited to those given the general availability of background information and the planned usage of the site.
- 12.2 Third party information has been used in the preparation of this report, which Brookbanks, by necessity assumes is correct at the time of writing. While all reasonable checks have been made on data sources and the accuracy of data, Brookbanks accepts no liability for same.
- 12.3 All distances referred to in this report are measured from the boundary of the planned development Site unless otherwise advised.
- 12.4 The benefits of this report are provided solely to Hallam Land Management Ltd for the proposed development land at Kenward Road, Yalding only.
- 12.5 Third party information has been used in the preparation of this report, which Brookbanks, by necessity assume is correct at the time of writing.

Appendix A – Historical Map Index – Ordnance Survey

Historical Mapping Legends

Ordnance	Survey County Series 1:10,560	Ordnance Survey Plan 1:10,000	1:10,000 Raster Mapping
Grav Pit	vel Sand Other Pit Pits	مرین کر Chalk Pit, Clay Pit کر Gravel Pit در Chalk Pit, Clay Pit در Chalk Pit	Gravel Pit Gravel Pit Gravel Pit
C Qua	rry Shingle Orchard	Sand Pit Oisused Pit	Rock (scattered)
په ^م ه ^م ه ^م ه ² [*] م ² [*] ⁴ ⁴ ⁴ [*] ⁴ ⁴ ⁴ ⁴ ⁴ [*] ⁴ ⁴ ⁴ ⁴ ⁴ ⁴ [*] ⁴ ⁴ ⁴ ⁴ ⁴ ⁴	ers	Refuse or Lake, Loch	ີ້ໍ້ໍີ Boulders Boulders (scattered)
4 2 5 4 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	and the second s	Dunes 200 Boulders	Shingle Mud Mud
Mixed Woo	d Deciduous Brushwood	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Sand Sand Sand Pit
			Slopes reaction Top of cliff
Fir	Furze Rough Pasture	ஒ் ் Orchard ெ தொல் \Y்ஸ் Coppice ரிரி Bracken ஸ்ப்ப்ச் Heath பட்டா, Rough ரி Grassland	General detail — — — — Underground detail — — — Overhead detail — — — — Narrow gauge railway
++++→ Ai flo	rrow denotes <u>a</u> Trigonometrical ow of water Station	<u> معا</u> يد Marsh ،،،∨//، Reeds <u>معا</u> دد Saltings	railway railway
r ∔• Si	ite of Antiquities 🔹 🔹 Bench Mark	Direction of Flow of Water Building	Civil, parish or County boundary (England only) Civil, parish or community boundary
• Pr Si • 285 S	ump, Guide Post, Well, Spring, ignal Post Boundary Post urface Level	Glasshouse Sand	District, Unitary, Metropolitan, Constituency London Borough boundary boundary
Sketched	Instrumental Contour	Pylon ————————————————————————————————————	Area of wooded vegetation Area of vegetation Area of vegetatio
Main Roads	Fenced Minor Roads	Cutting Embankment Standard Gauge	Coniferous Coni
	Sunken Road Raised Road	Road ''''''' Road Level Foot Single Track	★ trees (scattered) ★ tree Coppice or Osiers
And the second s	Road over Railway over Railway River	Under Over Crossing Bridge Siding, Tramway or Mineral Line	متله Rough متله Grassland میلاه ۱۹۹۲ Heath
	Railway over Level Crossing	—— —— Geographical County	∩o_ Crub →⊻∠ Marsh, Salt →⊻∠ Marsh or Reeds
	Road over Road over River or Canal Stream	Administrative County, County Borough or County of City Municipal Borough Urban or Bural District	Water feature Flow arrows
	Road over Stream	Burgh or District Council Borough, Burgh or County Constituency Shown only when not coincident with other boundaries	MHW(S) Mean high water (springs) Mean low water (springs)
	County Boundary (Geographical)	Civil Parish — — — — Civil Parish Shown alternately when coincidence of boundaries occurs	Telephone line (where shown)
	County & Civil Parish Boundary	BP, BS Boundary Post or Stone Pol Sta Police Station	← Bench mark Triangulation
	County Borough Boundary (England)	Ch Church PO Post Office CH Club House PC Public Convenience	Point feature Pylon, flare stack
Co. Boro. Bdy.	County Burgh Boundary (Scotland)	FE Sta Fire Engine Stadon PH Public House FB Foot Bridge SB Signal Box Fn Fountain Spr Spring	or Mile Stone)
y	Rural District Boundary	GP Guide Post TCB Telephone Call Box MP Mile Post TCP Telephone Call Post	· ↓• Site of (antiquity) Glasshouse
	Civil Parish Boundary	MS Mile Stone W Well	General Building Important Building

Brookbanks

Consulting

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Kent	1:10,560	1870 - 1872	2
Kent	1:10,560	1898	3
Kent	1:10,560	1909	4
Kent	1:10,560	1933	5
Kent	1:10,560	1938	6
Kent	1:10,560	1938	7
Historical Aerial Photography	1:10,560	1947 - 1949	8
Ordnance Survey Plan	1:10,000	1961	9
Ordnance Survey Plan	1:10,000	1965 - 1967	10
Ordnance Survey Plan	1:10,000	1970 - 1978	11
Ordnance Survey Plan	1:10,000	1976	12
Ordnance Survey Plan	1:10,000	1989	13
Ordnance Survey Plan	1:10,000	1991 - 1993	14
10K Raster Mapping	1:10,000	1999	15
10K Raster Mapping	1:10,000	2006	16
VectorMap Local	1:10,000	2021	17

Historical Map - Slice A



Order Details

285568897_1_1
00386
569690, 150430
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9.46
1000

Site Details







Kent Published 1870 - 1872 Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.





Kent Published 1898 Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.





Kent Published 1909 Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.







Consulting

Historical Aerial Photography Published 1947 - 1949 Source map scale - 1:10,560

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was rechecked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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Map Name(s) and Date(s)





Consulting

Ordnance Survey Plan

Published 1961

Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

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Historical Map - Slice A



Order Details

Order Number:	285568897_1_1
Customer Ref:	00386
National Grid Reference:	569690, 150430
Slice:	A
Site Area (Ha):	9.46
Search Buffer (m):	1000

Site Details

Land at Yalding



Tel: Fax: Web:





Consulting

Ordnance Survey Plan Published 1970 - 1978

Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

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Historical Map - Slice A



Order Details

Order Number:	285568897_1_1
Customer Ref:	00386
National Grid Reference:	569690, 150430
Slice:	A
Site Area (Ha):	9.46
Search Buffer (m):	1000

Site Details

Land at Yalding



Tel: Fax: Web:



Consulting

Ordnance Survey Plan Published 1991 - 1993

Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

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Historical Map - Slice A



Order Details

Order Number:	285568897_1_1
Customer Ref:	00386
National Grid Reference:	569690, 150430
Slice:	A
Site Area (Ha):	9.46
Search Buffer (m):	1000

Site Details

Land at Yalding



Tel: Fax: Web:



Consulting

10k Raster Mapping

Published 1999

Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	285568897_1_1
Customer Ref:	00386
National Grid Reference:	569690, 150430
Slice:	A
Site Area (Ha):	9.46
Search Buffer (m):	1000

Site Details







Consulting

10k Raster Mapping

Published 2006

Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	285568897_1_1
Customer Ref:	00386
National Grid Reference:	569690, 150430
Slice:	Α
Site Area (Ha):	9.46
Search Buffer (m):	1000

Site Details

Land at Yalding



Tel: Fax: Web:



VectorMap Local

Published 2021

Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities),1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)

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Historical Map - Slice A



Order Details

Order Number:	285568897_1_1
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BROOKBANKS

Head Office Address

6150 Knights Court, Solihull Parkway, Birmingham Business Park, Birmingham. B37 7WY

T +44(0)121 329 4330 brookbanks.com