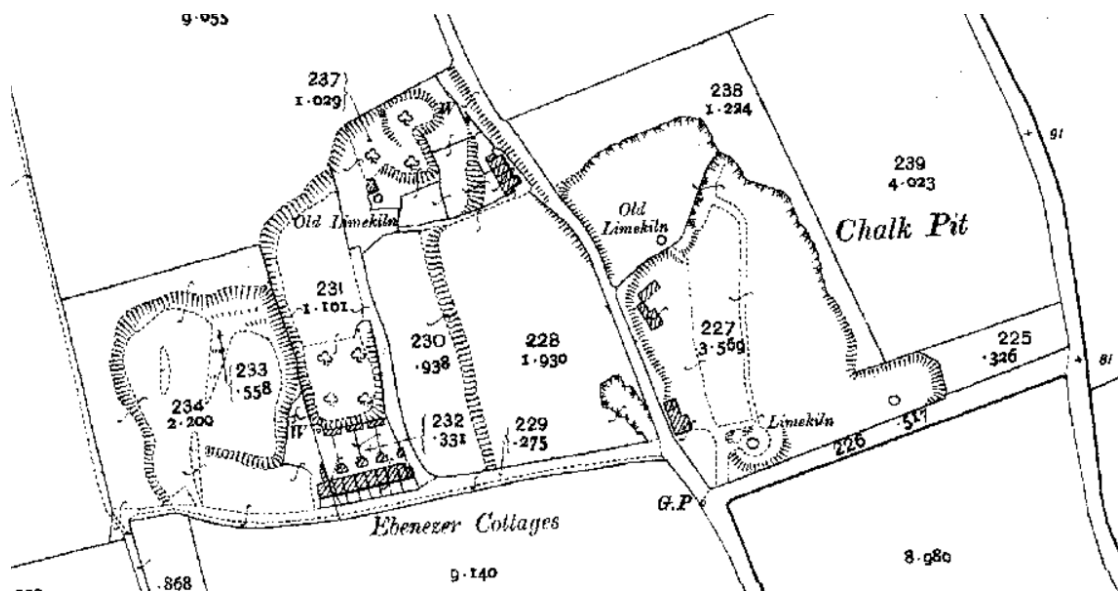




Contaminated Land Inspection Report

Lime Kiln Road
Gayton



September 2022

Reference no. 20/001

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Executive Summary

The Borough Council of King's Lynn and West Norfolk (BCKLWN) has a statutory duty to inspect its district for potentially contaminated land under Part 2A of the Environmental Protection Act 1990. The Borough Council's Part 2A inspection strategy identified the site at Lime Kiln Road, Gayton (the site) as being of high priority due to the presence of potentially infilled land and potentially sensitive receptors.

Given the former site usage, an assessment of the site has been undertaken to assess the potential for harm to human health, property, ground/surface water and designated environmental receptors under Part 2A.

To gather information of the site's history a desk study and preliminary risk assessment were carried out by the Environmental Quality Team. From the evidence gathered during the desk study of the site history and a site walkover, the following can be stated: The site was historically chalk pits and lime kilns. The production of lime took place during the late 1800s and early 1900s. The site's present use is residential and informal recreation land. It is assumed that the site has been infilled and levelled with site-won or locally sourced inert material.

During an application for planning permission for a residential development, land not originally identified was reported to have been used to accept waste materials. This land to the east of Meadowvale site was subject to a limited ground investigation by the applicant's consultant. No significant risks were identified. The land to the east and west of Meadowvale has been included to form a revised extent to which the contaminated land risk assessment applies.

From the contaminated land risk assessment, plausible source pathway receptor linkages were identified. A LOW risk was assessed from contamination to human health, LOW risk to property, VERY LOW risk to the wider environment, MODERATE risk was identified to groundwater and LOW risk to surface water.

There was no evidence of harm or of a significant possibility of significant harm to the receptors identified in the conceptual site model. As the risk posed is low, the site would be classified as Category 4 (human health) as set out in the Statutory Guidance.

No evidence was noted of significant harm to ecological systems or property.

No evidence was noted of significant pollution of controlled waters or of the significant possibility of such pollution.

Therefore, the site is not considered to be contaminated land under Part 2A of the Environmental Protection Act 1990.

1 Introduction

This report details a review of information and risk summary about land at Lime Kiln Road, Gayton and provides a conclusion on the risk to human health, property, groundwater and the wider environment.

The Contaminated Land Statutory Guidance (DEFRA, 2012) suggests that where the authority has ceased its inspection and assessment of land as there is little or no evidence to suggest that it is contaminated land the authority should issue a written statement to that effect. This inspection report forms that written statement.

2 Desk Study Information

Location

The site is formed of four adjacent parcels of land on Lime Kiln Road, situated approximately 200m to the north of Gayton Village. The location is shown in figure 1 below. The grid reference for the centre of the site is 572553 319708. The nearest postcode is PE32 1QT.

The site plan below (figure 1) shows aerial photography of the site with the site outlined in red. Following a review of the information submitted with a 2015 application for planning consent an additional area was added to the site and this is shown in purple. Plan 1 in Appendix B shows the site in more detail. Further photographs of the site are in appendix A.

Previous investigation

There is one record of previous investigations on the site. One parcel of land was investigated as part of an application for planning consent (ref 15/01789/O) and the Contamination Report (Plandescil, 2015) is available on the public record.

Land to the east of the site (Area 4 below) was initially prioritised for inspection as it was also part of the quarry and lime kilns. However, there was no reason to suspect that the land may have been filled, or contaminated by the previous use, and that site was not included as a priority for further detailed inspection.

Previous Site Usage

The site was historically used for a number of small, interconnected quarries and lime kilns and may have been subject to subsequent infilling. Information from Norfolk Limekilns¹ indicates that the chalk quarry was operating in the early 19th century and probably before. There were at least three limekilns around the quarries, with the longest lasting having operated until 1975. Which may make it the last traditional kiln to work in Norfolk. The kiln is likely to have been wood-fired and may have been fired with anthracite in later years.

Present Site Usage

The site's present use is partly residential, garden, open grassland and informal recreation.

¹ [Limekilns \(brocross.com\)](https://www.brocross.com/industrial%20history/limekilns.htm) <https://www.brocross.com/industrial%20history/limekilns.htm>



Figure 1: Site layout – recent

Ownership

Enquiries have been made to establish land ownership, and access to the sites has been granted by the landowners. This report will be made available to the landowners.

Environmental Setting

Data on geology, groundwater and statutory designations was obtained from borough council geographic information, from DEFRA's 'Magic Map' database² and BGS Geology of Britain viewer³.

Geology

Soils are described as loamy, free-draining shallow lime-rich soils over chalk or limestone. The 1:50 000 scale BGS geology map describes the bedrock as West Melbury Marly Chalk Formation and Zig Zag Chalk Formation. This is a sedimentary rock formed approximately 94 to 101 million years ago in the Cretaceous Period. No superficial deposits are recorded.

The site is at 26 metres above ordnance datum (m AOD). Historical borehole records⁴ show a sewerage borehole adjacent to the site and Institute of Geological Sciences Borehole within 150m to the east of the site which record the geology as set out in table 1 below. The 2015 Plandescil report recorded infill materials on land to the east which were described as made ground.

² <https://magic.defra.gov.uk/magicmap.aspx>

³ <https://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>

⁴ <https://mapapps.bgs.ac.uk/geologyofbritain/home.html>

Table 1: Geological strata encountered (from BGS records, Gayton Sewerage number 8, undated & IGS borehole TF71NW10 Gayton, 1970 & Plandescil 2015)

Strata	Thickness range in borehole (m)	Range of depth to top of stratum (m)
Topsoil	0.3	NR* - 0.3
Sandy clay	0.9	NR* - 1.2
Made Ground/Infill	0.5 - 2.7	0.2 - 0.6
Soft Chalk/Lower chalk	2.1 - 13	0 - 3.4
Gault Clay	NR* - 9	NR* - 13
Carstone	NR* - 8	NR* - 22
Snettisham Clay	NR* - 2	NR* - 30
Sandringham Sands	NR* - 41	NR* - 33
Upper Jurassic Sands	NR* - 6	NR* - 74
Kimmeridge Clay	NR* - 15	NR* - 80

**NR - Not recorded: indicates that the strata was either not recorded as being observed at that location or that the borehole did not extend to that depth*

Hydrogeology

The Anglian Chalk deposits are designated by the Environment Agency as a groundwater nitrate vulnerable zone. The bedrock is designated as a principal aquifer with groundwater of high vulnerability. Soils are described as loamy, free-draining shallow lime-rich soils over chalk or limestone.

There is a groundwater source protection zone approximately 1km to the north east of the site. There are no known licensed water abstractions within 1km.

Hydrology

The nearest major water features are Gaywood River which emerges approximately 400m to the north, an unnamed ditch and pond over 400m to the southwest and west respectively. Mintlyn Stream (over 2km to the southwest) is designated as part of a surface water nitrate vulnerable zone. A nitrate vulnerable zone of protection extends into the site area.

Landfill and other environmental records

- No LAPPC processes are recorded on site or within 500m
- There are no formal records of licensed landfills or waste disposal on site or within 250m. The 2015 Plandescil report for land to the east of Meadowvale records the made ground to consist of 'fibrous material, frequent whole bricks, pipe, fabric, metal, plastic sheeting, crushed can (possibly oil), large concrete fragments, metal rods, fragments of possible chrysotile sheets, tiles and metal sheeting, metal, glass shards, glass bottle, orange rope, green fencing wire, carpet, saucepan, bread wrappers and polyester cups. General domestic waste and multiple possible asbestos fragments, plastic sheets, flux powder and crisp packets in a matrix of slightly sandy or gravelly silt.' This, together with anecdotal information suggests that this piece of land has been filled with imported material.

Historic Maps

Map extracts are shown in Appendix B.

E-map Explorer

Enclosure Map 1800 – 1850 – no data

Tithe map circa 1840 – The site appears as 6 parcels of land with some boundaries the same as currently. A track is shown running east west on the southern boundary and a road running north south on the eastern boundary. A small structure is depicted in the northeast of the site. Gayton village is shown as a collection of buildings approximately 200m to the south centred around the main roads which are present today. A group of buildings are also shown approximately 400m to the north of the site with a water body extending north eastwards.

Ordnance Survey 1st Ed. 1879-1886 – The site is depicted as a series of pits covering most of the site. The adjacent site (area 4) is also pits and contains lime kilns. The tracks and roads are as previously shown. The small structure previously shown on site is no longer present. Another small structure is shown close to the original location but closer to the road to the west. Some additional buildings are shown in Gayton village to the south, and some are labelled public house, chapel, school etc. A spring is denoted 180m to the southwest. The buildings 400m to the north are labelled Well Hall and the associated body of water is labelled springs. The surrounding area consists of fields.

Historic Maps on file at the Borough Council of King's Lynn and West Norfolk (1:2500 scale)

Historic maps are presented in Appendix B and summarised below.

1843 – 1893: Map 1 shows the site to be depicted as a series of pits with trees partly trees lining the pits and site boundaries. An Old Limekiln is marked and annotated in the north of the site and four adjacent small buildings are shown in the northeast close to the eastern boundary with the road. The site adjacent to the east contains three pits and two limekilns. Gayton village to the south shows named public houses, chapels, a timber yard and springs. Well Hall appears much as shown on the previous map edition.

1891 – 1912: Map 2 shows the site and surrounding area to be in a similar layout to the previous map edition. A well 'W' is marked to the north of the site. A small area of land in the south now contains 8 terraced cottages labelled Ebenezer Cottages. The land to the east appears to have one operational lime kiln. Allotments are denoted directly to the south of the site.

1904 – 1939: Not available

1919 – 1943: Not available.

1945 – 1970: Map 3 shows the site to be an open field in the western section. The eastern section is shown with some pit sides still present and some trees in the north. A substantial building is shown in the south of this part of the site in the location of Meadowvale. Well Hall to the north is shown with additional buildings including a well house, electricity substation and a pair of detached houses to the south. The river emerging from the Well Hall Spring, and which flows to the northwest is labelled Gaywood River. The pits and kilns on the

adjacent land to the east are shown as one pit (disused). A Police house is shown approximately 150m to the east of the site. The field 50m to the southeast of the site has been developed into a small housing estate off Lime Kiln Lane called Grove Gardens and Lime Grove. Land directly to the south is still labelled allotment gardens. A number of buildings are now shown 20m to the south west of the site labelled Jubilee Farm.

1970 – 1996: Not available

Aerial Photographs

Aerial photographs are presented in Appendix B and summarised below.

1945 – 1946 MOD Aerial Photograph – Map 4 shows the site to consist of disused pits. The western part of the site appears to be vegetated, but the shape of the pit sides can be seen. The eastern part of the site appears to have been filled or levelled in places and appears as a regular lighter surface. The northern section of this part of the site appears vegetated. The outline of Ebenezer cottages can be seen and the patchwork pattern of the allotments to the south. A number of houses to the southeast along Lime Kiln Lane. The buildings and trees of Well Hall Farm can be seen to the north. The pits to the east appear to be potentially still active and appear as pits connected by tracks within the lighter soil surface. The surrounding area is predominantly arable fields and grassland with occasional wooded areas.

1970's – Oblique aerial photograph supplied by resident (below). The photograph shows the original 'Meadowvale' bungalow and an assumed garage under construction or car port. A telegraph pole in the foreground also helps to locate features as it remains in position today. Access to the house is to the west of the pole. A pit is located to the east of the house and access track. A bare chalk face is exposed on the north of this pit. There appears to be some spoil or fill material in the south-western corner of the pit.

Land to the north, at the rear of the bungalow appears to consist of exposed chalk with some potential remnant structures below the quarry face which runs north-south. The shape of the quarry faces matches that on the 1945 – 1970 historical maps.



1970's – Oblique aerial photograph supplied by resident.

1999 – Map 5 shows the site to be well vegetated with open grassland, gardens, trees, and hedges. The buildings of Ebenezer Cottages and a large house (Meadowvale) are visible along the central southern area. Some slopes are visible following the shape of the former pits. The surrounding area appears to be similar to the previous map with the residential areas, allotments and Jubilee Farm to the south.

2006-09 - Map 6 shows the site to have been further developed in the eastern part (Meadowvale). An additional wing is included on the house and a tennis court and swimming pool added together with several outbuildings. The driveway to the house has been moved to the east and widened. The western part of the site (Area 1) also appears to contain several small structures. The area used for allotments to the south has been reduced and returned to arable use. The field to the east (area 4) appears to be used for grazing.

2017 - Map 7 shows the most recent aerial photography. The site and surrounding area is similar to the previous image but with additional tree growth on site and some further outbuildings or field shelters at the rear of Ebenezer Cottages in the north of the site.

Planning History

There are 12 applications for redevelopment on or adjacent to the site which were permitted. There is one other application from 2015 on land to the east of the site. The site's planning history is set out in Table 2 below:

Table 2: Planning History		
Year	Application ref	Description
2015	15/01789/O	Land East of Meadowvale - Outline application for site development for 4 detached dwellings
2018	18/01674/F	Meadowvale - Conversion of garden room to an upgraded temporary residential living space
2013	13/00328/F	8 Ebenezer Cottages - Extension and alterations to form 2 storey extension and single storey attached single garage
2011	11/01484/F	5 Ebenezer Cottages – rear extension & internal alterations
2010	10/01325/F	8 Ebenezer Cottages - Extension & Alteration to the rear of dwelling
2008	08/02701/F	8 Ebenezer Cottages - Demolition of existing rear extension, provision of new single storey rear extension
2007	07/02015/F	1 Ebenezer Cottages – construction of conservatory
1998	2/98/0623/F	7 Ebenezer Cottages – extension to dwelling
Other applications on the site were predominantly regarding two storey and single storey extensions to the large house known as Meadowvale and these appear to have been permitted and the developments taken place.		

In 2015 an application was made for 4 dwellings to the east of Meadowvale in the area marked as Area 3. Local residents provided anecdotal information that the former pit had been infilled with fill including waste. It was not clear when the filling took place, but one reporter suggested it was associated with Meadowvale when one of the owners bought the land. The borough council environmental quality team and the Environment Agency objected to the planning application. A report was submitted in support of the application (Contamination Report Desk Study including Limited Phase 2 investigation, March 2016, Plandescil). The objections were because the site had not been adequately characterised and the potential for contamination from the previous use had not been suitably assessed. The application was refused for several reasons including these objections.

Norfolk County Council Records

No planning applications were found for Lime Kiln Road, Gayton.

3 Site Walkover

A site walkover of **area 1** was carried out on 10 June 2022 with the site owner and a family member. The land is let to a local resident and managed by a local agent. The site appears to be being managed for wildlife and informal recreation and was reported to have beehives (on overview map in NW corner). The site surface consisted of grass, shrubs and trees which appeared very healthy (photos 1-8). No livestock was present. There was evidence of rabbits on the site.

The owner's family were reported to have farmed the land to the south in the past and also grazed cattle on this land (which had not been used as a quarry in living memory). Chalk rubble was reportedly taken to build up the road when it needed repair, this helped to level it. The area got churned up by cattle when they were grazing there but drained well.

The site appears to be free-draining. One small ephemeral pond was noted (photo 4) evidenced by some changes in vegetation. There was a campervan (photo 1), a tractor (photo 5) and two cars (photo 6) stored on site but no evidence of pollution arising from these. The site is lower than the cottages to the south (photo 5) which may indicate that the site has not been filled. The site slopes downward to the north and east in the wooded area (photos 7 & 8) where it is reported that there is another pond, which would correspond with the earliest excavations depicted on the historical maps. There was no evidence of any fill materials on the surface or within molehills or rabbit burrows. Soils were light coloured sandy loam with chalk fragments.

A site walkover of **area 2 and 3** was carried out on 11 July 2022 with the current resident. Photographs are presented in Appendix A. The residents have lived in the village for a considerable time and have knowledge of the property's history. An oblique aerial photograph, presumed to be from the 1970's, was in the house and is included above in this report. It was noted that the access driveway has moved to the east (located using telegraph pole) when the house was extended. The paddock (photo 9) at the front of the site is the filled area highlighted in the 2015 site investigation. This is rented and was used until recently for horse grazing. However, this use has been suspended temporarily due to the presence of weeds which may be toxic to horses. The paddock's surface is uneven, possibly indicating settlement (photo 10). There are molehills in the surface which have exposed flint and chalk stones and chalky soil, but no fill materials noted. The resident reported that they used to mow the paddock with a ride-on mower, but now it is now too uneven.

To the north of the paddock, the site slopes gently upwards to the north as partly mown meadow grassland (photo 11). The surface appears more even than in the paddock. The ground in the garden is lower than the adjacent to the eastern border with a footpath (photo 12).

From the highest point on the meadow, the site slopes gently downwards again to the outbuildings to the west (photo 13), and mature woodland to the north (14). There was no surface evidence of fill materials. It appears possible that the slopes were formed from site-won material. Beneath the thin topsoil, chalk was noted. Chalk rubble was visible where a hole had been dug to plant a tree (photo 13). The tree was reported not to have thrived.

Mature trees were noted close to the main house, which the resident reported to have been planted by the previous occupants around 30 years ago. All appeared in good health. The meadow area has some self-seeded trees and one immature oak.

The resident reported that the pit was called Gregory's Pit by the villagers. There is a record of Gregory Kramarchuck in the London Gazette at this address in January 1975.⁵

Location of Receptors

Humans

Houses within are located adjacent to the site (Ebenezer Cottages) and on site (Meadowvale). Houses are also located 50m to the southwest at Jubilee Hall Lane and 90m to the south east. The site itself is used for informal recreation and also forms part of the garden for Meadowvale. The remainder of the surrounding land is allotments or agricultural for grazing animals for human consumption and food crops and will have people present to tend the land and animals.

Property

There are houses on the site and adjacent as well as farm buildings. Gayton village centre to the south contains further houses, shops, public houses a community hall and places of worship. Crops and livestock are grown or reared commercially in the surrounding fields. Chickens are kept and produce is cultivated on the allotments directly to the south.

Ecological Environment

There are no relevant types of receptor as set out in Table 1 of the statutory guidance within 1km of the site.

Controlled Water - Groundwater & Surface water

There is no evidence of watercourses on the site. There are springs 140m to the southwest and 400m to the north. The site is located over a bedrock designated as a principal aquifer with groundwater of high vulnerability.

4 Contaminated Land Risk Assessment

The Council has used a process adapted from CIRIA C552 (Contaminated Land Risk Assessment, a guide to good practice) to produce the conceptual site model and estimate the risks to defined receptors. This involves the consideration of the probability, nature and extent of exposure and the severity and extent of the effects of the contamination hazard should exposure occur. Further explanation is provided in Appendix C.

⁵ [Page 894 | Issue 46472, 21 January 1975 | London Gazette | The Gazette](https://www.thegazette.co.uk/London/issue/46472/page/894)
<https://www.thegazette.co.uk/London/issue/46472/page/894>

The assessment has been based on available documentary, visual, and anecdotal information about the site. Plan 1 in Appendix B shows the extent of the site considered below and to which the findings apply.

Assessment of probability of a contamination event

From the information gathered it is considered that there is the potential for a source of contamination to be present on the site. The potential source is infill material used to raise levels in the former chalk pits and fill material imported to Area 3.

Human health

There are people on the site who will come into direct contact with site soils when gardening or carrying out maintenance. There is one house on site and several directly adjacent where exposure to contamination could occur indirectly via gas or vapour intrusion. There is a potential pollutant linkage and it is possible a contamination event could occur, but it is not considered likely that an event would occur in the long or short term. Therefore, the probability of a contamination event affecting human health is LOW.

Property

Property is present on site in the form of buildings. Adjacent land contains property in the form of crops and allotment produce and livestock. Buildings have been present adjacent to the site since at least the early 1900s. The property on the site has been present since at least the 1970s. No evidence has been found of structural failure or substantial damage due to ground contamination. No evidence has been found of pollution incidents affecting crops, produce or livestock. Therefore, the probability of a contamination event affecting property is LOW.

Ecological Environment

There are no relevant types of ecological receptor as set out in Table 1 of the statutory guidance within 1km of the site. Therefore, the probability of a contamination event affecting ecological receptors is LOW

Controlled water - Groundwater

The site is underlain by a principal Aquifer with groundwater described as of high vulnerability. Overlying soils are described as free-draining. An exposure pathway exists to groundwater and the probability of a contamination event affecting groundwater is assessed as LIKELY.

Controlled water - Surface water

No surface water bodies were noted on site or in a location which may receive site run-off. Water infiltration and migration is likely to be vertically downwards due to the free draining soils. The probability of a contamination event to surface water is therefore assessed as UNLIKELY.

Assessment of Hazard

As part of the 2015 site investigation, laboratory analysis results of selected samples from the landfilled site east of Meadowvale were screened against available generic assessment criteria. It was reported that there were exceedances of the assessment criteria for Arsenic, Mercury, Lead and one polyaromatic hydrocarbon when assessed for the proposed new residential use. Ground gas was not assessed. Asbestos was not detected in the soil samples. It should be noted that a Part 2A assessment has a different aim which is to determine if there are unacceptable risks to designated receptors in the context of the current use of the land.

Human Health

It is assumed that most of the site was infilled and levelled with site won or locally sourced inert material. There is evidence of some fill in Area 3. However, there is no evidence of waste materials at the surface or of substantial organic material in the landfill or infill material. There is no evidence of produce being grown in Area 3 and the likelihood of significant migration of contaminants to gardens and nearby allotments is considered low. The site is being managed with minimal disturbance to surface soils. Health effects to human health can be easily prevented by means such as normal hygiene following soil contact. The hazard is assessed as LOW.

Property

Harm, should it occur to buildings, crops, produce and livestock is not expected to be significant as defined in the statutory guidance. There was no visible damage to buildings or signs of vegetation or livestock stress or illness. The hazard is assessed as LOW.

Environment

In considering environmental receptors, the statutory guidance states that the authority should only regard certain receptors (described in Table 1 of the Statutory Guidance) as being relevant for the purposes of Part 2A. Harm to an ecological system outside that description should not be considered to be significant harm. The site and surrounding area do not contain any of the receptors stipulated in Table 1 of the Statutory Guidance.

Controlled Water -Groundwater and Surface Waters

There are no reported pollution incidents relating to groundwater which could be attributable to the site. However, the landfilled area has not been subject to detailed intrusive investigation, and it is possible that there could be concentrations of contaminants which could be mobilised especially if there were any changes in the site surface or drainage on the land east of Meadowvale. Therefore, the hazard is assessed as MEDIUM.

Conceptual site model

The conceptual site model (Table 3) shows the sources, pathways and receptors identified and the subsequent risk classification.

Table 3: Conceptual site model

Source	Pathway	Receptor	Probability	Hazard	Risk
Heavy metals, polyaromatic hydrocarbons petroleum hydrocarbons asbestos containing materials within the landfill	Direct contact, ingestion, dust inhalation, plant uptake and consumption of wild fruit	Humans (adults and children)	Low	Low	Low risk
	Direct contact	Property (buildings)	Low	Low	Low risk
	Direct contact	Environment*	Unlikely	Low	Very low risk
	Direct contact	Controlled water (surface water)	Unlikely	Medium	Low risk
	Direct Contact	Controlled water (ground water)	Likely	Medium	Moderate risk

Moderate/Low risk - It is possible that harm could arise to a designated receptor from an identified hazard. However, if any harm were to occur it is more likely that harm would be relatively mild.

Low risk - It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.

Very low risk - There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is unlikely to be severe.

*Ecological systems as set out in Table 1 of the contaminated land statutory guidance

5 Outcome of Preliminary Risk Assessment

Conclusion

Plausible source pathway receptor linkages were identified and a LOW risk from contamination to human health, LOW risk to property, VERY LOW risk to the wider environment LOW risk was identified to surface water and MODERATE risk to groundwater.

There was no evidence of harm or of a significant possibility of significant harm to the receptors identified in the conceptual site model. As the risk posed is low, the site would be classified as Category 4 (Human Health) as set out in the Statutory Guidance (Appendix D contains the categorisations from the Statutory Guidance).

No evidence was noted of significant harm to ecological systems or property.

No evidence was noted of significant pollution of controlled waters or of the significant possibility of such pollution. As the risk posed is moderate but it is considered very unlikely that serious pollution would occur the site would be classified as Category 3 (Controlled Waters).

Consultations

Interested parties were consulted on the draft report. A comment was received from the The Environment Agency that they have reviewed the report and can confirm that they agree with the Authority's assessment of the potential risks to controlled waters from the site, and with the conclusions that have been drawn.

Part 2A status

Statutory Guidance states that 'If the authority considers there is little reason to consider that the land might pose an unacceptable risk, inspection activities should stop at that point.' In such cases the authority should issue a written statement to that effect. This report forms that written statement.

Based on its assessment, the authority has concluded that the land does not meet the definition of contaminated land under Part 2A and is not considered contaminated land.

Further Action

This assessment is based on the site's current use and is valid providing no changes are made to the soil or vegetation cover material, to surface water conditions or to the site's use. Any redevelopment of the site would require an appropriate site investigation to determine if it could be made suitable for the proposed use.

No further assessment of the site is considered necessary under Part 2A unless additional information is discovered or if changes are made to the site.

Appendices

Appendix A: Site Photographs





Photograph 1:



Photograph 2:



Photograph 3:



Photograph 4:



Photograph 5



Photograph 6:



Photograph 7:



Photograph 8



Photograph 9:



Photograph 10



Photograph 11



Photograph 12



Photograph 13:

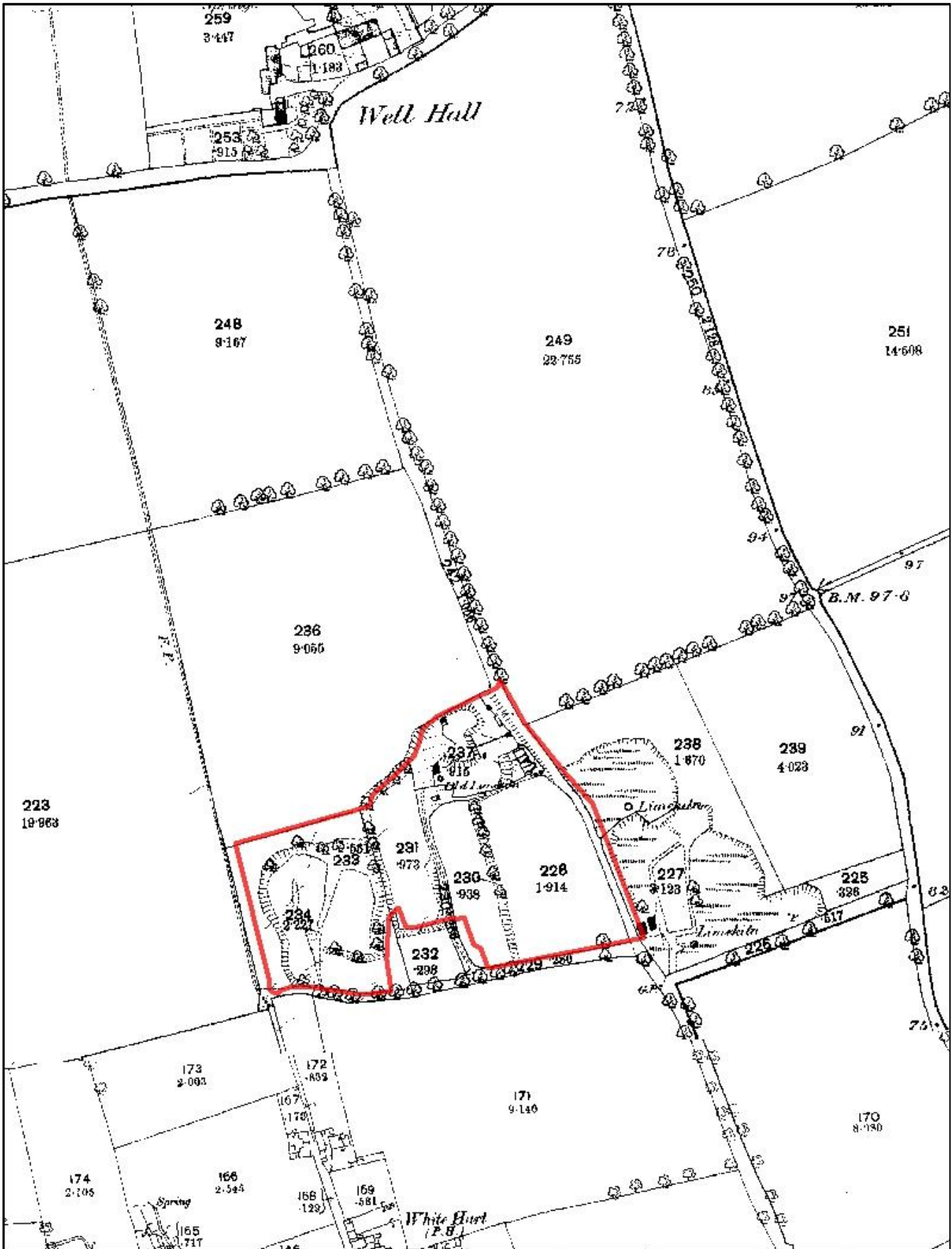




Photograph 14:

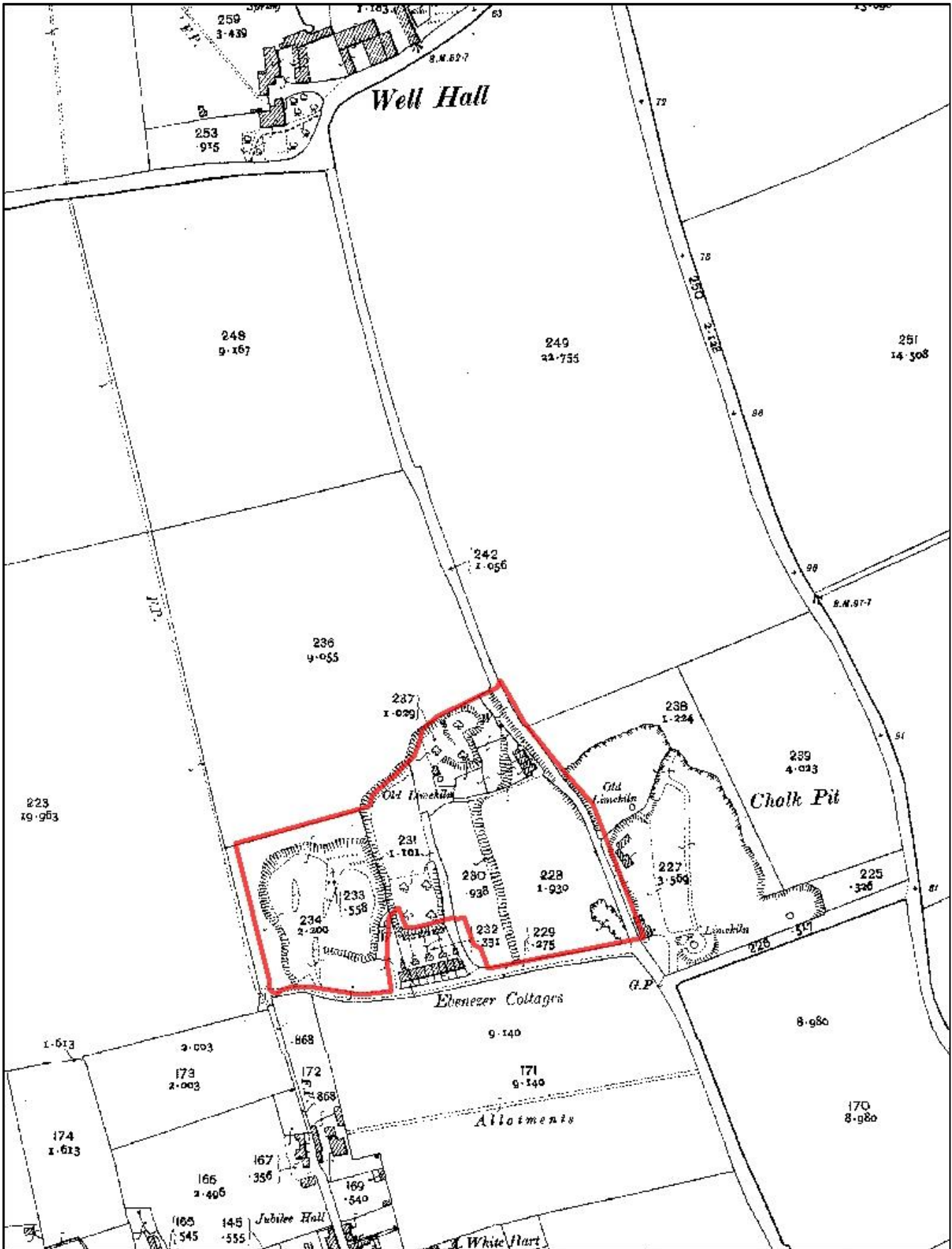
Appendix B: Drawings



Plan 1 and Maps 1-7

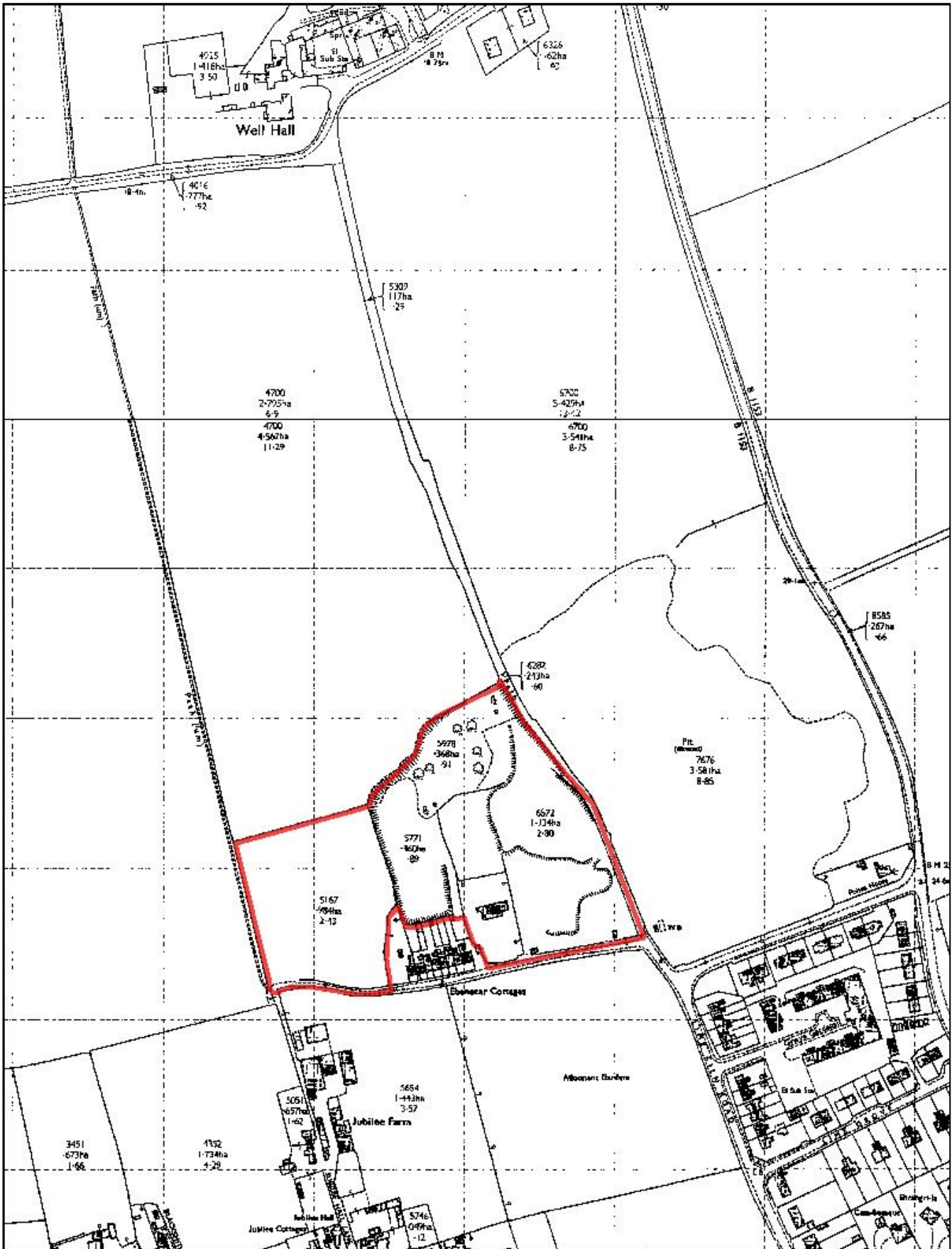




Borough Council of King's Lynn & West Norfolk 	Title Lime Kiln Rd Gayton OS Map 1843-1893 <small>© Crown copyright and database rights 2016 Ordnance Survey 100024314</small>		Project / Details Part 2A		Drawn by FAP	Date August 2022	Scale 1:3,000
	Drawing / Reference Number Map 1						



Borough Council of King's Lynn & West Norfolk 	Title	Project / Details	Drawn by	Date	Scale
	Lime Kiln Rd Gayton OS Map 1891-1912 <small>© Crown copyright and database rights Ordnance Survey 100024314</small>	Part 2A	FAP	August 2022	1:3,000
			Drawing / Reference Number Map 2		



Borough Council of King's Lynn & West Norfolk 	Title	Project / Details	Drawn by	Date	Scale
	Lime Kiln Rd Gayton OS Map 1945-1970 © Crown copyright and database rights Ordnance Survey 100024314	Part 2A	FAP	August 2022	1:3,000
			Drawing / Reference Number		
		Map 3			



Borough Council of King's Lynn & West Norfolk 	Title	Project / Details	Drawn by	Date	Scale
	Lime Kiln Rd Gayton 1945 – 1946 MOD Aerial Photograph	Part 2A	FAP	August 2022	1:3,000
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			Map 4		



Borough Council of King's Lynn & West Norfolk 	Title Lime Kiln Rd Gayton 1999 Aerial Photograph	Project / Details Part 2A	Drawn by FAP	Date August 2022	Scale 1:3,000
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Borough Council of King's Lynn & West Norfolk 	Title Lime Kiln Rd Gayton 2006-09 Aerial Photograph	Project / Details Part 2A	Drawn by FAP	Date August 2022	Scale 1:3,000
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Borough Council of King's Lynn & West Norfolk 	Title Lime Kiln Rd Gayton Latest Aerial Photograph	Project / Details Part 2A	Drawn by FAP	Date August 2022	Scale 1:3,000
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Appendix C: Risk Assessment Methodology

The Model Procedures for the Management of Land Contamination (CLR11⁶) provide the technical framework for applying a risk management process when dealing with contaminated land.

The Borough Council's Contaminated Land Strategy has identified priority sites based on mapping and documentary information. The Contaminated Land Inspection Report collates all the existing information on the site and develops a conceptual site model to identify and assess potential pollutant linkages and to estimate risk.

The risk assessment process focuses on whether there is an unacceptable risk, which will depend on the circumstances of the site and the context of the decision. The Council has used a process adapted from CIRIA C552, Contaminated Land Risk Assessment, a guide to good practice⁷ to produce the conceptual site model and estimate the risk of harm to defined receptors. This involves the consideration of the probability, nature and extent of exposure and the severity and extent of the effects of the contamination hazard should exposure occur.

The probability of an event can be classified as follows:

- Highly likely: The event appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution;
- Likely: It is probable that an event will occur, or circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term;
- Low likelihood: Circumstances are possible under which an event could occur, but it is not certain even in the long term that an event would occur and it is less likely in the short term;
- Unlikely: Circumstances are such that it is improbable the event would occur even in the long term.

The severity of the hazard can be classified as follows:

- High: Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. Short term risk to an ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Contaminated Land Statutory Guidance, April 2012');
- Medium: Chronic damage to human health ('significant harm' as defined in 'Contaminated Land Statutory Guidance, April 2012'), pollution of sensitive water resources, significant change in an ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Contaminated Land Statutory Guidance, April 2012');

⁶ <https://www.gov.uk/guidance/land-contamination-risk-management>

⁷ <https://www.brebookshop.com/samples/142102.pdf>

- Low: Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Contaminated Land Statutory Guidance, April 2012'). Damage to sensitive buildings, structures or the environment.
- Minor: Harm, though not necessarily significant harm, which may result in financial loss, to expenditure to resolve. Non-permanent human health effects (easily prevented by use of PPE). Easily repairable effects of damage to buildings, structure and services.

Once the probability of an event occurring and hazard severity has been classified, a risk category can be assigned from the table below:

		Hazard			
		High	Medium	Low	Minor
Probability	High Probability	Very High Risk	High Risk	Moderate Risk	Moderate/Low Risk
	Likely	High Risk	Moderate Risk	Moderate/Low Risk	Low Risk
	Low Probability	Moderate risk	Moderate/Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate/Low Risk	Low Risk	Very Low Risk	Very Low Risk
Very High Risk		<p>There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening</p> <p>This risk, if realised, is likely to result in a substantial liability.</p> <p>Urgent investigation (if not undertaken already) and remediation are likely to be required.</p>			
High Risk		<p>Harm is likely to arise to a designated receptor from an identified hazard.</p> <p>Realisation of the risk is likely to present a substantial liability.</p> <p>Urgent investigation (if not undertaken already) if required to clarify the risk and to determine the potential liability. Some remedial work may be required in the longer term.</p>			
Moderate risk		<p>It's possible that harm could arise to a designated receptor from an identified hazard. However, it is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that harm would be relatively mild.</p>			
Moderate/Low risk		<p>It is possible that harm could arise to a designated receptor from an identified hazard. However, if any harm were to occur it is more likely that harm would be relatively mild.</p>			
Low Risk		<p>It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.</p>			
Very Low Risk		<p>There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is unlikely to be severe.</p>			

Appendix D. Determination of contaminated land – Contaminated Land Statutory Guidance, April 2012

Human Health

Category	
1	<p>The local authority should assume that a significant possibility of significant harm exists in any case where it considers there is an unacceptably high probability, supported by robust science-based evidence that significant harm would occur if no action is taken to stop it. For the purposes of this Guidance, these are referred to as “Category 1: Human Health” cases. Land should be deemed to be a Category 1: Human Health case where:</p> <ul style="list-style-type: none">(a) The authority is aware that similar land or situations are known, or are strongly suspected on the basis of robust evidence, to have caused such harm before in the United Kingdom or elsewhere; or(b) The authority is aware that similar degrees of exposure (via any medium) to the contaminant(s) in question are known, or strongly suspected on the basis of robust evidence, to have caused such harm before in the United Kingdom or elsewhere;(c) The authority considers that significant harm may already have been caused by contaminants in, on or under the land, and that there is an unacceptable risk that it might continue or occur again if no action is taken. Among other things, the authority may decide to determine the land on these grounds if it considers that it is likely that significant harm is being caused, but it considers either: (i) that there is insufficient evidence to be sure of meeting the “balance of probability” test for demonstrating that significant harm is being caused; or (ii) that the time needed to demonstrate such a level of probability would cause unreasonable delay, cost, or disruption and stress to affected people particularly in cases involving residential properties.
2	<p>Land should be placed into Category 2 if the authority concludes, on the basis that there is a strong case for considering that the risks from the land are of sufficient concern, that the land poses a significant possibility of significant harm, with all that this might involve and having regard to Section 1. Category 2 may include land where there is little or no direct evidence that similar land, situations or levels of exposure have caused harm before, but nonetheless the authority considers on the basis of the available evidence, including expert opinion, that there is a strong case for taking action under Part 2A on a precautionary basis.</p>
3	<p>Land should be placed into Category 3 if the authority concludes that the strong case described in 4.25(a) does not exist, and therefore the legal test for significant possibility of significant harm is not met. Category 3 may include land where the risks are not low, but nonetheless the authority considers that regulatory intervention under Part 2A is not warranted. This recognises that placing land in Category 3 would not stop others, such as the owner or occupier of the land, from taking action to reduce risks outside of the Part 2A regime if they choose. The authority should consider making available the results of its inspection and risk assessment to the owners/occupiers of Category 3 land.</p>

Human Health

Category

- 4** The local authority should consider that the following types of land should be placed into Category 4: Human Health:
- (a) Land where no relevant contaminant linkage has been established.
 - (b) Land where there are only normal levels of contaminants in soil, as explained in Section 3 of this Guidance.
 - (c) Land that has been excluded from the need for further inspection and assessment because contaminant levels do not exceed relevant generic assessment criteria in accordance with Section 3 of this Guidance, or relevant technical tools or advice that may be developed in accordance with paragraph 3.30 of this Guidance.
 - (d) Land where estimated levels of exposure to contaminants in soil are likely to form only a small proportion of what a receptor might be exposed to anyway through other sources of environmental exposure (e.g. in relation to average estimated national levels of exposure to substances commonly found in the environment, to which receptors are likely to be exposed in the normal course of their lives).

Ecological system effects

Relevant types of receptor	Significant harm	Significant possibility of significant harm
<p>Any ecological system, or living organism forming part of such a system, within a location which is:</p> <ul style="list-style-type: none"> • A site of special scientific interest (under section 28 of the Wildlife and Countryside Act 1981) • A national nature reserve (under s.35 of the 1981 Act) • A marine nature reserve (under s.36 of the 1981 Act) • An area of special protection for birds (under s.3 of the 1981 Act) • A “European site” within the meaning of regulation 8 of the Conservation of Habitats and Species Regulations 2010 • Any habitat or site afforded policy protection under paragraph 6 of Planning Policy Statement (PPS 9) on nature conservation (i.e. candidate Special Areas of Conservation, potential Special Protection Areas and listed Ramsar sites); or • Any nature reserve established under section 21 of the National Parks and Access to the Countryside Act 1949. 	<p>The following types of harm should be considered to be significant harm:</p> <ul style="list-style-type: none"> • Harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or • Harm which significantly affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location. <p>In the case of European sites, harm should also be considered to be significant harm if it endangers the favourable conservation status of natural habitats at such locations or species typically found there. In deciding what constitutes such harm, the local authority should have regard to the advice of Natural England and to the requirements of the Conservation of Habitats and Species Regulations 2010.</p>	<p>Conditions would exist for considering that a significant possibility of significant harm exists to a relevant ecological receptor where the local authority considers that:</p> <ul style="list-style-type: none"> • Significant harm of that description is more likely than not to result from the contaminant linkage in question; or • There is a reasonable possibility of significant harm of that description being caused, and if that harm were to occur, it would result in such a degree of damage to features of special interest at the location in question that they would be beyond any practicable possibility of restoration. <p>Any assessment made for these purposes should take into account relevant information for that type of contaminant linkage, particularly in relation to the ecotoxicological effects of the contaminant.</p>

Property effects

Relevant types of receptor	Significant harm	Significant possibility of significant harm
<p>Property in the form of:</p> <ul style="list-style-type: none"> • Crops, including timber; • Produce grown domestically, or on allotments, for consumption; • Livestock; • Other owned or domesticated animals; • Wild animals which are the subject of shooting or fishing rights. 	<p>For crops, a substantial diminution in yield or other substantial loss in their value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage.</p> <p>The local authority should regard a substantial loss in value as occurring only when a substantial proportion of the animals or crops are dead or otherwise no longer fit for their intended purpose. Food should be regarded as being no longer fit for purpose when it fails to comply with the provisions of the Food Safety Act 1990. Where a diminution in yield or loss in value is caused by a contaminant linkage, a 20% diminution or loss should be regarded as a benchmark for what constitutes a substantial diminution or loss.</p> <p>In this section, this description of significant harm is referred to as an “animal or crop effect”.</p>	<p>Conditions would exist for considering that a significant possibility of significant harm exists to the relevant types of receptor where the local authority considers that significant harm is more likely than not to result from the contaminant linkage in question, taking into account relevant information for that type of contaminant linkage, particularly in relation to the ecotoxicological effects of the contaminant.</p>
<p>Property in the form of buildings. For this purpose, “building” means any structure or erection, and any part of a building including any part below ground level, but does not include plant or machinery comprised in a building, or buried services such as sewers, water pipes or electricity cables.</p>	<p>Structural failure, substantial damage or substantial interference with any right of occupation. The local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be capable of being used for the purpose for which it is or was intended.</p> <p>In the case of a scheduled Ancient Monument, substantial damage should also be regarded as occurring when the damage significantly impairs the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled.</p> <p>In this Section, this description of significant harm is referred to as a “building effect”.</p>	<p>Conditions would exist for considering that a significant possibility of significant harm exists to the relevant types of receptor where the local authority considers that significant harm is more likely than not to result from the contaminant linkage in question during the expected economic life of the building (or in the case of a scheduled Ancient Monument the foreseeable future), taking into account relevant information for that type of contaminant linkage.</p>

Controlled waters

Significant pollution of controlled waters

The following types of pollution should be considered to constitute significant pollution of controlled waters:

- (a) Pollution equivalent to “environmental damage” to surface water or groundwater as defined by The Environmental Damage (Prevention and Remediation) Regulations 2009, but which cannot be dealt with under those Regulations.
- (b) Inputs resulting in deterioration of the quality of water abstracted, or intended to be used in the future, for human consumption such that additional treatment would be required to enable that use.
- (c) A breach of a statutory surface water Environment Quality Standard, either directly or via a groundwater pathway.
- (d) Input of a substance into groundwater resulting in a significant and sustained upward trend in concentration of contaminants (as defined in Article 2(3) of the Groundwater Daughter Directive (2006/118/EC)⁵).

Significant possibility of significant pollution of controlled waters

Category

1	This covers land where the authority considers that there is a strong and compelling case for considering that a significant possibility of significant pollution of controlled waters exists. In particular this would include cases where there is robust science-based evidence for considering that it is likely that high impact pollution (such as the pollution described in paragraph 4.38) would occur if nothing were done to stop it.
2	This covers land where: (i) the authority considers that the strength of evidence to put the land into Category 1 does not exist; but (ii) nonetheless, on the basis of the available scientific evidence and expert opinion, the authority considers that the risks posed by the land are of sufficient concern that the land should be considered to pose a significant possibility of significant pollution of controlled waters on a precautionary basis, with all that this might involve (e.g. likely remediation requirements, and the benefits, costs and other impacts of regulatory intervention). Among other things, this category might include land where there is a relatively low likelihood that the most serious types of significant pollution might occur
3	This covers land where the authority concludes that the risks are such that (whilst the authority and others might prefer they did not exist) the tests set out in Categories 1 and 2 above are not met, and therefore regulatory intervention under Part 2A is not warranted. This category should include land where the authority considers that it is very unlikely that serious pollution would occur; or where there is a low likelihood that less serious types of significant pollution might occur.
4	This covers land where the authority concludes that there is no risk, or that the level of risk posed is low. In particular, the authority should consider that this is the case where: <ul style="list-style-type: none"> (a) No contaminant linkage has been established in which controlled waters are the receptor in the linkage; or (b) The possibility only relates to types of pollution described in paragraph 4.40 above (i.e. types of pollution that should not be considered to be significant pollution); or (c) The possibility of water pollution similar to that which might be caused by “background” contamination as explained in Section 3.