Borough Council of
King's Lynn &
West Norfolk

Environment and Planning

Contaminated Land Inspection Report

Landfill,
Snettisham Quarry,
Off the A149,
Snettisham, King's Lynn

March 2018

Reference no. CL141

Written by

Alex Grimmer
Senior Environmental Quality Officer

Reviewed by

Fabia Pollard
Scientific Officer

Approved by

Dave Robson
Environmental Health Manager

Borough Council of King's Lynn and West Norfolk
King's Court
Chapel Street
King's Lynn
Norfolk
NR30 1EX

Tel: 01553 616200
Email: environmentalquality@west-norfolk.gov.uk

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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 (EPA 1990). The contaminated land inspection strategy has identified the potential landfill at Snettisham as a site which requires detailed inspection.

This site is a restored landfill, quarry and waste recycling centre, within the district of King's Lynn. An initial assessment of the site was undertaken to assess the potential for harm to human health, the environment, controlled waters and property 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 is an operational quarry and landfill.
- Part of the site is being operated by Frimstone as a waste recycling centre and mineral storage site under an environmental permit from the Environment Agency.
- Part of the site has been landfilled with inert waste and restored.
- The site is a Site of Special Scientific Interest (SSSI) relating to the 'Hoary Mullein' (Verbascum Pulverulentum) and the Clay Groundling moth (Nothris Verbascella) which relies upon it to feed it larvae.

Following the initial assessment it was concluded that no additional information was required to characterise and categorise the site. The site is being used as a quarry and part of the site has subsequently been used as a landfill. The site is operating as a waste recycling site and as a storage site for as raised minerals. All waste (recycling and landfilling) operations are non-hazardous in nature and are regulated by the Environment Agency. This indicated that the site in its current use is unlikely to pose a significant risk to human health or property. There is not a strong case for taking action under Part 2A EPA 1990 and the therefore the site has been classified into category 4 regarding the risk to human health. No evidence was found of significant pollution or significant possibility of such pollution of controlled waters.

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 written statement about a potential landfill at Snettisham, King's Lynn 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 document provides that written statement.

2. Desk Study Information

Location

The site's location is shown in Appendix B. The grid reference for the centre of the site is 568535, 334825 and the nearest postcode is PE31 7RL.

Initial Prioritisation Score

The site was initially assessed as having a 'Very High' Potential Hazard Rating due to the risk to groundwater.

Previous Site Usage

The site (drawing CL141/101) was a mineral extraction pit, which has been used as a landfill.

Present Site Usage

Its present use comprises mineral extraction/storage, waste recycling/storage and landfilling.

Ownership

Enquiries have been made to establish land ownership. This report will be made available to the site owners.

Environmental Setting

Geology

The Solid and Drift Geology Sheet 160, 1:50,000, 1999 and Regional Hydrological Characteristics Sheet 1 1:125 000 shows the site surface to vary between 30 and 35 meters above ordnance datum (maOD).

The bedrock geology is the Carstone Formation - Sandstone.

No surface deposits are recorded.[1]

[1] BGS website: http://mapapps.bgs.ac.uk/geologyofbritain/home.html

Hydrogeology

The site is on land classified as a principle aquifer but not within a Source Protection Zone (SPZ) (Environment Agency Website).

The Principle Aquifer comprises the Carstone Formation, which has a very high permeability allowing it to potentially transmit pollutants very easily.

Hydrology

Two bodies of water are on site and are associated with the quarrying process.

There are no surface water abstraction points or Environment Agency licenced abstractions within 1000m.

Local Authority Pollution Prevention and Control Regulations

No LAPPC processes are on site or within 500m of the site.

The Environment Agency Web site records

The Environment Agency Web site records the following:

- The site is not at risk from flooding.
- The site is within a Priority Waters Area and is vulnerable to Nitrate (Groundwater).
- The site is covered by the Proposed 2017 Nitrate Vulnerable Zone (NVZ) for Groundwater and Surface water, with a NVZ numbers G718 and S392 respectively.
- The site is covered by the Designation Notice Tranche 2.
- The southern half of the site is covered by an area designated as Rivers at Risk from Agricultural Phosphates.
- The bedrock beneath the site is a Principal Aquifer.
- The groundwater has a high vulnerability at this location.
- The site is recorded as being an Authorised Landfill.
    - Named Frimstone - Snettisham Carstone Quarry, Operated by Frimstone Limited and is classified as an A05: Landfill taking Non-Biodegradable Wastes. No start or finish dates are available. Waste Management Licence number – 70470. Environmental Permit Reference number - EAEPR\EA/EPR/VP3599NM/A001.
- No pollution incidents are recorded on site or within 1km of the site.
- The landfill has a Compliance Rating of Very Good.

MAGIC website records

MAGIC website records the following

- The site is covered by the MMO Marine Areas (England).
- The site is part of an area which is a Site of Special Scientific Interest. (SSSI)

- The majority of site is covered by the Woodland Priority Habitat Network (Lower Spatial Priority) with the eastern edge being covered by the Higher Spatial Priority.
- The site is a Farm Wildlife Package Area (England).
- Part of the site is covered by a Countryside Stewardship Water Quality Priority Area. (England). (Medium Priority).
- The south eastern half of the site is covered by the Phosphates Issues Priority area. (Medium Priority).
- The south eastern half of the site is covered by the Flood Risk Management Priorities (England) (High Priority).
- The site is covered by Woodland – Water Quality (England) (Lower Spatial Priority).
- The site is covered by the Former Catchment Sensitive Farming Priority Areas 2011-2015. (England)(Priority Catchment).
- The site is covered by 'Keeping Rivers Cool (England).
- The site is part of a Site of Special Scientific Interest Unit (England). In unfavourable condition, no change.
- The site is designated as a Nitrate Vulnerable Zone for Surface and Groundwater.
- The site is designated as part of a Higher Level Stewardship Theme (England).
- The site forms habitat for:
    - Grey Partridge.
    - Lapwing.
    - Redshank.
    - Turtle Dove.
    - Grassland Assemblage Farmland Birds (England) Grade 2.
    - Arable Assemblage Farmland Birds (England) Grade 3.
- The site is part of the Higher Level Stewardship Theme.

Historic Maps

E-map Explorer

Enclosure Map 1800 - 1850 – Not Available

Tithe map circa 1840– Not Available

Ordnance Survey 1st Ed. 1879-1886 – The site was shown as a small Carstone quarry in the western section of the site.

Historic Maps on file at the Borough Council of King's Lynn and West Norfolk

1843 – 1893: The site is as depicted on the OS 1st Edition Map.

1891 – 1912: The site is generally as depicted on the OS 1st Edition Map except that the quarry has expanded slightly.

1904 – 1939: Not Available.

1919 – 1943: The site is generally as depicted above except that the quarry has expanded slightly once more.

1945 – 1970: The site has expanded significantly and was labelled as a quarry.

1970 – 1996: Not available.

Aerial Photographs
1945 – 1946 MOD Aerial Photograph - The site is generally as depicted on the OS 1st edition. The quarry was shown as being in the middle of an agricultural field.

1988 Aerial Photograph - The quarry has expanded such that it occupied approximately 80% of the field. The southern section has been completely excavated. Some of the northern section is still being operated as an agricultural field for growing crops.

1999 Aerial Photograph – The quarry covered the entire field.

2006-09 Aerial Photograph – The entire northern section of the site has been or is in the process of being excavated. Stockpiles of various materials can be seen across the base of the quarry. Ponds can be seen in the northeast corner and centre of the site. A treed section is noted in the middle of the site which contains an unknown structure. The southern section appears to have been backfilled (landfilled) and restored.

Planning History
Eight planning application exist in the Borough Council records on the site. These mostly relate to the use of the site for waste recycling and storage of minerals. One of the planning applications was a pre-application for a mobile home park.

Twenty four Norfolk County Council planning applications exist for the site on the County Council's website. These are presented in the appendix.

Environment Agency Records
Not consulted.

Norfolk County Council Records
Mr M Adams of Norfolk County Council Waste and Minerals department was contacted and provided information with indicated that the site has been used as a quarry for a significant number of years. From the documents viewed it would appear that initially the site only had planning permission to operate as a quarry but did not have planning permission for a landfill. Permission was granted to use the quarry as a landfill in 1993, due to the dearth of material remaining after quarrying to implement the Restoration Plan. The material that was permitted to be disposed was Class 1 Waste which can be described as Inert Waste. All previous planning permissions were consolidated under a revised planning permission which was granted in 2012.

3. Site Walkover

A site visit was carried out by an Environmental Quality Officer of the Borough Council of King's Lynn and West Norfolk in the presence of the site owner on 23/08/2017 and the following was noted. Photographs are presented in the Appendix A.

The site was accessed off the A149 to the north of Snettisham. A weighbridge and office were located directly upon entering the site with the quarried area and mineral stockpiles to the north of that. To the south was an undulating vegetated area, which was the area of restored landfill. To the east beyond the office was a wooded area with a telecommunications mast. On the eastern boundary in the area which has been restored are two ponds. I was informed by the site owner that these were located within the area which will be converted into a nature reserve; the remainder of the site will be returned to agricultural production.

I was informed that the restored landfill had been backfilled and restored for a significant number of years. The depth of waste was estimated as being approximately 15m. As the landfill was used to deposit inert waste no leachate or gas extraction systems had been installed. The surface was highly vegetated with a significant variety of plants including the Hoary Mullein.

4. Assessment of Site Use

From the assessment of the site using County Council data, historic maps, aerial photography and a site walk over it has been possible to conclude that the site has been used for mineral extraction and landfilling. The site is being used as a landfill, waste material recycling centre and mineral extraction/storage site.

Assessment of probability of a contamination event

The site is a quarry, part of which has ceased being used, has been landfilled with inert material and restored. The remainder of the site is being operated as a quarry, for storage of extracted minerals and waste materials to be recycled. The site is being operated under an environmental permit provided and regulated by the Environment Agency.

Human Health

Humans work on the site and visit to collect aggregates etc. However they operate under the health and safety rules operated by Frimstone. Therefore it is considered UNLIKELY that a contamination event would occur which would affect human health.

Property

No relevant property exists on the landfill, or in the quarry site. As such it is considered UNLIKELY that a contamination event could take place.

Environment

The site is designated as a Special Site of Scientific Interest which is listed in Table 1 Ecological System Effects in the Contaminated Land Statutory Guidance as a relevant receptor. The site is inspected by Natural England and has been designated as 'Unfavourable – No Change', with a comment of 'Habitat appears to continue to provide suitable conditions for Nothris Verbascella, but the species has not been observed for many years'. As such it is considered that the site operations and the restored landfill do not hamper the proliferation of the Hoary Mullein, and that the lack of N. Verbascella is considered to be due to other environmental conditions and not the ongoing site operations. It is considered that there is a LOW probability that the identified receptors would be affected by a contamination event.

Controlled Waters

All potentially contaminative operations have been conducted under an environmental permit and only inert materials were and are being used. Therefore it is considered to be UNLIKELY that a contamination event would occur.

Assessment of Hazard

The hazards posed by the site have been assessed under statutory guidance, the Contaminated Land Statutory Guidance. This is discussed further below:

Human Health

The site has been used as a landfill for the deposition of inert waste. As the only wastes or materials on site are inert, no source of contamination should exist on site. Therefore it is considered that the hazard to human health (via direct contact or inhalation) is considered LOW.

Property

The site is a restored landfill which was used to deposit Inert Waste. As such there is no source to provide a hazard. Therefore the hazard to property is considered to be LOW.

Environment

As only inert materials have been used on site no contamination is expected to be present the hazard to the environment is considered to be LOW.

Controlled Water

Groundwater

The site is a quarry and a landfill which has restored. The material landfilled was inert in nature and as such should not have any contaminants within it to leach into the groundwater. The remainder of the site is used as a quarry and for storage of as raised minerals and to recycle inert wastes. Therefore the hazard is LOW.

Surface waters
Drainage ponds exist on site within the restored landfill. These were developed as part of the restoration plan and are located within what will eventually be part of the nature reserve. The waste material used to develop the ponds was inert waste and as such should not be able to impact upon the surface waters. As such the hazard to surface water is considered to be LOW.

Conceptual site model
The conceptual site model (Table 1) shows the sources, pathways and receptors identified and the subsequent risk classification.

Table 1. Preliminary conceptual site model

Source	Pathway	Receptor	Probability	Hazard	Risk
Inert waste material	Direct contact Inhalation	Humans	Unlikely	Low	Very Low
Inert waste material	Direct Contact Inhalation	Property	Unlikely	Low	Very Low
Inert waste material	Direct contact	Environment	Low probability	Low	Low
Inert waste material	Direct contact	Controlled water	Low probability	Low	Low

Outcome of Preliminary Risk Assessment
No plausible source pathway receptor linkage was identified as no source of contamination has been identified. Therefore further investigation is not considered necessary.

Conclusion

From the information gathered and the site walkover it is apparent that the site was excavated for minerals part of which were then backfilled with inert waste material under planning permission granted by Norfolk County Council. The southern part of the site has been landfilled and restored with a portion of this area being intended to be a nature reserve.

No evidence was noted of significant harm and there is not a strong case to consider that the risks from the land are of sufficient concern that the land poses a significant possibility of significant harm to Humans (via direct contact, ingestion and inhalation), Property, Environmental Receptors or Controlled Water as defined in the statutory guidance. CIRIA C552 states that on a site with a very low risk classification 'There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.'[2]

Human Health

Following the above assessment the site is assessed as Category 4: Human Health[3] as set out in the Statutory Guidance, as such no further assessment is considered necessary with regards to the risk to human health.

Environment

The site is a SSSI and is monitored by Natural England. The last assessment of the site indicated that the Hoary Mullein is growing very well but that the N. Verbascella was not present. It would therefore appear that the restored landfill is not impacting on the protected flora of the site. The fauna is not present. However, this is not considered to be as a result of contamination arising from the site's operation as a landfill. Therefore no further consideration is considered necessary.

Controlled Waters

No further inspection is considered to be required with regards to controlled waters as it is considered that there is no reasonable possibility that a significant contaminant linkage exists as set out in the Statutory Guidance [4]. This assessment applies to the site's current use.

No further assessment of the site is considered necessary unless additional information is discovered or if the site is considered for redevelopment.

Part 2A status of the site

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

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[2] Contaminated land risk assessment. A guide to good practice. CIRIA C552, ISBN 0860175529.

[3] Appendix E sets out the categories of land in the Contaminated Land Statutory Guidance.

[4] (Contaminated Land Statutory Guidance April 2016)

2.13. If at any stage the local authority considers, on the basis of information obtained from inspection activities, that there is no longer a reasonable possibility that a significant contaminant linkage exists on the land, the authority should not carry out any further inspection in relation to that linkage.

Appendices

Appendix A Site Photographs

Photograph 1. Mineral storage area looking north

Photograph 2. Mineral storage area looking south

Photograph 3. Landfilled area not restored

Photograph 4. Landfilled area not restored.

Photograph 5. Restored landfill looking east

Photograph 6. Restored landfill looking southeast.

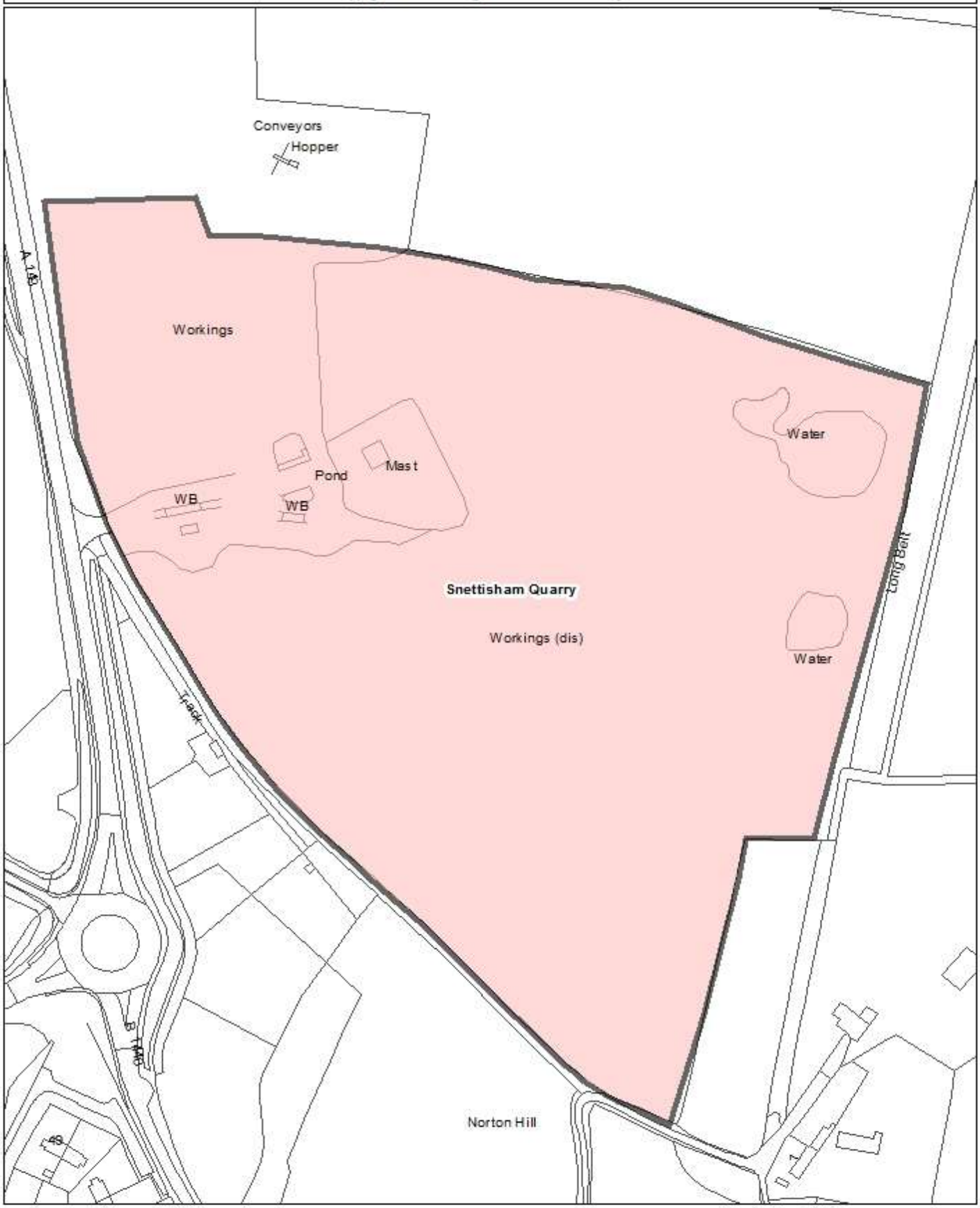
Photograph 7. Restored landfill looking south.

Photograph 8. Pond 1 within the restored landfill

Photograph 9. Pond 2 of the restored landfill

Photograph 10. Pond 2 of the restored landfill

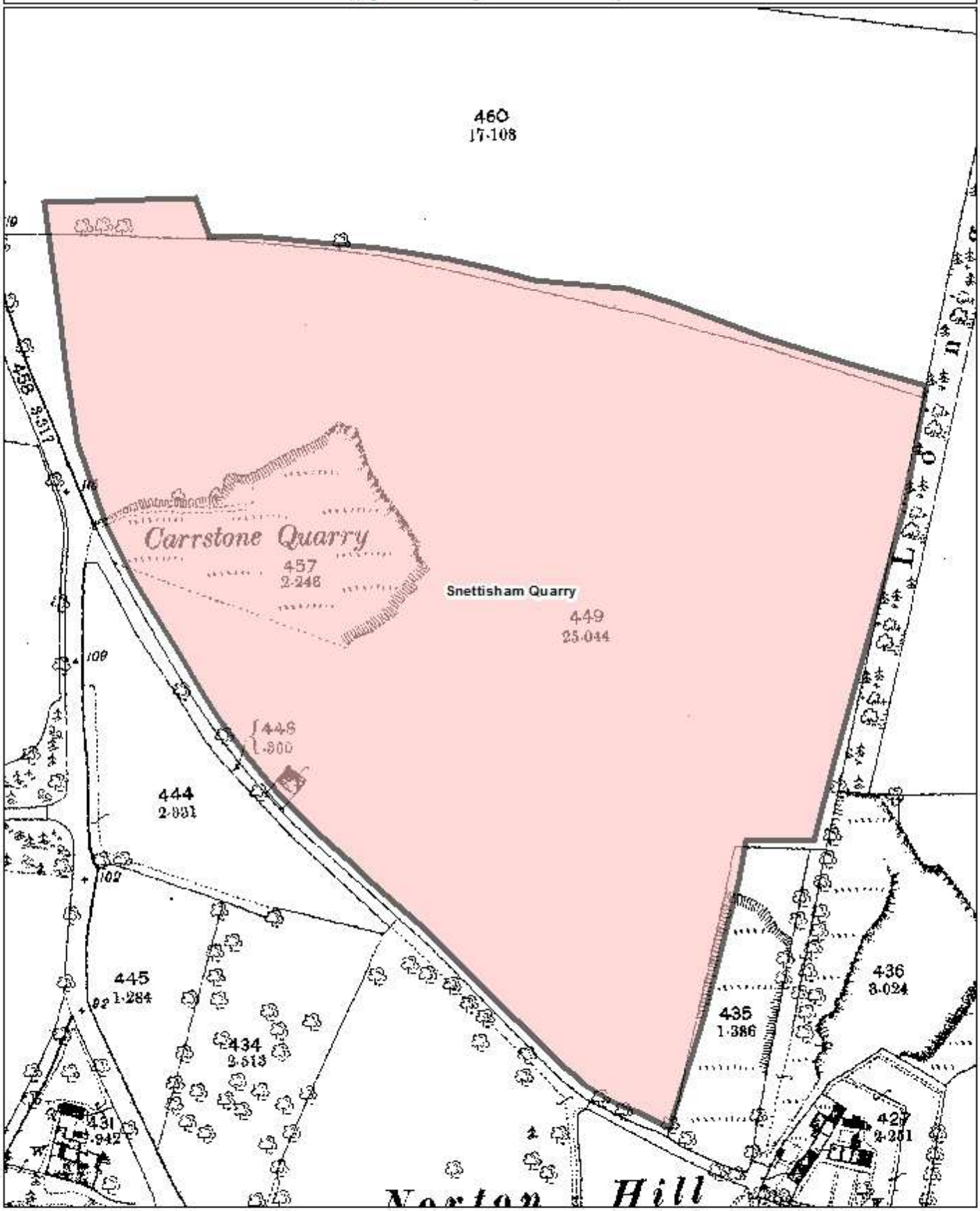
Appendix B Drawings



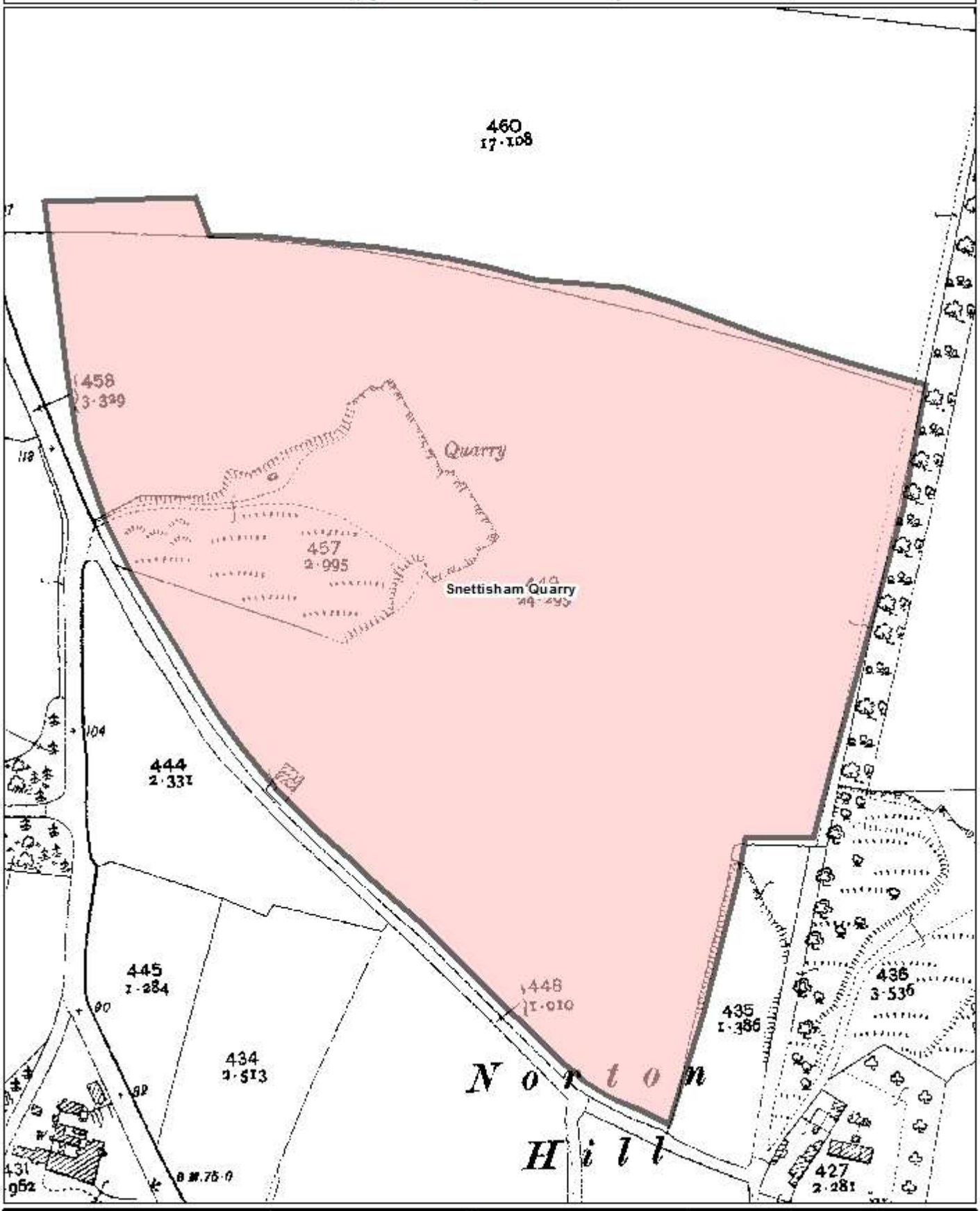
Borough Council of
King's Lynn &
West Norfolk

Tel. 01553 616200 - Fax. 01553 691663

Title: Site Plan	Scale: 1:2,500
	Date: August 2017
Project / Details: Snettisham Quarry, Off the A149, Snettisham, King's Lynn	Drawn by: EH&H
	Drawing / Reference Number: CL141/101



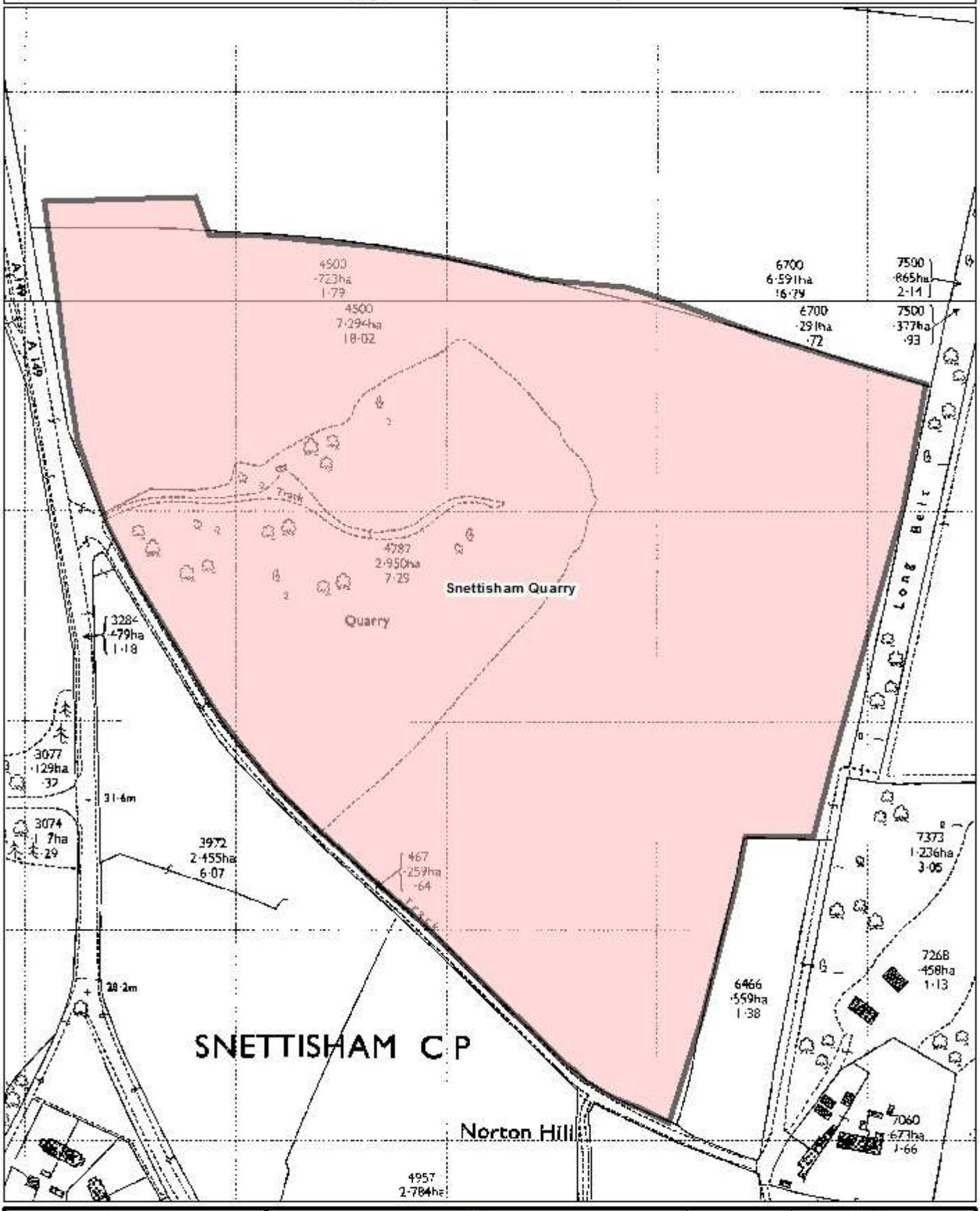
Borough Council of King's Lynn & West Norfolk Tel. 01553 616200 - Fax. 01553 691663	Title Historic Map 1843 - 1893	N W E S	Scale 1:2,500
			Date August 2017
	Project / Details Snettisham Quarry, Off the A149, Snettisham, King's Lynn		Drawn by EH&H
			Drawing / Reference Number CL141/102



Borough Council of
King's Lynn & West Norfolk

Tel. 01553 616200 - Fax. 01553 691663

Title: Historic Map 1891 - 1912	Scale: 1:2,500
	Date: August 2017
Project / Details: Snettisham Quarry, Off the A149, Snettisham, King's Lynn	Drawn by: EH&H
	Drawing / Reference Number: CL141/103



Borough Council of
King's Lynn & West Norfolk

Tel. 01553 616200 - Fax. 01553 691663

Title

Historic Map 1945 - 1970

N W E S

Scale

1:2,500

Date

August 2017

Project / Details

**Snettisham Quarry,
Off the A149,
Snettisham, King's Lynn**

Drawn by

EH&H

Drawing / Reference Number

CL141/104

Borough Council of
King's Lynn &
West Norfolk

Tel. 01553 616200 - Fax. 01553 691663

Title: Aerial Photograph 1940s	N / W / E / S	Scale: 1:2,500
		Date: August 2017
Project / Details: Snettisham Quarry, Off the A149, Snettisham, King's Lynn		Drawn by: EH&H
		Drawing / Reference Number: CL141/105

Borough Council of
King's Lynn &
West Norfolk

Tel. 01553 616200 - Fax. 01553 691663

Title

Aerial Photograph 1999

N
W E
S

Scale
1:2,500

Date
August 2017

Project / Details

Snettisham Quarry,
Off the A149,
Snettisham, King's Lynn

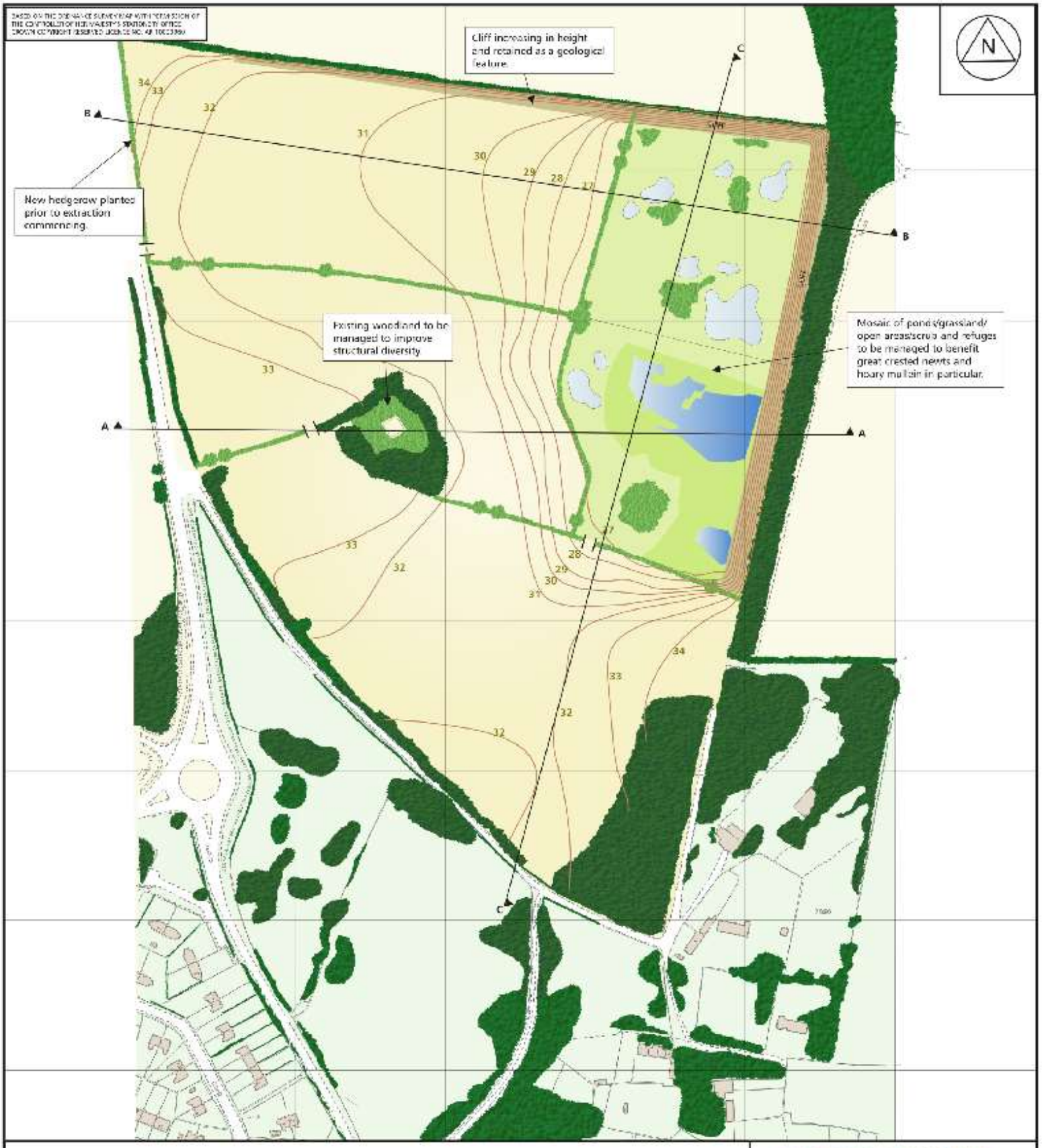
Drawn by
EH&H

Drawing / Reference Number
CL141/106

Borough Council of
King's Lynn &
West Norfolk

Tel. 01553 616200 - Fax. 01553 691663

Title: Aerial Photograph 2006 - 2009	Scale: 1:2,500
	Date: August 2017
Project / Details: Snettisham Quarry, Off the A149, Snettisham, King's Lynn	Drawn by: EH&H
	Drawing / Reference Number: CL141/107



KEY

- Existing woodland/scrub
- Existing hedgerows and trees
- Proposed wood planting
- Proposed hedgerows/trees with gateways
- Existing terrestrial habitat for great crested newts/hoary mullein
- Proposed extension to terrestrial habitat for great crested newts/ hoary mullein
- Existing ponds
- Proposed ponds
- Agricultural restoration
- Existing arable
- Existing grassland
- Buildings
- 32 Proposed contours

Note:
1. Location of new ponds/scrub indicative only

PHILIP PARKER ASSOCIATES
WHITE ROW COTTAGE : LEZIATE DROVE : POTT ROW
NR KINGS LYNN : NORFOLK : PE32 1DB
TEL : 01553 810342 FAX : 01553 811848 E-MAIL PPA@

CLIENT
FRIMSTONE LTD

PROJECT
SNETTISHAM

DRAWING TITLE
RESTORATION CONCEPT

SCALE	DATE	DWG NO	REV
1:2500	OCT 2003	P2212/09	B

REV	DATE	DETAILS
A		
B		

Appendix C. Planning Records

King's Lynn Borough Council

- 2/93/0901/CM - Determination of conditions to which IDO 6 is to be subject. Permitted.
- 2/95/0064/CM - Use of mobile primary crusher and screening plant and importation of concrete wastes and aggregates. Permitted.
- 2/02/0137/CM - Recycling and storage of inert materials including the use of a crusher and the importation of building materials for storage and sale. Application Permitted.
- 10/02024/CM - COUNTY MATTERS APPLICATION: Variation of Condition 1 of Planning Permission C/2/1993/2007 To Allow for the Continued Extraction of Carstone and Associated Restoration until 31 December 2012. No Objection to NCC Applications.
- 10/02042/CM - COUNTY MATTERS APPLICATION: Variation of Condition 1 of Planning Permission C/2/2002/2002 to allow Recycling & Storage Operations and Associated Restoration to continue until 31 December 2012. No Objection to NCC Applications.
- 12/01885/CM - Variation of condition 1 of planning permission c/2/1993/2007 to allow for the continued extraction of Carstone and associated restoration until December 31st 2012. No Objection to NCC Applications.
- 15/00106/PREAPP - Pre-application enquiry: Redevelopment of the southern element of Frimstone Quarry to provide for a mobile home park development with landscaping throughout. Likely to Refuse (PREAPP).
- 15/01248/CM - County Matters Application: Extension to recycling and storage area. No Objection to NCC Applications.

County Council

- L/3/2000/3010 - Modifications of Waste Management Licences. Obs no Objection.
- L/2/2011/2033 - Application for an Environmental Permit ref EPR/CB3033DE/A001. General Observations.
- E/2/2002/9054 - Screening Opinion for proposed extension to quarry. General Enquiry, Advice Given.
- D/2/1987/2054 - Use of portable crusher. Permitted/Approved
- D/2/1978/1105 - New Weighbridge Offices, Extension to Store. Permitted/Approved.
- D/2/1947/0009 - Mineral extraction. Permitted/Approved
- C/2/2016/2028 - Discharge of Conditions 14 (monitor water levels), 15 (visibility splay), 16 (HGV management plan), 17 (off site highway improvements), from previous reference C/2/2015/2027. Conditions Discharge.
- C/2/2016/2027 - Discharge of Conditions 12 (visibility splay), 13 (HGV management plan), and 14 (off site highway improvement) from previous application reference C/2/2015/2026. Conditions Discharge.
- C/2/2015/2026 - Extension to recycling and storage (inert construction and demolition waste) area until 4 September 2028. Permitted/Approved.
- C/2/2015/2025 - Prior notification for agricultural development - formation of reservoir. Withdrawn.
- C/2/2012/2025 - Variation of condition 1 of PP C/2/2010/2029 to extend the timescale for use of the northern recycling and storage area until 4 September 2028. Permitted/Approved.
- C/2/2012/2024 - Variation of condition 1 of PP C/2/2010/2028 to extend the timescale for the use of the operational area until 4 September 2028. Permitted/Approved.

- C/2/2012/2023 - Variation of conditions 1, 5 and 11 of PP C/2/2004/2021 to extend the timescale for extraction and restoration until 4 September 2028 and to work in accordance with revised phasing plans. Permitted/Approved.
- C/2/2010/2029 - Variation of Condition 1 of Planning Permission C/2/2002/2002 to allow Recycling & Storage Operations and Associated Restoration to continue until 31 December 2012. Permitted/Approved.
- C/2/2010/2028 - Variation of Condition 1 of Planning Permission C/2/1993/2007 To Allow for the Continued Extraction of Carstone and Associated Restoration until 31 December 2012. Permitted/Approved.
- C/2/2004/2021 - Extension to existing Carstone quarry with restoration to grassland and nature conservation. Permitted/Approved.
- C/2/2002/2002 - Recycling and storage of inert materials including the use of a crusher and the importation of building materials for storage and sale. Permitted/Approved.
- C/2/1995/2001 - Renewal of PP 2/87/2054 & C/92/2002 & Importation of Concrete Wastes & Aggregates. Permitted/Approved.
- C/2/1993/2007 - Determination of Conditions: IDO Permission. Permitted/Approved.
- C/2/1992/2002 - Importation of Building Materials for Storage and Sale. Permitted/Approved.
- B/2/1997/2014 - Proposed 25M Telecommunication Mast & Associated Development. Obs No Objections.
- B/2/1997/2013 - Proposed 25M high Telecommunication Mast and associated development. Obs No Objections.
- B/2/1996/2028 - Erection of 25m high replacement telecommunication mast and associated development. Obs No Objections.
- B/2/1996/2027 - Erection of a replacement 25 m telecommunication masts & associated development. Permitted/Approved.

Appendix D. Latest Environmental Permit

Environment Agency

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Frimstone Limited

Snettisham Quarry
Norton Hill
Snettisham
Kings Lynn
Norfolk
PE31 7LZ

Variation application number

EPR/SP3290VT/V002

Permit number

EPR/SP3290VT

Snettisham Quarry
Permit number EPR/SP3290VT

Introductory note

This introductory note does not form a part of the notice.

Under the Environmental Permitting (England & Wales) Regulations 2010 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. All the conditions of the permit have been varied and are subject to the right of appeal.

This application is to vary an existing permit issued to authorise the recovery of waste on site to achieve the final restoration of the existing minerals works. The application varies the previously agreed Waste Recovery Plan to allow for a total of 147,287 tonnes of waste to be used for recovery, from the previously agreed amount of 82,836 tonnes. The variation as also changes the status of the permit from a Tier 2 bespoke to a full bespoke permit.

If you need to deploy mobile plant under a mobile plant permit at a site that is subject to a site based permit to enable you to complete the recovery activity, there will be inconsistencies between the requirements of the two permits and, in this situation, those of the site based permit prevail. Therefore you must be able to deliver the desired recovery activity through use of this permit alone, without relying upon the subsequent use of a separate mobile plant permit.

The schedules specify the changes made to the permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/SP3290VT/A001	Duly made 16/05/2011	Application for use of inert waste for reclamation, restoration or improvement of land.
Additional information received	17/06/2011	Amended Waste Recovery Plan.
Additional information received	23/06/2011	Confirmation of planning permission.
Permit determined EAWML 102333	16/09/2011	Permit issued to Frimstone Limited.
Application EPR/SP3290VT/V002 (variation and consolidation)	Duly made 09/06/2015	Application to vary and update the permit to include revised Waste Recovery Plan.
Additional information received	23/09/2015	Schedule 5 revised waste acceptance procedures.
Additional information received	13/11/2015	Schedule 5 notice hydro geological risk assessment.
Additional information received	30/11/2015	Schedule 5 notice, hydro geological risk assessment and revised waste acceptance procedure
Additional Information Received	13/01/2016	Schedule 5 Notice, additional questions for recovery plan.
Additional Information Received	04/03/2016	Schedule 5 Notice, additional questions for recovery plan.

Status log of the permit		
Description	**Date**	**Comments**
Notification and Acceptance of Confidentiality Request	07/03/2016	Acceptance of request to consider the Schedule 5 response dated 04/03/2016 as confidential.
Variation determined EPR/SP3290VT	16/05/2016	Varied and consolidated permit issued in modern condition format.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies and consolidates

Permit number

EPR/SP3290VT

Issued to

Frimstone Limited ("the operator")

whose registered office is

Ashcraft Farm
Main Road
Crimplesham
Kings Lynn
Norfolk
PE33 9EB

company registration number 01232146

to operate a regulated facility at

Snettisham Quarry
Norton Hill
Snettisham
Kings Lynn
Norfolk
PE31 7LZ

to the extent set out in the schedules.

The notice shall take effect from 16/05/2016

Name	Date
Samantha Haddock	16/05/2016

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of the application made by the operator.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number

EPR/SP3290VT

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/SP3290VT/V002 authorising,

Frimstone Limited ("the operator"),

whose registered office is

Ashcraft Farm
Main Road
Crimplesham
Kings Lynn
Norfolk
PE33 9EB

company registration number 01232146

to operate waste operations at

Snettisham Quarry
Norton Hill
Snettisham
Kings Lynn
Norfolk
PE31 7LZ

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Samantha Haddock	16/05/2016

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Avoidance, recovery and disposal of wastes produced by the activities

1.2.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.2.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.4 Waste Acceptance

2.4.1 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.1

(b) it fulfils the approved waste acceptance criteria;

(c) all the approved waste acceptance procedures have been completed; and

(d) it conforms to the to the description in the documentation supplied by the producer and holder.

2.4.2 The operator shall visually inspect:

(a) without unloading it, waste that is not in an enclosed container or enclosed vehicle on arrival at the site; and

(b) waste at the point of deposit

and shall satisfy itself that it conforms to the basic characterisation documentation submitted by the holder.

2.4.3 The total quantity of waste that shall be deposited under the permit shall be limited by the final levels shown on the final levels contour plan referenced in schedule 1 table S1.2.

3 Emissions and monitoring

3.1 Emissions of substances not controlled by emission limits

3.1.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.1.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.1.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.2 Odour

3.2.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.3 Noise and vibration

3.3.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Monitoring

3.4.1 A topographical survey of the site referenced to ordnance datum shall be carried out:

(a) prior to commencement of the recovery activity; and

(b) on completion of the recovery activity to show final waste levels.

The topographical survey shall be used to produce a plan of a scale adequate to show the surveyed features of the site. The plan shall be produced within 1 month of the completion of the survey.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made or, in the case of the following records, until permit surrender:

(i) off-site environmental effects;

(ii) matters which affect the condition of the land and groundwater; and

(iii) waste types and quantities.

4.1.2 The operator shall maintain and implement a system which ensures that a record is made of the quantity, characteristics, date of delivery, origin and the identity of the carrier and producer of any waste that is received for recovery. Any information regarded by the operator as commercially confidential shall be clearly identified in the record.

4.1.3 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.3 Notifications

4.3.1 The Environment Agency shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in the permit; or

(c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(c) any change in the operator's name or address; and

(d) any steps taken with a view to the dissolution of the operator.

In any other case:

(e) the death of any of the named operators (where the operator consists of more than one named individual);

(f) any change in the operator's name(s) or address(es); and

(g) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 The operator shall notify the Environment Agency in writing:

(a) at least 14 days before the commencement of the recovery activity;

(b) within 14 days of completion of the recovery activity.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities	
Description of activities for waste operations	**Limits of activities**
R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced) R3: Recycling/reclamation of organic substances which are not used as solvents R5: Recycling/reclamation of other inorganic compounds	Secure storage and deposit of wastes listed in table S2.1 for the purpose of recovery. Storage of waste prior to recovery shall be limited to three years. Waste types and quantities as specified in Table S2.1.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	Document(s) provided in response to section 3a – technical standards, Part C4 of the application form.	09/06/2015
Application	Approved waste recovery plan (reference K62.0~21~009 Version 2 dated 31/3/2015) in response to section 3 of Part C4 of the application form – operating techniques.	09/06/2015
Application	Final levels contour plan (reference P2212 D9 Rev 8)	09/06/2015
Response to Schedule 5 Notice	Hydrological Risk Assessment, section 2.2.2, agreement to fill Phase 11 with inert waste that does not require chemical testing.	13/11/2015
Response to Schedule 5 Notice	Revised Waste Acceptance Procedure	30/11/2015

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Permitted waste types and quantities for use of waste in deposit for recovery	
Maximum quantity	**The total quantity of waste accepted at the site shall be less than 147,287 tonnes**
Exclusions	Wastes having any of the following characteristics shall not be accepted: • consisting solely or mainly of dusts, powders or loose fibres • hazardous wastes • wastes in liquid form
Waste code	**Description**
01	**WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS**
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 08	waste gravel and crushed rocks other than those containing dangerous substances
01 04 09	waste sand and clays
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**
02 04	**wastes from sugar processing**
02 04 01	soil from cleaning and washing beet
10	**WASTES FROM THERMAL PROCESSES**
10 01	**wastes from power stations and other combustion plants (except 19)**
10 01 01	bottom ash and slag only
10 01 02	pulverised fuel ash only
10 12	**wastes from manufacture of ceramic goods, bricks, tiles and construction products**
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)
10 13	**wastes from manufacture of cement, lime and plaster and articles and products made from them**
10 13 14	waste concrete and concrete sludge
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 08	track ballast, soil and stones other than those mentioned in 17 05 07

Table S2.1 Permitted waste types and quantities for use of waste in deposit for recovery	
Maximum quantity	**The total quantity of waste accepted at the site shall be less than 147,287 tonnes**
Exclusions	Wastes having any of the following characteristics shall not be accepted: • consisting solely or mainly of dusts, powders or loose fibres • hazardous wastes • wastes in liquid form
Waste code	**Description**
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 02	washed sewage grit (waste from desanding) only
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 09	minerals (for example sand, stones) from the treatment of waste aggregates that are otherwise naturally occurring minerals - excludes fines from treatment of any non-hazardous waste or gypsum from recovered plasterboard.
19 12 12	soil substitutes other than that containing dangerous substances only
19 13	**wastes from soil and groundwater remediation**
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 02	**garden and park wastes (including cemetery waste)**
20 02 02	soil and stones

Schedule 3 – Emissions and monitoring

There are no emission limits or associated monitoring requirements.

Schedule 4 – Reporting

There are no reporting under this schedule.

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

"accident" means an accident that may result in pollution.

"Annex I" means Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"Annex II" means Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"authorised officer" means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"groundwater protection zones 1 and 2" have the meaning given in the document titled "Groundwater Protection: Policy and Practice" published by the Environment Agency in 2006.

"inert waste" means waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater

"nearest sensitive receptors" means the nearest place to the composting operations where people are likely to be for prolonged or frequent periods. This term would therefore apply to dwellings (including any associated gardens) and to workplaces where workers would frequently be present. It does not apply to the operators of composting facilities or their staff while carrying out the composting operation as their health is covered by Health and Safety legislation.

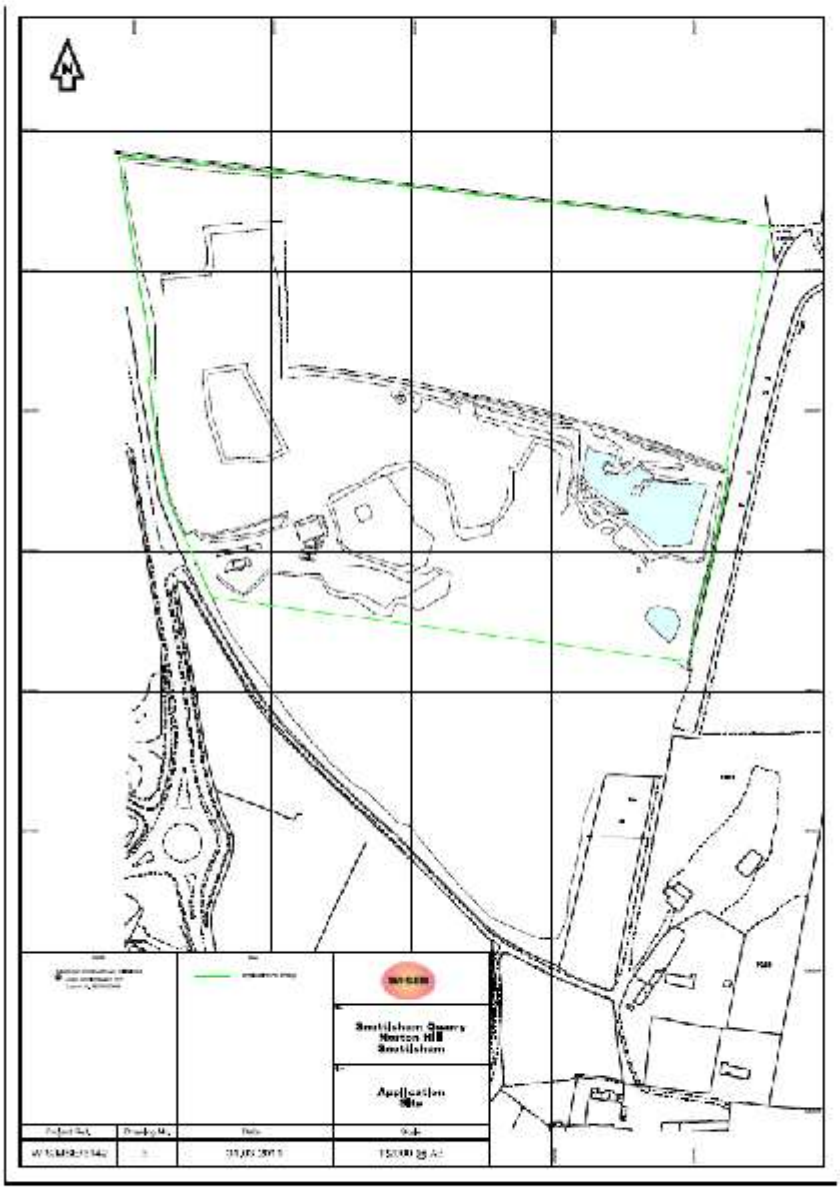
"Waste code" means the six digit code referable to a type of waste in accordance with the List of Wastes (England)Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

"Waste Framework Directive" or "WFD" means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

"year" means calendar year ending 31 December.

Schedule 7 – Site plan

Frimstone Limited, Snettisham Quarry, Norton Hill, Kings Lynn, Norfolk. (09/06/2015)



END OF PERMIT

Appendix E. Risk Assessment Methodology

The Model Procedures for the Management of Land Contamination (CLR11[5]) 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 practice[6] 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');

[5] https://www.gov.uk/guidance/land-contamination-risk-management
[6] 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.

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
Probability	High Probability	Very High Risk	High Risk	Moderate Risk
	Likely	High Risk	Moderate Risk	Moderate/Low Risk
	Low Probability	Moderate risk	Moderate/Low Risk	Low Risk
	Unlikely	Moderate/Low Risk	Low Risk	Very Low Risk

Very High Risk	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 This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. 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.
Moderate risk	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.
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.

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

Human Health

Category	
1	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: (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	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.
3	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.

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
Any ecological system, or living organism forming part of such a system, within a location which is: • 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.	The following types of harm should be considered to be significant harm: • 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. 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.	Conditions would exist for considering that a significant possibility of significant harm exists to a relevant ecological receptor where the local authority considers that: • 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. 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.

Property effects

Relevant types of receptor	Significant harm	Significant possibility of significant harm
Property in the form of: • 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.	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. 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. In this section, this description of significant harm is referred to as an "animal or crop effect".	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.
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.	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. 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. In this Section, this description of significant harm is referred to as a "building effect".	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.

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: (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.