Maxey Crossing Extension

Environmental Setting and Site Design

Report No. K6036-ENV-R003

May 2024

Revision 00

Document Control

Project: Maxey Crossing Extension

Document: Environmental Setting and Site Design

Client: Tarmac Trading Limited

Report Number: K6036-ENV-R003

Document Checking:

Revision	Revision/ Review Date	Details of Issue	Authorised		
			Prepared By	Checked By	Approved By
00	May 2024	Final	Jennie Walker	Craig Fannin	Craig Fannin
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M32 / 335 Approved Block Phasing Plan

M032-00421-4A-Concept Restoration Plan

Figure A1 Exceedance Plan

1 Introduction

1.1 Report Objectives

Ayesa (Byrne Looby Partners (UK) Limited) have been commissioned by Tarmac Trading Limited (Tarmac) to produce an Environmental Setting and Site Design (ESSD) report. This ESSD forms part of a bespoke permit application for a recovery activity to restore the Maxey Crossing Extension (the Site) as required by the Planning Permission for the approved scheme.

Planning Permission 10/00151/MMFUL was granted on 10th October 2012 for the Maxey Crossing Extension for the extraction of mineral as a southern extension to the original Maxey Pit. The southern extension area covers an area of 140ha (including buffer zones, operational areas and access areas), of which 88ha will be worked. In accordance with Planning Permission 22/01203/MMFUL, there is a requirement to restore the quarry to a mixture of agriculture, lowland meadow, woodland planting, and low-level water-based nature conservation habitat including provision of a viewing area.

Planning Permission 22/01203/MMFUL was approved on 26th March 2024. This revised the original scheme after it was identified that the original restoration scheme could not be achieved using solely site derived material due to the potential for basal heave in utilising "overdig" material i.e. extracted clay from beneath the superficial sand and gravels. In relation to this, Planning Permission was sought to allow the importation of inert materials to restore the site and changes were made to the final restoration scheme in order to minimise the amount of imported material required to achieve the scheme.

The application is for an Environmental Permit to permanently deposit waste on land as a recovery activity, i.e. a "*deposit for recovery permit*"[1]. The recovery activity will be operated by Tarmac. A separate Waste Recovery Plan (WRP) has been produced (as Report ref. K6036-ENV-R001) in support of the wider application.

This ESSD describes the Conceptual Site Model (CSM) for the Site and provides an understanding of the Site in its environmental setting. This report has been developed in accordance with Environment Agency guidance on "What to include in your environmental setting and site design report"[2] and sets out the details of the conceptual site model (CSM), environmental setting and site design (ESSD). This report should be read in conjunction with the supporting risk assessments.

1.2 Site Location and Surrounding Features

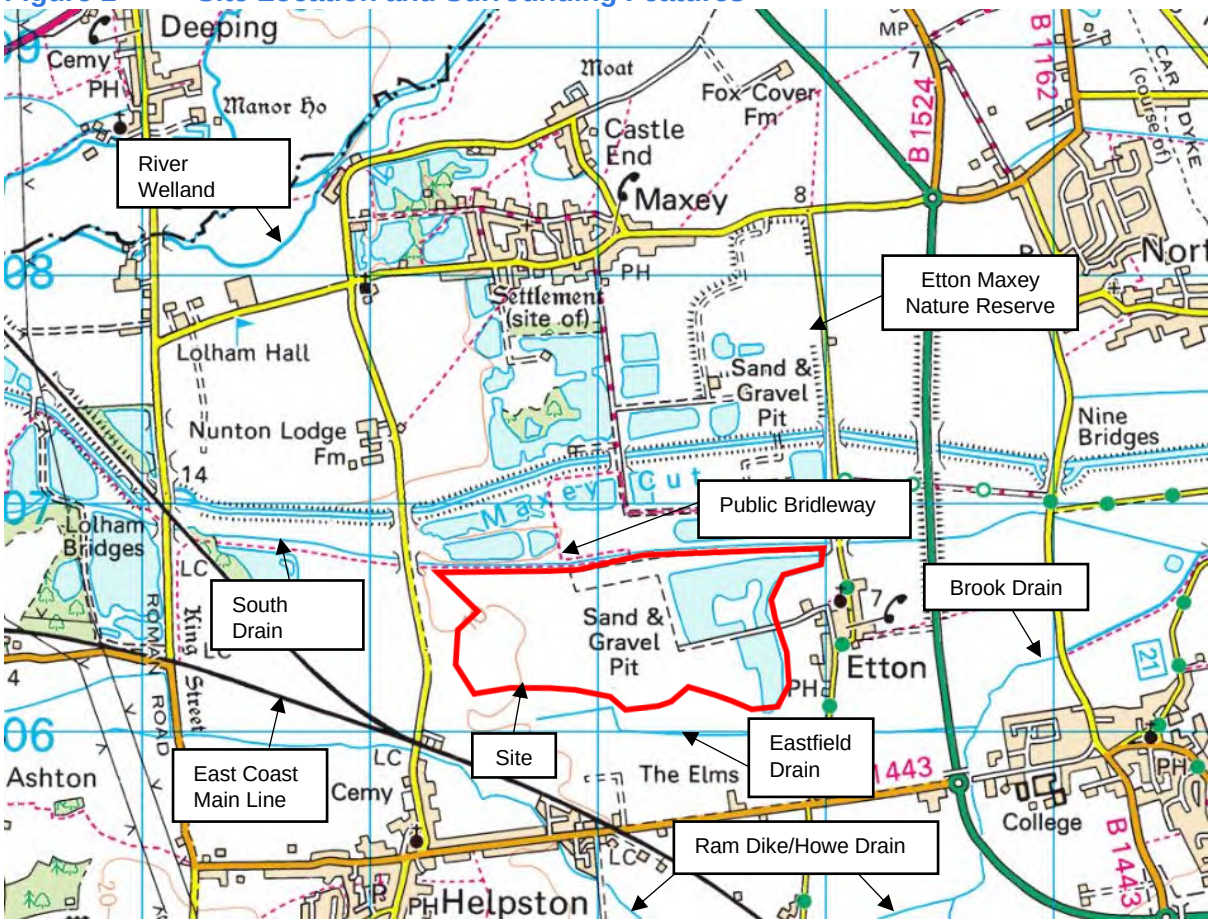
The Site is located at Maxey Quarry, High Street, Maxey, Peterborough, PE6 9EA approximately 10km northwest of Peterborough City centre and to the southeast of the village of Maxey. The Maxey Crossing Extension is centred on National Grid Reference (NGR) TF 13426 06630 and situated in a predominantly rural area comprising agricultural land, isolated dwellings, woodland, and water bodies (Figure 1). The East Coast Main Railway Line runs in a north-west to south-east direction 0.2km away to the south-west of the Site. There are

[1] Waste recovery plans and deposit for recovery permits - GOV.UK (www.gov.uk)
[2] Landfill operators: environmental permits - What to include in your environmental setting and site design report - Guidance - GOV.UK (www.gov.uk)

currently no public rights of way within the extension area, however a public footpath and bridleway exists to the north of the extension area.

The Maxey Crossing Extension is bound to the north by the South Drain. The South Drain is a drainage channel that runs west to east past the Site and separates the Maxey Crossing Extension from previously worked areas of the Maxey Quarry which have been restored to a mixture of grassland and wetland habitats. To the east, west and south the site is bound by agricultural fields. Maxey road is positioned some 100m to the west of the site. Beyond the agricultural fields to the east, lies the village of Etton, where the closest residential properties are located at approximately 250m east of the site.

Figure 1 Site Location and Surrounding Features



There are no European habitats sites located within a 3km radius of the site. However, there are several habitats sites located at distance from the site including:

- Deeping Gravel Pits Site of Scientific Interest (SSSI) – 3.5km to the north-east
- Langtoft Gravel Pits SSSI – 4.1km to the north
- Castor Hanglands SSSI and National Nature Reserve (NNR) – 3.8km to the south
- Barnack Hills and Holes SSSI, NNR and Special Area of Conservation (SAC) – 4.8m to the south-west

Although not a European habitat site, the Etton Maxey Nature Reserve lies approximately 1km north-east of the site. The reserve is managed by the Langdyke Countryside Trust in association with Tarmac and covers an area of 34 hectares. The Nature Reserve was previously a gravel pit and is being restored to a combination of pond, meadows and wild-flower abundant banks.

The Maxey Crossing Extension is surrounded by several surface water features as shown on Figure 1 including a number of manmade flood alleviation channels. The site is located within the Welland and Deepings Internal Drainage Board (IDB) district with the River Welland (designated by the Environment Agency as a 'Main River') located approximately 2.6km to the north east of the site at it's closest point. All artificial surface water channels drain to a confluence with the River Welland 4km to the west.

Other 'Main Rivers' within the vicinity of the site include the Maxey Cut positioned 0.4km to the north of the South Drain and Brook Drain positioned 840m to the east.

The site is positioned within an area of low-lying land. The surrounding topography is relatively flat sloping gently towards the north-east from 20mAOD at Hilly Wood to the south-west of the site to 5mAOD at Peakirk to the east of the site. The site topography slopes in a similar direction, primarily towards the east, with levels at 7 - 8mAOD reported in the east and 10.5mAOD to the west.

1.3 Proposed Scheme

The quarry area and restoration scheme cover an area of 87ha. The restoration scheme for the site is illustrated on Drawing M031-00421-4A. The site is to be restored to a mixture of agriculture, lowland meadow, woodland planting and low-level water-based nature conservation habitat including provision of a viewing area using approximately ~1.3million cubic metres of inert material. The proposed recovery permit boundary and site layout is shown on Drawing M032-00421-2 *Recovery Boundary.*

The quarry is being worked and will be restored in a phased manner with the site split into six Phases (1 to 6). Phase 1 which occupies an area of 9.2ha has been excavated and partially restored using imported materials in accordance with Planning Permission 20/01545/FUL granted on 16th March 2021. The Phase 1 restoration material comprised of excavated material from a one-off construction project.

The remaining quarry area (Phases 2 to 6) covers an area of 77.8ha and largely exist as agricultural field parcels separated by a network of land drains. Mineral excavation has been progressed into Phases 2 and 3.

The base of the workings will extend to a typical depth of approximately 3.5 to 4mAOD[3] . The western part of the quarry will be excavated to the base of the River Terrace Gravel deposits. In the eastern part, where the underlying clay thickens, some overdigging (excavation of the underlying clay) will take place to construct the irrigation lagoon and to allow for the development of the proposed restoration scheme. Due to the potential for basal heave, overdigging will however be limited. However, this piezometric surface is confined within low permeability strata, and therefore may not be realised.

[3] David L Walker Limited (July 2022) Environmental Statement

2 Source Term

2.1 Historical Land use

A review of historic OS maps show that the proposed Maxey Crossing Extension site area remained undeveloped since at least 1886 and was most likely used for farmland. The Great Northern Railway Syston and Peterborough Branch (now East Coast Main Line) was present in 1886 some 200m to the south-west of the Site, with associated infrastructure including a station and railway hotel positioned adjacent to the track.

The Etton Barn is shown in 1886 positioned some 200m to the south of the Site. Just beyond the railway is the Arborfield (paper) Mill. Etton House is shown 150m of the east of the site. To the north of Etton House are several smaller buildings associated with Etton village including a church. The villages of Maxey and Northborough are also illustrated further north. Main road, Glinton Road and Maxey Road are all shown on the OS Six Inch map published in 1886.

Several surface water features are shown on the OS Six Inch map published in 1886. The Ram Dike is shown some 475m to the south-west of the Site flowing (from west to east) towards the Brook Drain. The two water features merge at NGR TF 14546 05268 before flowing northwards around Glinton village. Immediately to the north of the site is the South Drain shown to flow from west to east. Further north is the North Drain (now the Maxey Cut) which flows in a similar direction. The Brook Drain joins the South Drain some 1.7km to the east of the site. A smaller watercourse is also shown to the south of the combined drains near Peakirk.

OS mapping between 1886 and 1969 do not show any significant changes to the Site or surrounding area.

Excavation of the original Maxey Quarry began in 1953 to the north of the Site and north of the Maxey Cut (Figure 2). During this initial quarrying, a neolithic agricultural landscape referred to as the “Maxey Cursus” was unearthed in the late 1950s to the north of the Maxey Cut. The “Etton Cursus” was discovered to the east of the excavation area positioned between the Maxey Cut and South Drain. Several other prehistoric features have been identified in the area close to the Site.

Planning permission to quarry the area between Maxey Cut and South Drain was later granted for two phases (Figure 3); the eastern area (from 2001) and the western area (from 2007). Prior to excavation commencing, this area existed as farmland (Figure 2). These historical quarry areas have now been restored to a combination of grassland and wetland habitats (Figure 4).

In 2010, an application for an extension to the Maxey Quarry under the scheme named the Maxey Quarry Extension, for further extraction of sand and gravel was submitted. This application was granted in October 2012 (reference 10/00151/MMFUL). The scheme was approved to generate a mineral reserve of an estimated 3.85 million tonnes with the area being developed in six phases. The restored area to the north of the Maxey Cut (the original Maxey Quarry) now accommodates the weighbridge, processing plant and other facilities used by Tarmac for the quarrying works associated with the Maxey Crossing Extension.

The Maxey Crossing Extension proposals have since been revised under Planning Permission 22/01203/MMFUL which revised the restoration scheme for the site (see Section 2.2 below for details).

Figure 2 Aerial image showing quarrying in area north of Maxey Cut (1999)

Figure 3 Aerial image showing quarrying between Maxey Cut and South Drain (2016)

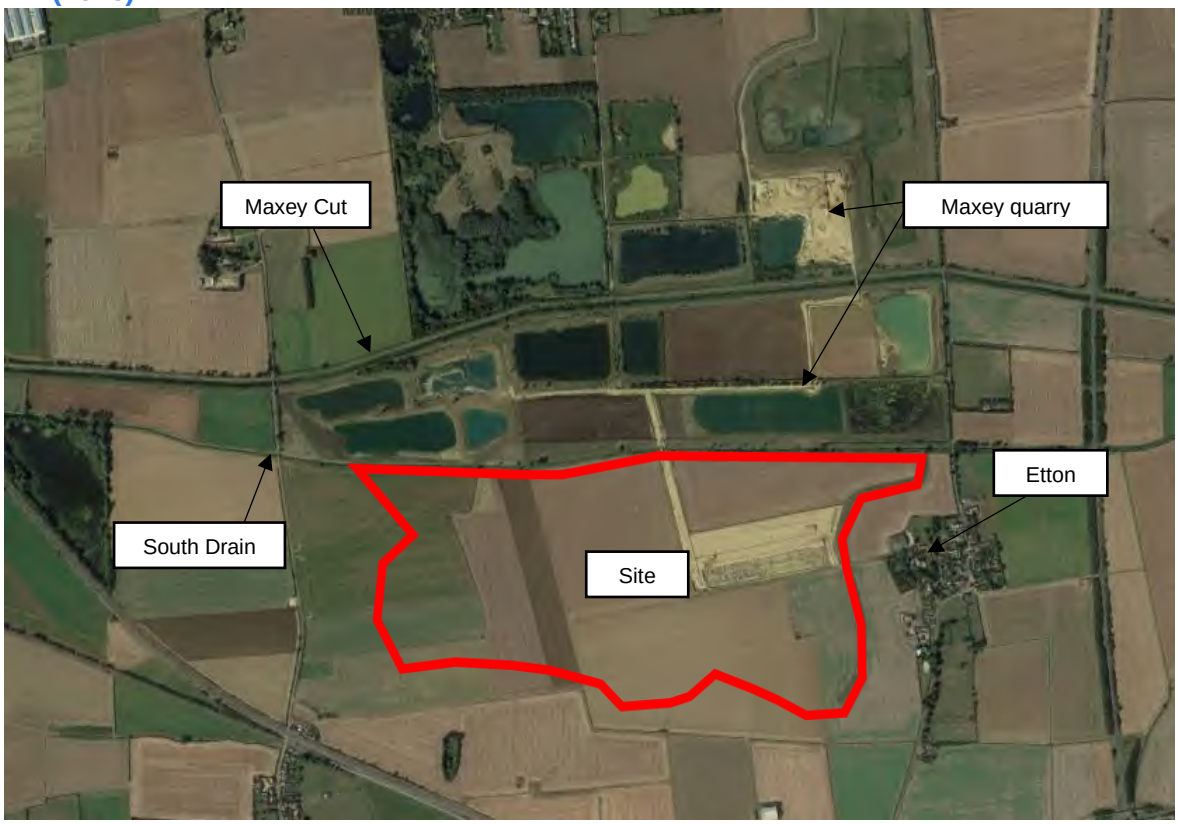


Figure 4 Aerial image showing quarrying within Site area (2022)

2.2 Propose Development

2.2.1 Development timeline and phasing

The Maxey Crossing Extension is set out within the 2021 Cambridgeshire and Peterborough Minerals and Waste Local Plan as a Mineral Development Area. The revised scheme for the site is expected to yield approximately 2.0million tonnes of sand and gravel across the remaining 77.8ha area and it is this area (Phase 2 to 6) which will concern the recovery activity. The estimated period of completion for the scheme is 13 to 14 years, with the final restoration of phase 6 to be completed by 2036/7.

The quarry is being developed in a phased manner in accordance with the requirements of the Planning Permission as illustrated on Drawing M32/ 335, the approved Block Phasing Plan. This Plan confirms the sequence of extraction and restoration through the phases, and the key design principle of retaining land in advance of the working phase in agricultural use, and progressively restoring land behind the working phase. This approach serves to minimise the amount of land which forms part of the operational area at any one time. This is to satisfy Cambridgeshire and Peterborough Minerals and Waste Core Strategy 25 of the Cambridgeshire and Peterborough Minerals and Waste Local Plan Adopted in 2011 which requires “mineral workings and waste management sites to be restored in a phased manner to a beneficial after use”.

Extraction operations are on-going in Phases 2 and 3 which are partially completed. Due to unforeseen delays experienced by Tarmac, Phase 2 has been split into two sub-phases referred to as Phases 2A and 2B. Phase 2A has been worked however extraction across

Phase 2B is on hold until Phase 3 has been quarried. The revisions to the phasing sequence are being regulated by Peterborough Council as a non-material amendment. Phases 4, 5 and 6 have yet to be worked.

Where land within each phase is currently used for agriculture, it will continue to be used for this purpose until excavation is required.

The quarry is to be restored to a mixture of agriculture (including the provision of irrigation lagoons), lowland meadow, dry and damp woodland planting and low-level water-based nature conservation habitat including provision of a viewing area using inert material. The site will be restored using a combination of on-site excavated materials and imported material. It is envisaged that approximately 1.325 million cubic metres of imported inert materials will be required at a rate of approximately 100,000m^3 per annum. It is proposed that these works are completed as a deposit for recovery scheme.

The restoration scheme for the site is illustrated on Drawing M031-00421-4A (Figure 5). The western part of the site is primarily being restored to wetland habitat. The central and easternmost areas are being restored to a mixture of lowland meadow and agricultural land with ground levels near pre-development levels. Wildlife lakes and an irrigation lagoon are also proposed for the eastern part of the site. Public footpaths are proposed running across the central areas of the site. The slopes across the site are relatively shallow across the agricultural areas (less than 1 in 100), steepening near the water body margins.

Each phase will be worked dry and therefore de-watering will be required under transfer licence number AN/031/0013/010 issued by the Environment Agency in March 2022. Following excavation, an attenuation layer will be placed using overburden material (soils and alluvium) stockpiled during the excavation and quarrying phase.

Existing infrastructure and ancillary facilities including the site access, haul roads, and weighbridge will be retained to support the development. All land restored for Nature Conservation will be managed under an 8-year Management and Aftercare Scheme and all arable farmland under a 5-year Management and Aftercare Scheme under the supervision of Tarmac as required by the Planning Permission.

2.2.1.1 Proposed Waste Depths

As noted above, the western area will be excavated to approximately the base of the sand and gravel deposit which varies between approximately 5 and 7mAOD (Figure 6). This western area is to be restored to a mixture of waterbodies and wet woodland.

Across the eastern area of the site, where the underlying clay thickens, the clay will also be partially excavated with the irrigation lagoon excavated to a depth of no greater than 2.8mAOD. Details of expected depth of quarry in this area not provided.

A summary of the depth of each phase and final restoration levels are shown in Table 1.

Table 1 Proposed Phasing Development Summary

Phase	Position	Base of Excavation	Restoration Level	Waste Depth	Proposed restoration
		mAOD	mAOD	m	
1	Northeast	2.8 to 4.0	7.5 to 8.5	4.5 to 5.2	Restored to agricultural land. Water level in lagoon at ~6.5mAOD.
2	Southeast	*4.0 to 6.0	7.0 to 8.0	2.0 to 4.0	Restored to wildlife lakes and attenuation ponds (with water level ~6.5mAOD), woodland and grassland.
3	North (central)	4.0 to 6.0	7.5 to 11.0	1.5 to 7.0	Restored to lowland meadow
4	South (central)	5.0 to 6.5	8.0 to 9.0	2.5 to 4.0	Restored to agriculture
5	Northwest	4.0 to 7.5	8.0 to 10.0	2.5 to 6.0	Restored to agriculture, wetland (water level ~8.0 to 8.5mAOD) and woodland
6	Southwest	3.5 to 7.5	8.0 to 10.0	2.5 to 6.5	Restored to wetland and woodland

*Elevations and thickness does not include “overdig” depth for the irrigation lagoon

Figure 5 Extract from Drawing M031-00421-4A illustrating the proposed Restoration Scheme

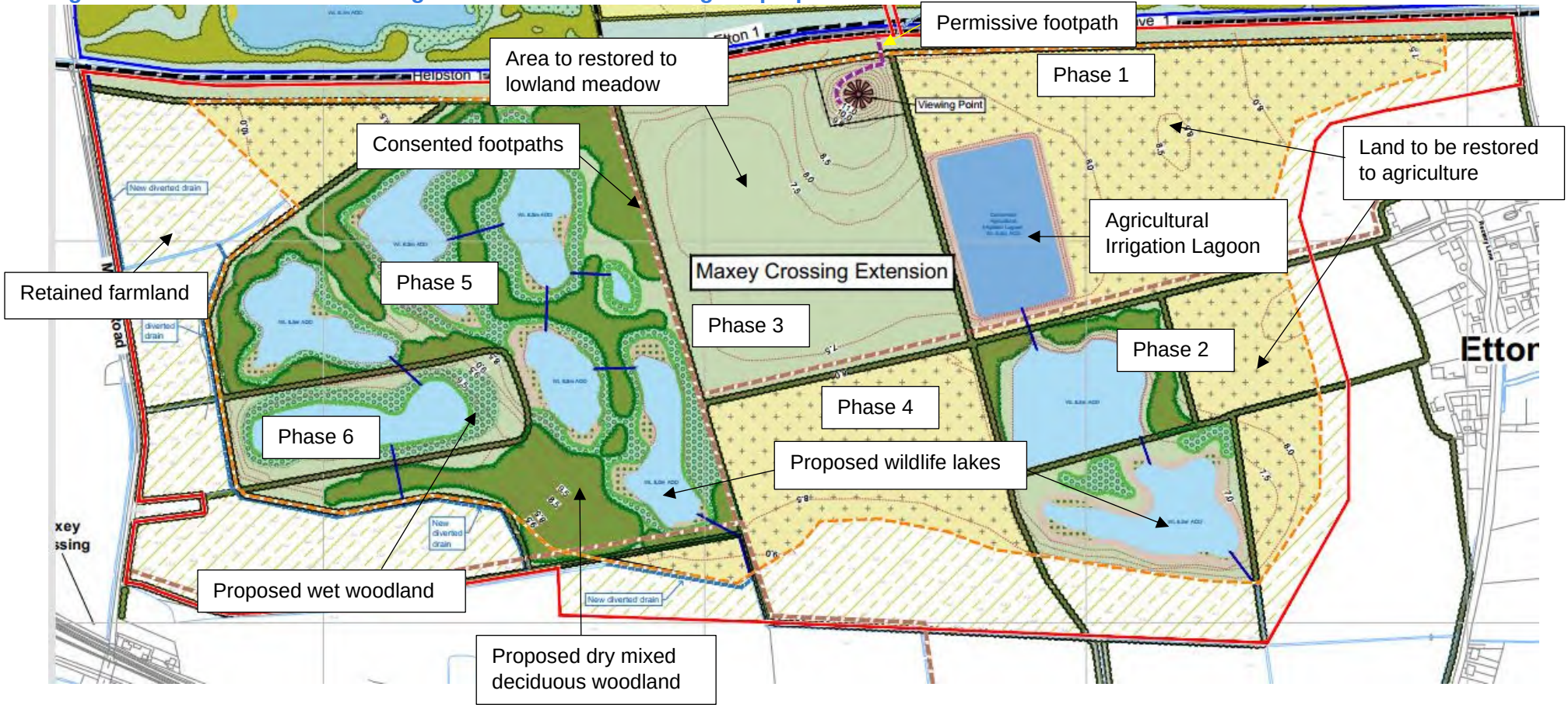
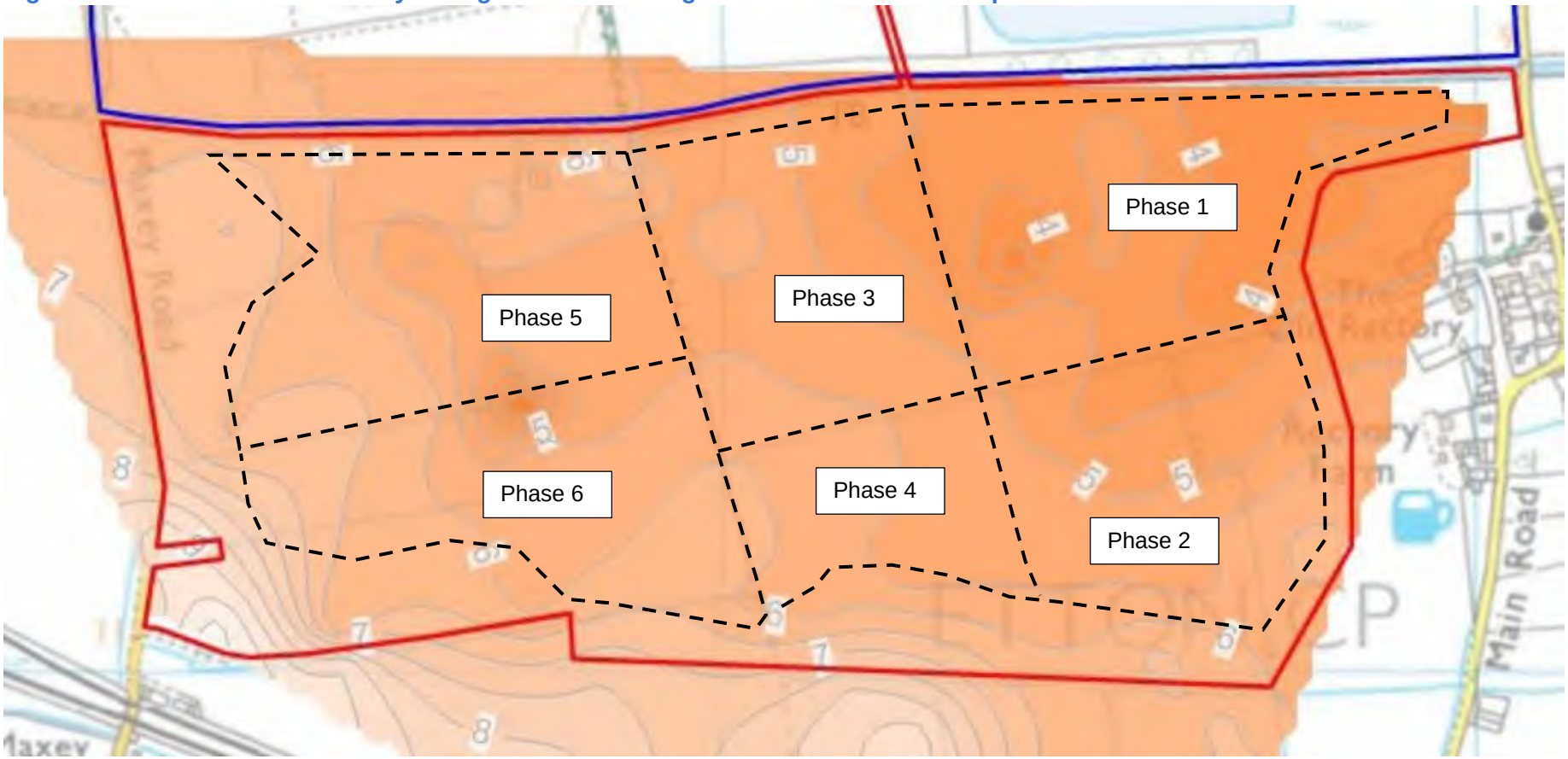


Figure 6 Extract from BCL Hydro Figure 54 illustrating base of River Terrace Deposits



2.3 Source and Types of Waste Materials

The Planning Permission for the site restricts the types of infilling materials to inert materials only. All wastes will be handled in accordance with the site's Environmental Management System (EMS), which has been compiled for the proposed activity, along with site specific risk assessments that will accompany the Environmental Permit application. This will ensure that the materials to be used are suitable for their intended use.

The site's EMS sets out waste acceptance procedures which have been produced in accordance with the Environment Agency's guidance on Waste acceptance procedures for deposit for recovery[4] . All wastes used in the recovery activity will be accepted in accordance with the requirements of Duty of Care. In addition to this, pre-acceptance checks will be carried out to assess the available information and this may include:

- EWC according to the European Waste Catalogue;
- Source and origin of the waste;
- Information on the waste production process;
- Results of any testing e.g. chemical composition, appearance (smell, colour, physical form);

All wastes will be inspected visually on arrival (where possible) and again at the point of deposit. If the waste does not conform to the accompanying documentation, then the load will be rejected in accordance with the rejection procedure set out within the site's EMS.

The waste materials to be used for restoration of the site will (where possible) be predominantly sourced from local development projects. It is anticipated that a significant proportion of the material accepted will originate from greenfield excavations. Wastes accepted at the site are expected to comprise largely of soils characterised as

- 17 04 05 "Soils and stone other than 17 05 03" and
- 20 02 02 "Soil and stones".

The full list of waste to be accepted has been taken from Standard Rules Permit SR2015 No. 39 and is included in Table 1 of the Waste Recovery Plan (report ref. K6036-ENV-R001). Following placement of the materials, the site will continue to be monitored through the provision of an aftercare scheme supervised by the planning authority.

These materials have an inherently low pollution potential. They do not contain substances at concentrations that may present a risk to surface water or groundwater. After its deposit and subsequent profiling, the already low permeability of this material is further reduced. This further restricts the leachability of any potential soluble components and mobilisation of solids from its compacted surface.

The materials will be tested as per the requirements of European Council Decision 2003/33/EC of 19th December 2002 including those where after a robust source characterisation can be accepted without prior testing providing they:

[4] https://www.gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/waste-acceptance-procedures-for-deposit-for-recovery

- come from a pre-characterised single source;
- are well characterised and described;
- carry no risk of contamination, for example from a site that has not previously been developed.

3 Pathways and Receptors

3.1 Climate

Average rainfall and wind speed data for the period 1991-2020 is available for Wittering Meteorological Office station[5] , located approximately 8 km away from Maxey Quarry.

The data is presented in Table 2.

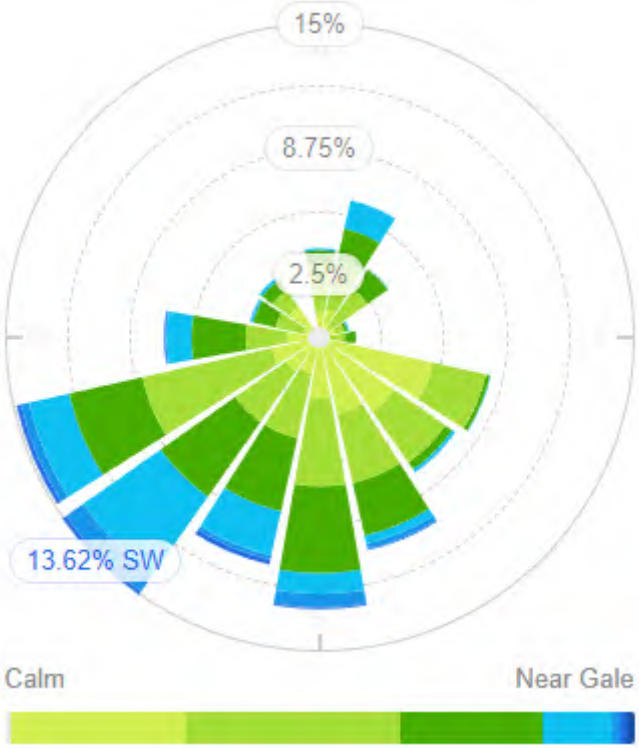
Table 2 Average Rainfall and Wind Speed for RAF Wittering (1991 - 2020)

Month	Rainfall (mm)	Days of rainfall ≥1mm (days)	Monthly mean wind speed at 10m (knots)
January	46.96	10.13	10.73
February	38.92	9.33	10.83
March	38.99	8.73	10.43
April	44.15	8.77	9.42
May	49.55	8.43	9.11
June	52.91	9.03	8.44
July	55.51	9.13	8.36
August	59.86	9.23	8.37
September	52.85	8.33	8.69
October	63.34	10.17	9.44
November	57.50	11.17	9.67
December	53.01	10.67	10.34
Annual	613.55	113.12	9.48

Wind directional data has been obtained for the Wittering weather station[6] which is the nearest identified Meteorological Office station to the Maxey Crossing Extension site. The data is presented in Figure 7. The prevailing wind direction is from the south-west.

[5] UK climate averages - Met Office
[6] Maxey Wind Forecast, Cambridgeshire PE6 9 - WillyWeather

Figure 7 Wind Rose for Wittering weather station



3.2 Geology

3.2.1 Introduction

The geology at the site is summarised in this section using information from a range of sources including British Geological Survey (BGS) maps and borehole logs collected through previous site investigations. The site geology was also reviewed as part of the Hydrological and Hydrogeological Impact Assessments produced by BCL Consultant Hydrogeologists Limited (BCL Hydro) in June 2022 in support of the planning application to revise the proposed scheme.

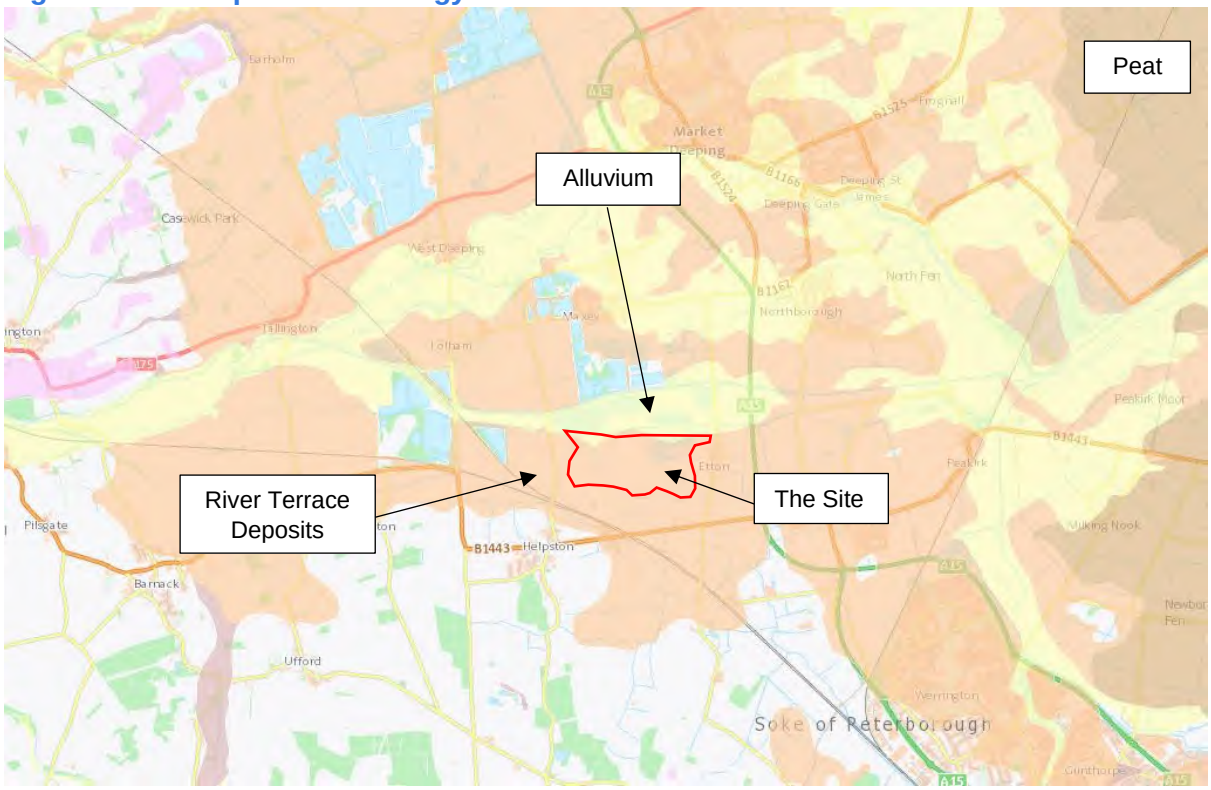
3.2.2 Geological Succession

The regional geological succession comprises of Quaternary drift deposits underlain by bedrock geology comprising of:

- the Kellaways Clay Formation (mudstone), underlain by
- the Cornbrash Formation (limestone) and
- the Blisworth Clay Formation (mudstone).

The drift deposits include River Terrace Deposits which are to be extracted in accordance with the quarry development. Alluvium in the form of silts and clays, is present along the northern perimeter of the site and adjacent to the South Drain (Figure 8). The Alluvium overlies the River Terrace Deposits. Peat is also present further to the east of the site.

Figure 8 Superficial Geology



The Kellaways Clay Member outcrops across the eastern part of the site and is underlain by the Cornbrash Formation (limestone) which outcrops across the western part of the site. The mudstone of the Blisworth Clay Formation is illustrated on BGS mapping[7] to outcrop at the south-western corner of the quarry as shown in Figure 9.

The Oxford Clay is reported to be some 60 to 70m thick on the 1:50,000 BGS Sheet 158[8] for Peterborough. The Oxford Clay overlies the Kellaways Sand and outcrops to the north and east of the site as illustrated on Figure 10.

The bedrock strata generally dip to the north-east. The regional sequence is interrupted by the presence of a fold centred at Helpston as illustrated on Figure 10.

The regional geology is summarised in Table 3 along with typical thicknesses set out in BCL Hydro's Hydrological and Hydrogeological Impact Review. The local geology including thicknesses proven through site investigations is provided in Section 3.3.

[7] GeoIndex (onshore) - British Geological Survey (bgs.ac.uk)
[8] https://largeimages.bgs.ac.uk/iip/mapsportal.html?id=1001649

Figure 9 Bedrock Geology

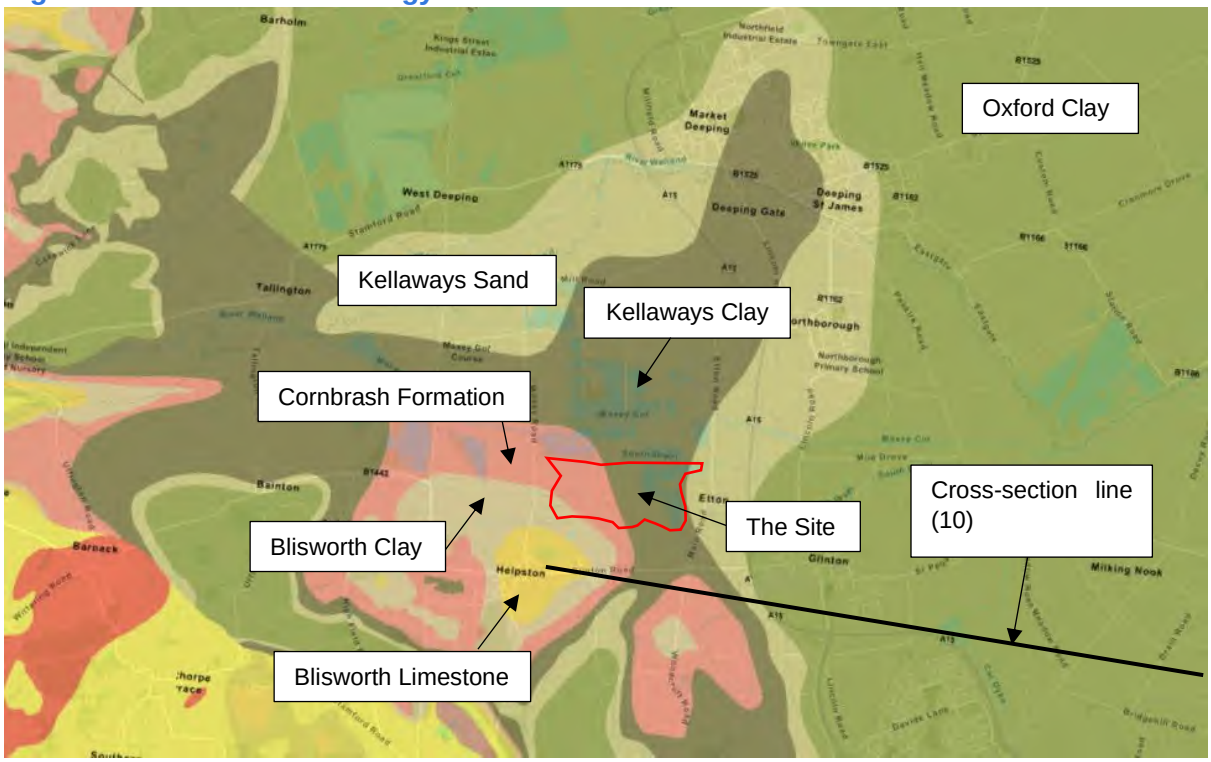


Figure 10 Geological Cross-section (extract from BGS Sheet 158)

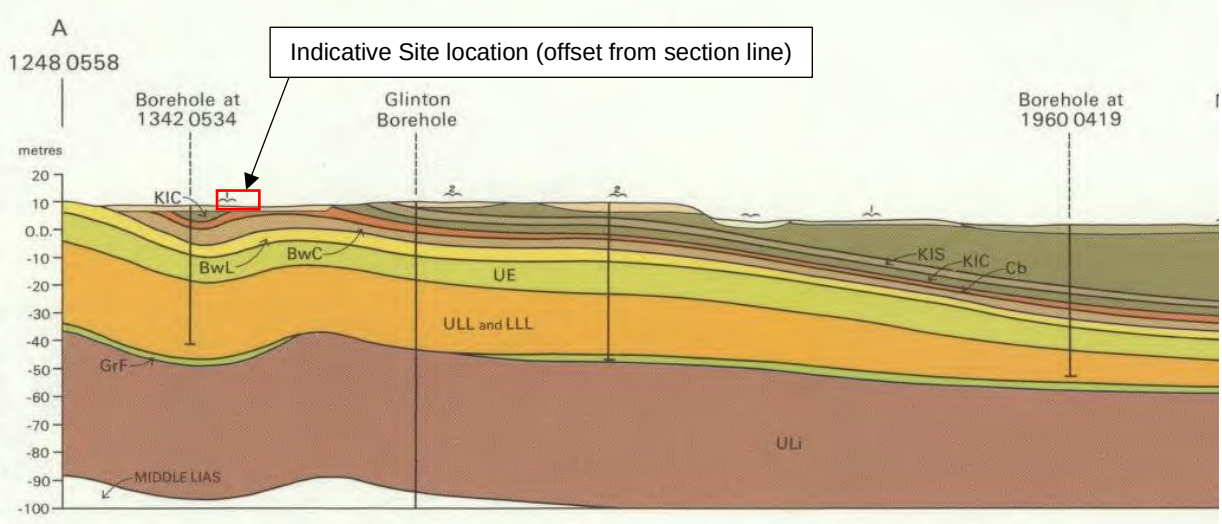


Figure 11 Key for Geological Cross-section (extract from BGS Sheet 158)

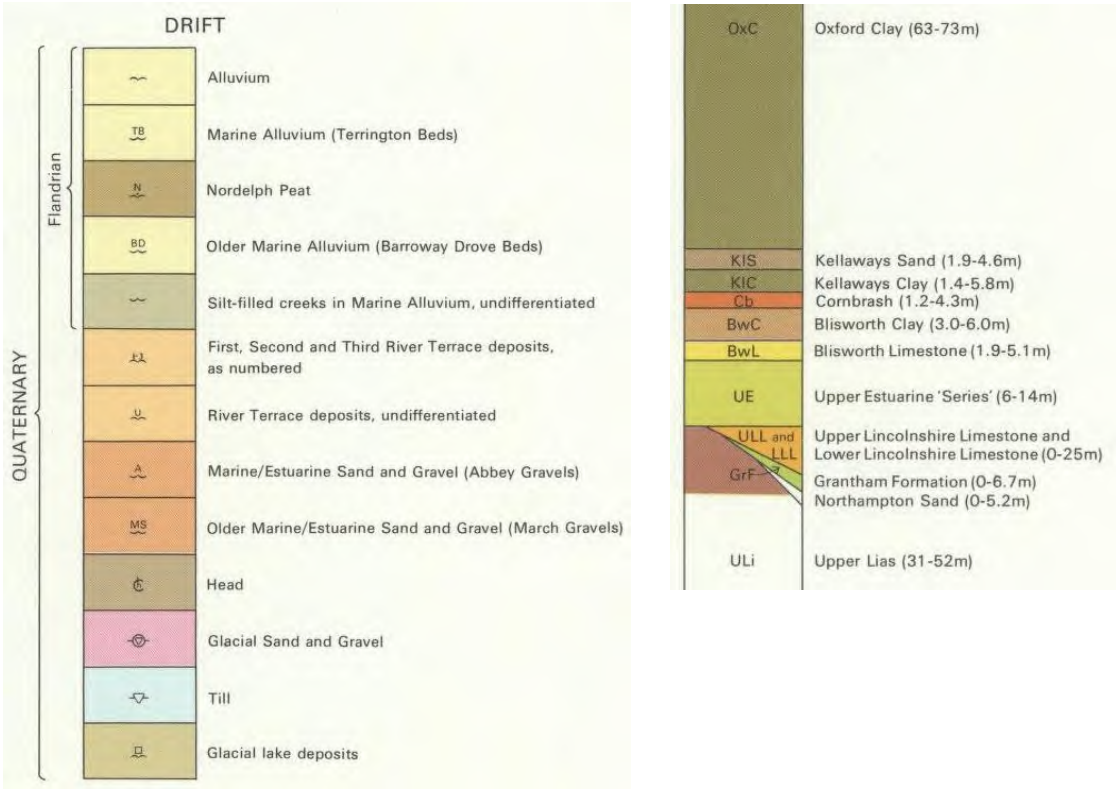


Table 3 Regional Geological Succession

Age	Formation	Description
Quaternary	Alluvium (superficial/drift deposit)	Described as clay, silt, sand and gravel. Unconsolidated and impersistent beds of silt and peat deposited by a river, stream or other flowing water body. Average thickness of 0.5m.
	River Terrace Deposits	Gravel is fine to medium occasionally coarse, sub-rounded to rounded in shape. Sand is reddish brown, slightly silty to silty and fine to medium. Regionally up to 8.1m thick. Described by BGS as containing lenses of silt, clay or peat.
Middle Jurassic	Kellaways Clay Formation	Describe as silicate, bluish grey mudstone and clay. Commonly smooth in basal section and contains a thin bed of siltstone and sandstone with nodules of limestone containing clay (argillaceous). Expected to be 1.4 – 5.8m thick.
	Cornbrash Formation	Described as medium to fine-grained limestone that is poorly bedded. May be interbedded with calcareous mudstone in some sections. Expected to be 1.2 – 4.3m thick.
	Blisworth Clay Formation	Described as grey, silicate, stiff clay, varying in colour (purplish red, yellow and green), poorly bedded and impermeable. Occasional thin (<15cm) limestone bands and shelly horizons. Typically, 3.0 to 6.0m thick.
	Blisworth Limestone Formation	Light grey/white. Abundant in fossils and shells. Typically, 1.9 to 5.1m thick.
	Rutland Formation	Laminated mudstones and clay.

3.2.3 Site Investigations and Local Geology

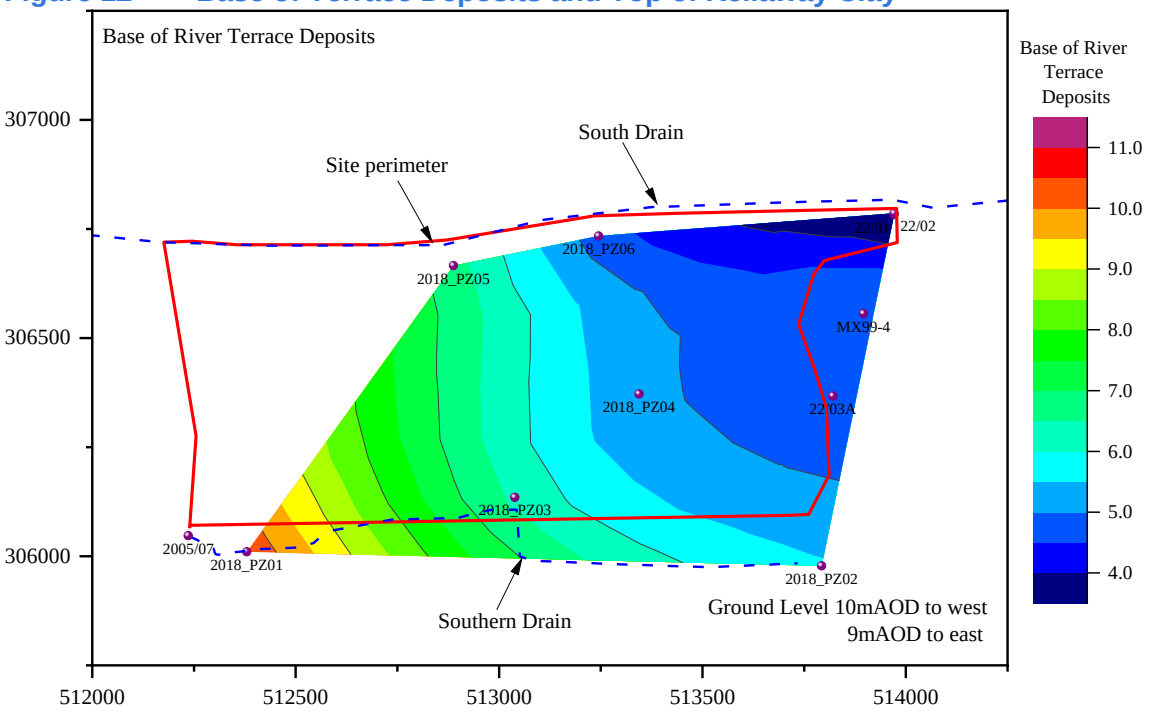
Numerous site investigation boreholes have been installed at the site previously. Site investigations were historically completed in 1998, 1999, 2002 and 2005 to determine the thickness of the drift deposits within the site area. In 2008 a site investigation was then carried out to determine the thickness of basal clays underlying the drift deposits. This investigation was further complimented by another carried out in 2018 when deeper drilling was carried out intercepting the underlying stratigraphy in response to concerns about potential basal heave issues. Most recently, a series of additional monitoring points were installed in 2022 in support of the permit application. The local geology identified through the various site investigations is summarised below.

Drift Deposits

It has been demonstrated that drift deposits are present across the entirety of the site comprising of topsoil and Alluvium (combined thickness ranging from 0.15 to 1.8m), overlying River Terrace Deposits. The Alluvium is not continuous across the site and is mainly present adjacent to the northern (near the South Drain) and southern perimeters. The Alluvium is reported to be approximately 0.5m thick on average[7].

The River Terrace Deposits vary in thickness across the site between 0.6m to 7.7m, with an average thickness of 3.4m. The River Terrace Deposit thickens northwards, with the base of the drift deposit falling to the north and east in accordance with the natural topography and dip of the underlying bedrock[9]. The base of the River Terrace Deposits ranges from 3.3 to 10mAOD (i.e. top of the Blisworth Clay in west and Kellaways Clay in east) as illustrated on Figure 12.

Figure 12 Base of Terrace Deposits and Top of Kellaway Clay



[9] BCL Consultant Hydrogeologists Limited (2022) Maxey Quarry. Hydrological and Hydrogeological Impact Assessment. Version 4

The historical data shows that the River Terrace Deposits increasing in thickness from 2.3m at PZ03 (south), to 2.6m at PZ04 (central) and 3.5m at PZ06 (north). Comparatively the recently installed monitoring points 22/01, 22/02 and 22/03a show a pattern consistent with the existing data. The borehole logs for these monitoring points indicate that the base River Terrace Deposit dips to the north-east. The depth of the mineral at these locations varies from 3.5m at 22/03a to 4.4m at 22/02.

The borehole log for PZ01, positioned to the south-west of the site, describes the Blisworth Clay Formation sub-cropping with negligible drift deposits (i.e. River Terrace Deposits) present. This is consistent with the BGS mapping as illustrated in Figure 9. PZ01 corroborates information produced by BGS that the Blisworth Clay sub-crops beneath the west of the extension site and limestone of the Cornbrash formation sub-crops beneath the centre-west of the site.

Due to the very shallow deposit of 0.1m of sand and gravel present at PZ01, this area is considered unsuitable for quarrying. In accordance with the proposed Restoration Scheme (as illustrated on Drawing M032-00421-4A), this area is to remain as agricultural farmland.

Bedrock

It has been demonstrated through historical investigations that the Kellaways Sand is absent within the site area. The Kellaways Sand is reported to be a maximum thickness of 2.9m regionally but has not been encountered in borehole logs during site investigations within the site boundary. The Kellaways Sand was however identified at a borehole near Etton (east of the site) indicating that it is present further east in accordance with BGS mapping. The Kellaways Sand was not encountered during the 2022 drilling works to install 22/01, 22/02 and 22/03a adjacent to the eastern perimeter of the site. Further to the east of the site, the Kellaways Sand is overlain by the Oxford Clay.

The Kellaways Clay does however sub-crop across the eastern half of the site as is described as a blue/ grey laminated stiff clay with silt banding. The base of the Kellaways Clay is observed to range from some 5mAOD to circa. -3.3mAOD, generally dipping to the northeast in line with the expected regional sequence. The thickness of the Kellaways Clay ranges from 1.3m to some 8m, generally thickening to the north-east.

A depression in the strata at the base of the Kellaways Clay is noted across the north-eastern portion of the extension and it is within this area that the Kellaways Clay is thickest (Figure 13). It is across this area that it is proposed to construct the irrigation lagoon. The Kellaways Clay was encountered during the 2022 drilling works.

Figure 13 Extract from BCL Hydro Figure 54 illustrating base of Thickness of Kellaway Clay

Site investigations have indicated that the Cornbrash Formation, which underlies the Kellaways Clay, does not sub-crop beneath the River Terrace Gravels. Where the Cornbrash Formation is expected to sub-crop, weather clays have been encountered above the Cornbrash Formation (at borehole MQ06/05 and MQ06/68) which may be associated with an erosional event followed by infilling with the younger Kellaways Clay.

The Cornbrash Formation is described as a fossiliferous limestone. The Cornbrash Formation is proven to underlie the eastern part of the site, dipping to the east with the base of the Cornbrash Formation at 3.65 to -4.5mAOD. The thickness of the Cornbrash Formation is reported to range from 1.3 to 2.2m, increasing in thickness to the north-east.

The Blisworth Clay is described as a blue/ grey clay, with subordinate limestone and shale layers persisting where intercepted at depth (un-weathered). This unit underlies the Cornbrash Formation but sub-crops across the western part of the site beneath the River Terrace Deposits. The base of the Blisworth Clay ranges from 5mAOD to -7mAOD and dips to the east. The Blisworth Clay ranges in thickness between 4.5 and 7.5m thick, thinning to the south.

Borehole logs demonstrate that the Blisworth Clay is underlain by the Blisworth Limestone across the site. The base of the Blisworth Limestone dips towards the north-east ranging from -0.2mAOD to -12.3mAOD. The unit ranges in thickness from 2.9 to 4.7m, thinning to the south and east.

3.3 3.3 Man-made Subsurface Pathways

There are no known man-made sub-surface pathways associated with the site.

3.4 Infilled Ground

The Maxey Quarry extends to the north of the site and this area has been historically exploited for mineral and subsequently restored.

There are no active landfill sites located within a 5km radius of the site. The nearest historical landfill is a very small landfill within the Maxey Quarry area, historically authorised under licence ref. LS70. This area was infilled between May 1986 and August 1987 and is located ~1km north of the Maxey Crossing Extension.

3.5 Hydrogeology

3.5.1 Aquifer Designations

The River Terrace Gravels are characterised by the Environment Agency a Secondary A aquifer (Figure 14) which is described as an aquifer comprising 'permeable layers that can support local water supplies and may form an important source of base flow to rivers'.

Within the vicinity of the site, the Kellaways Sand and Cornbrash Limestone are similarly characterised as Secondary A aquifers (Figure 15). However, the lower permeability bedrock strata comprising of the Kellaways Clay and Blisworth Clay are both non-aquifers. The underlying Blisworth Limestone is designated as a Principal aquifer (formally a Major aquifer) which is described as an aquifer which 'provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands.'

However, it should be noted that these designations are national designations based on the nomenclature of the strata, and do not take into account the actual properties of the strata which is of low permeability low yielding strata as discussed in the accompanying HRA, Report K6036-R06), which do not have the yield capacity to be described as an aquifer. The Cornbrash in particular should therefore properly be described a unproductive strata and is not considered as a receptor in this area.

The site is located within a Source Protection Zone (SPZ) II (outer protection). The nearest SPZ Zone I is positioned some 85m to the south of the site (Figure 16). A second SPZ I is positioned some 600m to the north-east of the site.

Both SPZs are for Public Water Supply (PWS) are recharged from the west of the site and exploit the Lincolnshire Limestone which is not in continuity which is hydraulically separated from the site by Unproductive strata units and is not at risk from the proposed scheme.

The site is not located within a Drinking Water Safeguard Zone or a Drinking Water Protected Area.

Figure 14 Superficial Aquifer Designations

Figure 15 Bedrock Aquifer Designations

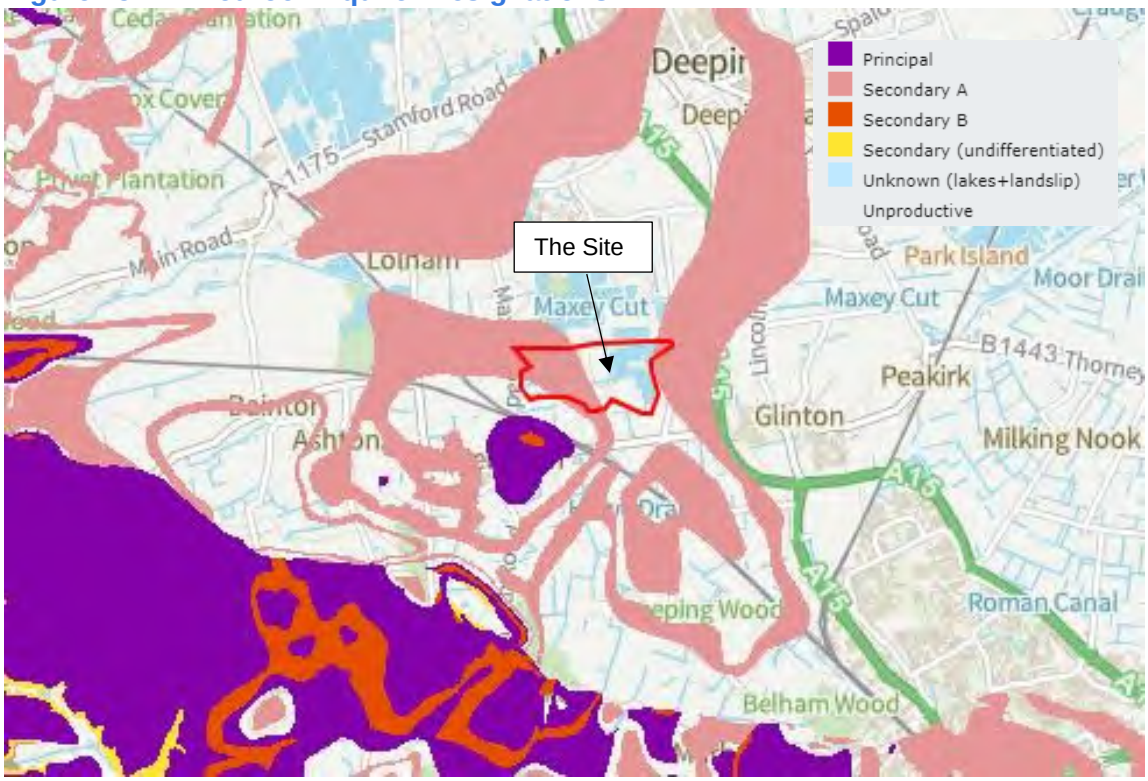
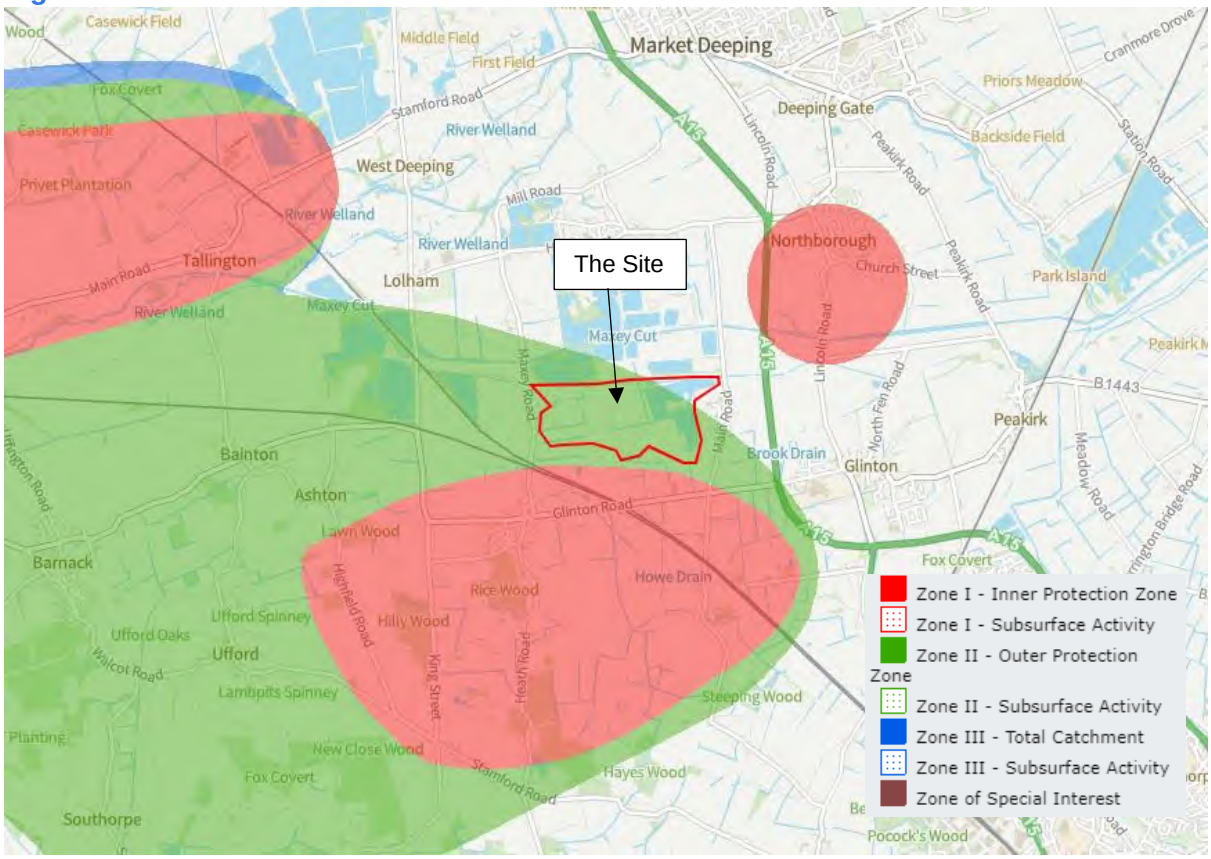


Figure 16 Source Protection Zones



3.5.2 Groundwater Flow

Bedrock Aquifers

The Oolitic limestones (Cornbrash Formation and Blisworth Limestone) are well-cemented and have a low intergranular permeability[10]. Consequently, matrix porosities are low and primary aquifer storage is limited. Although such strata can have a high secondary permeability resulting from fractures and micro-fractures of tectonic origin which have been enhanced by karstic weathering, this is not the case for the Cornbrash in the Marston Vale to Peterborough area, and the potential for groundwater flow is low to negligible. The Blisworth Limestone in the same area is also of a low permeability strata.

Notwithstanding the low permeability nature, the Cornbrash Formation is present within the site area but is understood to be overlain by Kellaways Clay which is expected to act as an aquitard, locally limiting groundwater flow into the underlying strata. Similarly, within the site area infiltration into the Blisworth Limestone is expected to be inhibited by the presence of the overlying Blisworth Clay.

The Kellaways Sand does not sub-crop beneath the River Terrace Deposits at the site, and towards the east, this entire sequence is overlain by an increasing thickness of Oxford Clay towards the east.

[10] https://www2.bgs.ac.uk/groundwater/waterResources/thames/limestones.html

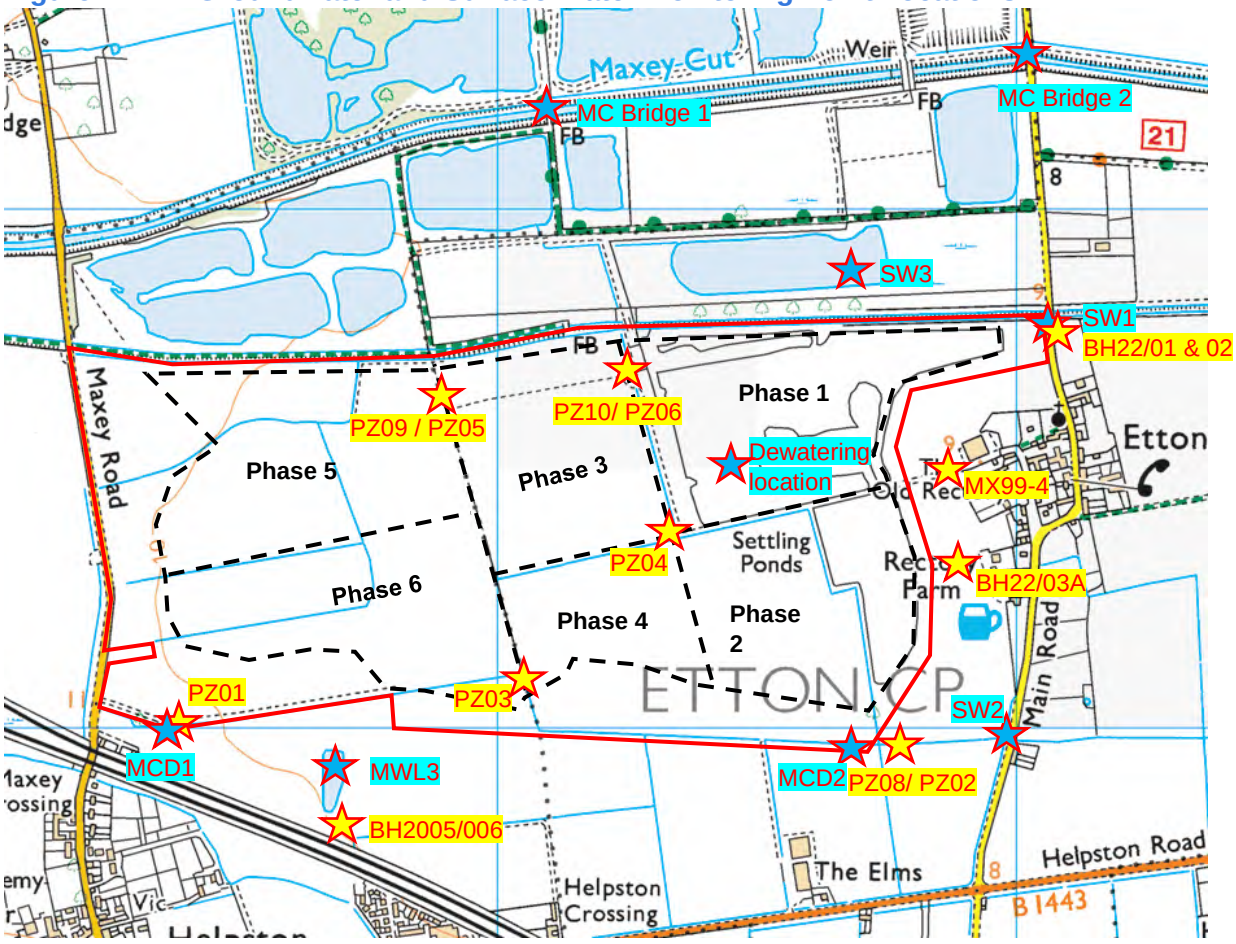
Where the Kellaways Sand and Cornbrash Formation sub-crop outside of the site boundary, these aquifers are expected to receive infiltrating groundwater from the River Terrace Deposits above. However, as noted above away from the sub-cropping areas, the Kellaways Clay and Blisworth Clay and expected to inhibit recharge into the more permeable strata.

Site investigations have demonstrated that the bedrock strata generally dip to the north-east and groundwater is expected to flow in a similar direction down the dip. Groundwater monitoring points have been installed into the bedrock aquifers as follows:

- Cornbrash Formation – PZ02, PZ04, PZ05, PZ06, 22/02 and 22/03a
- Blisworth Limestone – PZ01 and PZ03

The location of groundwater monitoring points are illustrated on Figure 17. The 2018 monitoring points (PZ series) were installed as pairs to target the shallower superficial aquifer and deeper bedrock aquifers at similar locations. Groundwater level monitoring demonstrates that groundwater flow is towards the north-east / east (Figure 19). Water levels within the Cornbrash Formation range from 6.3 to 9.2mAOD (Figure 18). Within the Blisworth Limestone, groundwater levels are at 4.4 to 8.6mAOD. Both aquifers are therefore considered to be confined at the site.

Figure 17 Groundwater and Surface Water Monitoring Point Locations



Groundwater level monitoring demonstrates that groundwater flow is towards the north-east. Water levels within the Cornbrash Formation range from 6.3 to 9.2mAOD. Within the Blisworth Limestone, groundwater levels are at 4.4 to 8.6mAOD. Both units are therefore considered to be confined at the site.

Figure 18 Groundwater Levels within the Cornbrash Formation and Blisworth Limestone

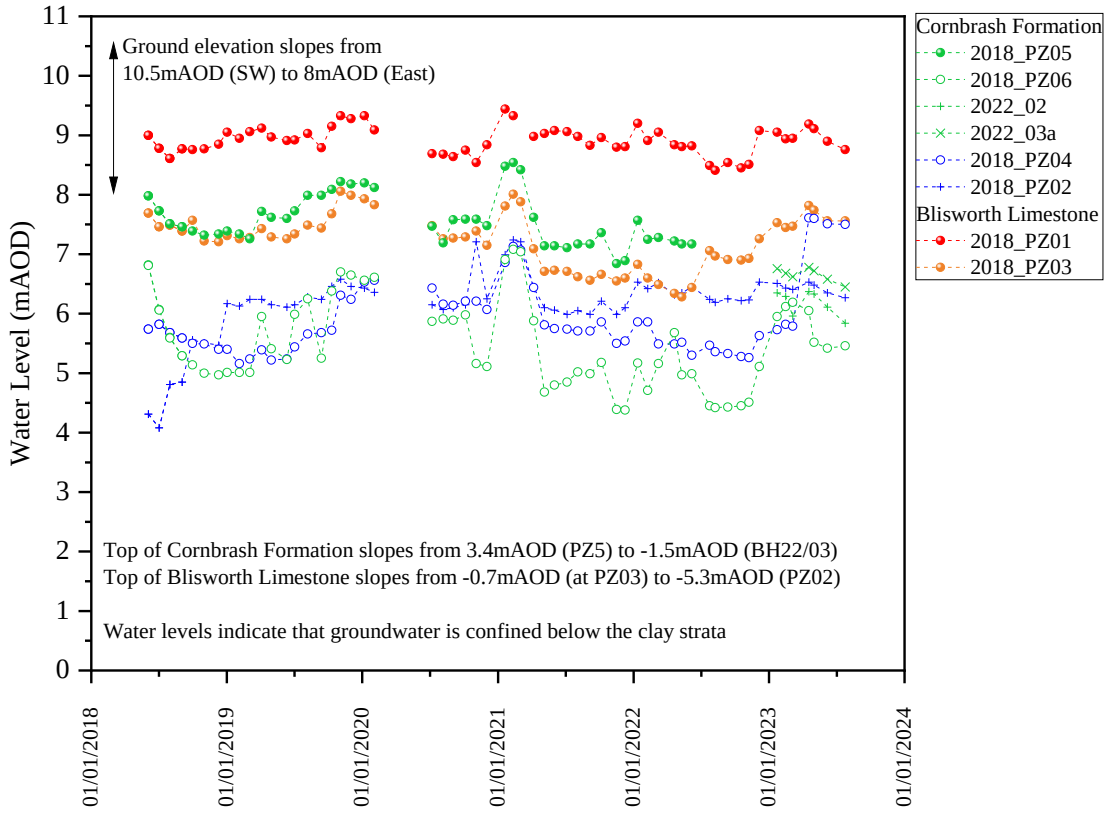
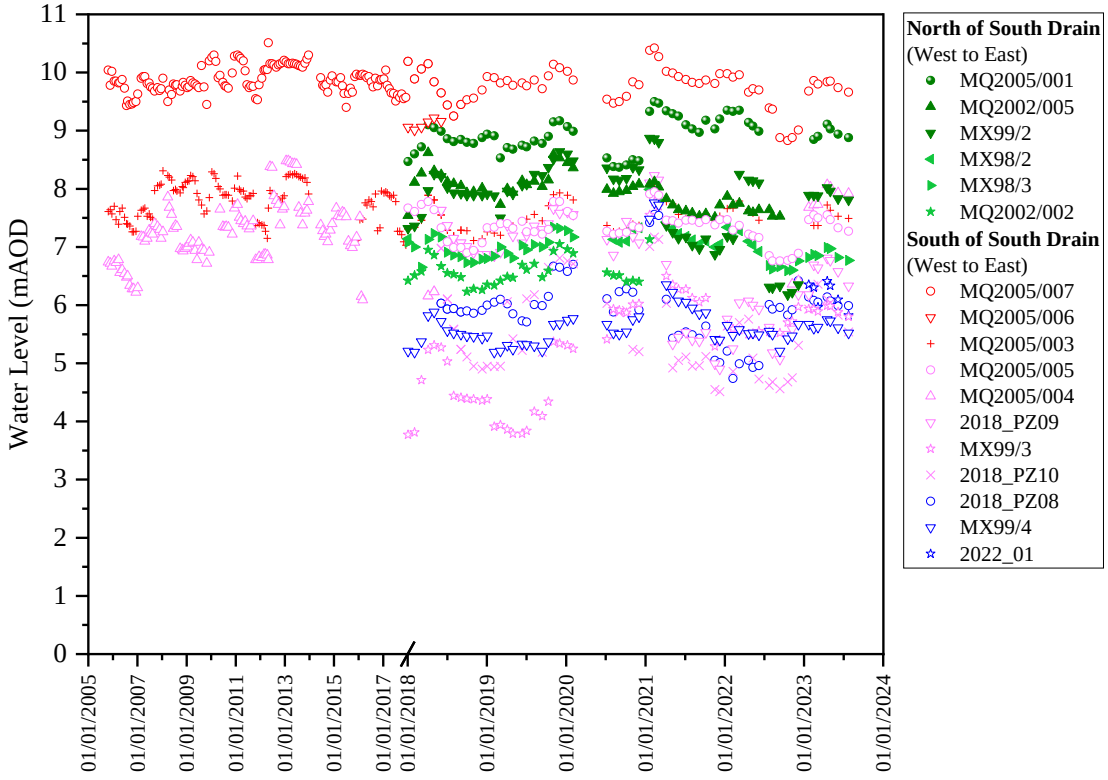


Figure 19 Groundwater Levels within the River Terrace Deposits



Superficial Groundwater

The Alluvium is only present across parts of the site and is expected to form a continuous unit with the underlying River Terrace Deposits. The River Terrace Deposits form an unconfined aquifer with groundwater flow expected to be primarily intergranular due to the nature of the strata. Whilst clay and silt bands are present within the River Terrace Deposits, these are expected to be discontinuous and unlikely to provide a significant barrier to groundwater flow through the unit.

The River Terrace Deposits are underlain by clay strata , namely the Kellaways Clay and Blisworth Clay which are expected to confine the underlying bedrock aquifers. Hence, the River Terrace Deposits are expected to form a hydrogeologically isolated groundwater body from that of the bedrock at the site. However, continuity could occur elsewhere where the over-stepping clay has been removed, or there is a direct outcrop, such as for the Blisworth Limestone to the southwest of the site.

The superficial groundwater system is expected to provide a baseflow contribution to nearby unlined drainage channels and surface watercourses. These watercourses are land management drainage schemes which are in continuity between the superficial groundwater system, the River Welland, the Maxey Cut (previously the North Drain), the South Drain and the Eastfield Drain. Groundwater flow is towards the east and the confluence between the Maxey Cut and the River Welland some 3km to the east of the site.

Groundwater levels fall from a seasonal high of 10.4mAOD upgradient of the site to a seasonal low of 3.8mAOD to the east. The natural groundwater system is some 0 to 5m below ground level, with the upper surface of the water system limited by the topographical fall of the land drainage channels. Groundwater levels have however been locally influenced by dewatering in order to exploit the underlying mineral.

In accordance with the expected direction of groundwater flow, monitoring points positioned to the south and west of the site are considered to be upgradient. Monitoring points positioned to the east of the site are expected to be downgradient under pre-quarrying and post development conditions. However, due to the de-watering activities taking place, all monitoring points are in the short term considered to be upgradient.

3.6 Hydrology

The Maxey Crossing Extension lies within the River Welland lower catchment area. There are also several artificial surface water flood alleviation channels near to the site which are managed by the Welland and Deepings IDB. The Site is located within the ‘Maxey unpumped’ catchment as defined by the IDB. The position of nearby surface water features is provided on Figure 20.

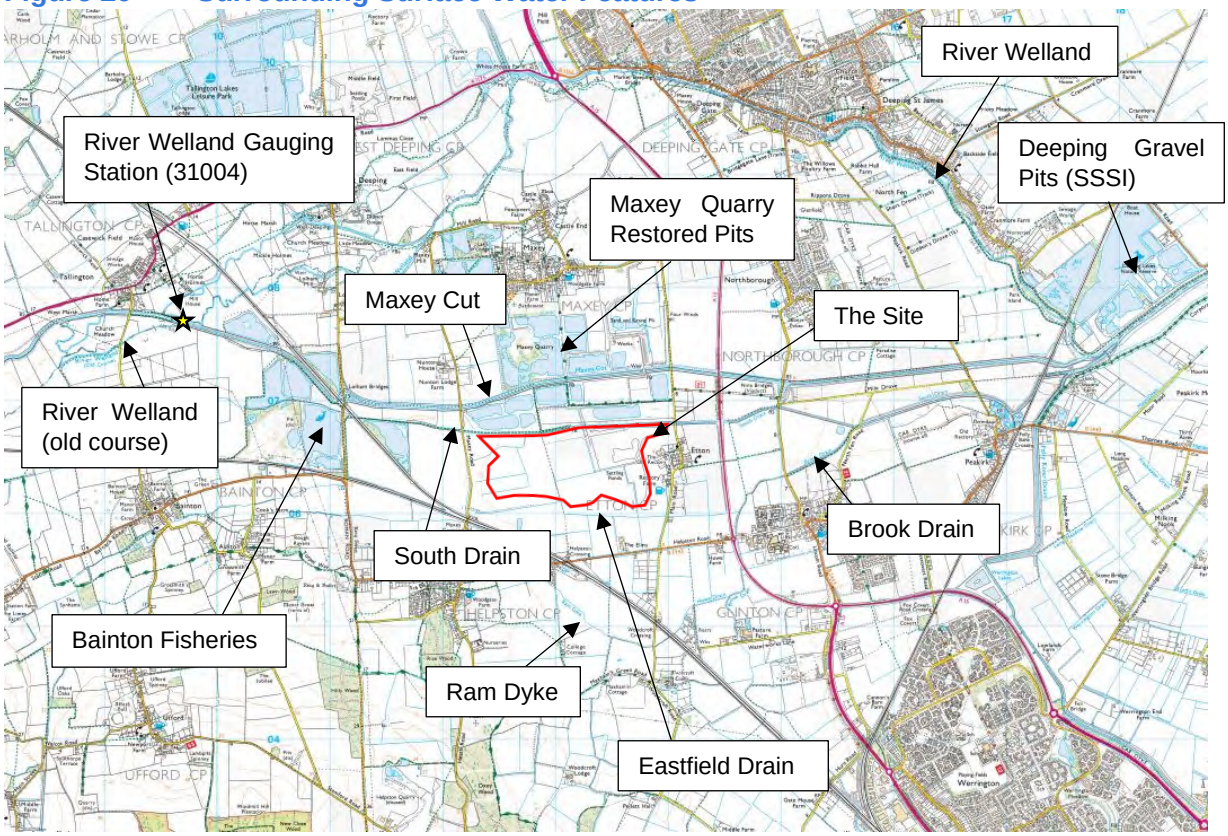
The River Welland is located to the north of the site and at its closest point is some 1.6km from the site boundary. The River Welland flows from west to east past the site. There are two channels associated with the River; the main course and the old channel. The main course flows along the Maxey Cut towards Peakirk. The Maxey Cut is the main flood alleviation channel in the area. This channel, formally referred to as the North Drain, is a manmade unlined channel which flows in an eastward direction some 420m north of the Site perimeter.

Water levels within the Maxey Cut are managed between 4.1maOD to 7.2mAOD at the two monitoring points (MCUS & MCDS,) in the wider quarry management monitoring programme illustrated as Figure 17.

Water levels within the Maxey Cut are consistent with the lower groundwater levels reported within the River Terrace Deposits as is expected for a land drainage management channel in continuity with groundwater.

A gauging station is present upstream of the Site at Tallington, where the River Welland is splits into the main course and old channel. Gauging station information[11] indicates that the River Welland has a mean average flow of 4.04m^3/s and a low flow (Q95) of 0.89m^3/s for the period 1967 to 2022. This is the lowest gauging point on this water system.

Figure 20 Surrounding Surface Water Features



The Brook Drain located within close vicinity of the site to the south forms a tributary of the River Welland. The Brook Drain flows from south-west to north-east past the western perimeter of Glinton village before joining the South Drain at NGR TF 15649 06765. The South Drain forms the northern perimeter of the site and flows west to east, joining the River Welland to the south of Deeping Gravel Pits SSSI along with the Folly River some 4km to the west of the Site.

The South Drain was originally constructed to provide additional drainage for near-surface groundwater. The South Drain bed is at an elevation of 6.4 to 9mAOD falling towards the east. However, the Maxey Cut was later constructed, and this created a deeper cutting. The shallower South Drain is therefore often dry during drier periods with groundwater primarily

[11] NRFA Station Data for 31004 - Welland at Tallington Total (ceh.ac.uk) accessed on 8th October 2023 at https://nrfa.ceh.ac.uk/data/station/meanflow/31004

channelled towards the Maxey Cut (Figure 21). Flow within the South Drain is ephemeral and primarily seasonal and often comprises of surface water run-off that has not seeped into ground, rather than a continuous groundwater baseflow. Basefow recharge occurs when groundwater elevations are above 6.4mAOD at SW1 (Figure 23), the downgradient monitoring point in the South Drain at the northeast corner of the site.

Figure 21 Ephemeral South Drain (June 2022)

Immediately to the south of the Maxey Crossing Extension is another manmade drainage channel running in a west to east direction known as the Eastfield Drain. This drain flows west to east to join the Brook Drain at the village of Glinton, ~1km to the east of the site.

A river-bed elevation for the Eastfield Drain of 9.25mAOD is recorded at monitoring location MCD1 in the west and 5.89mAOD at MCD2 in the east. Water level data (Figure 22) indicates that the drain is mainly dry with only a few centimetres of surface water observed on occasion. The Eastfield Drain is expected to be in continuity with the River Terrace Deposits.

Figure 22 Surface Water Elevation (Eastfield Drain)

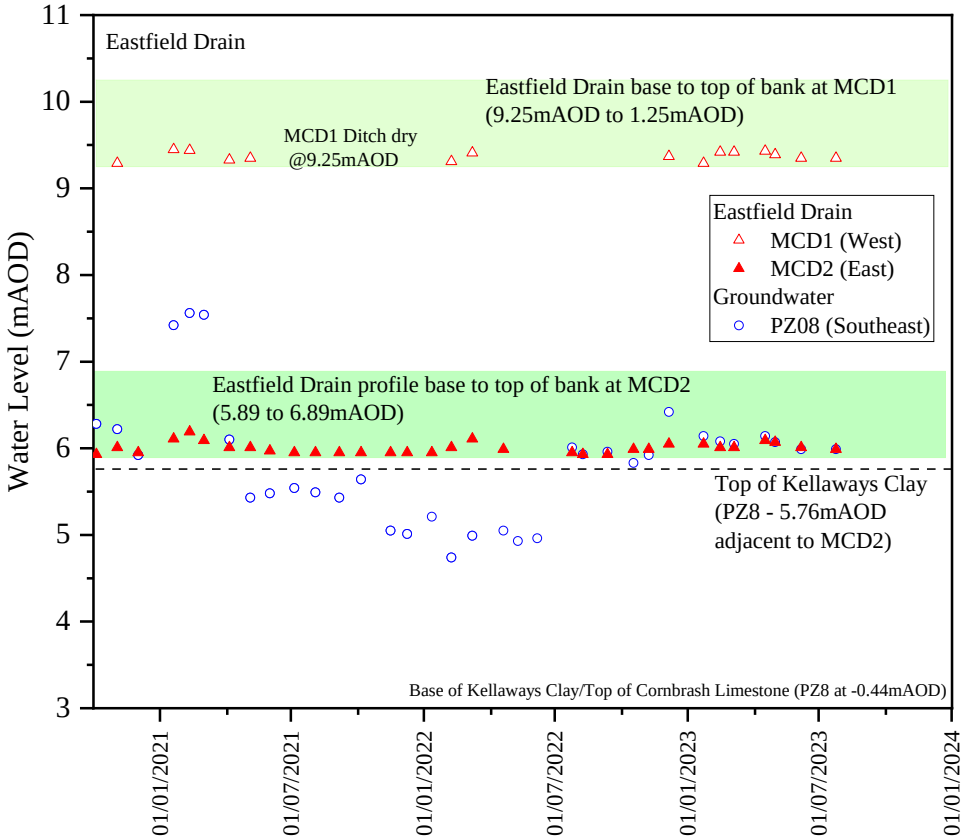
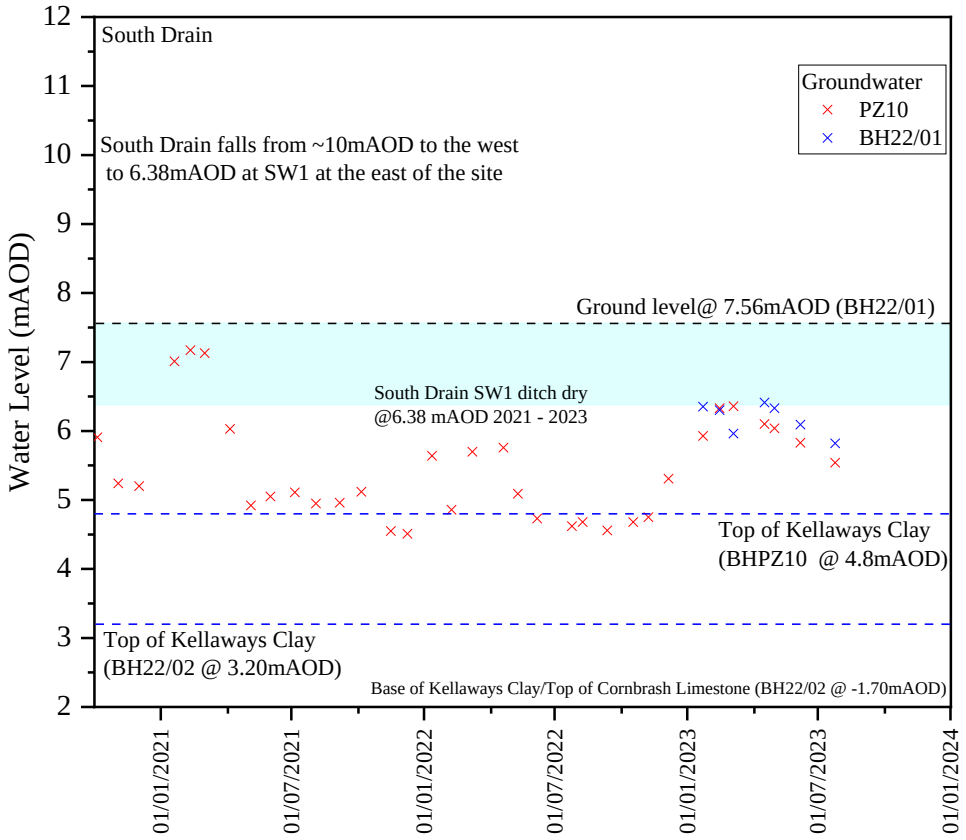


Figure 23 Surface Water Elevation (South Drain)



3.7 Flood Risk

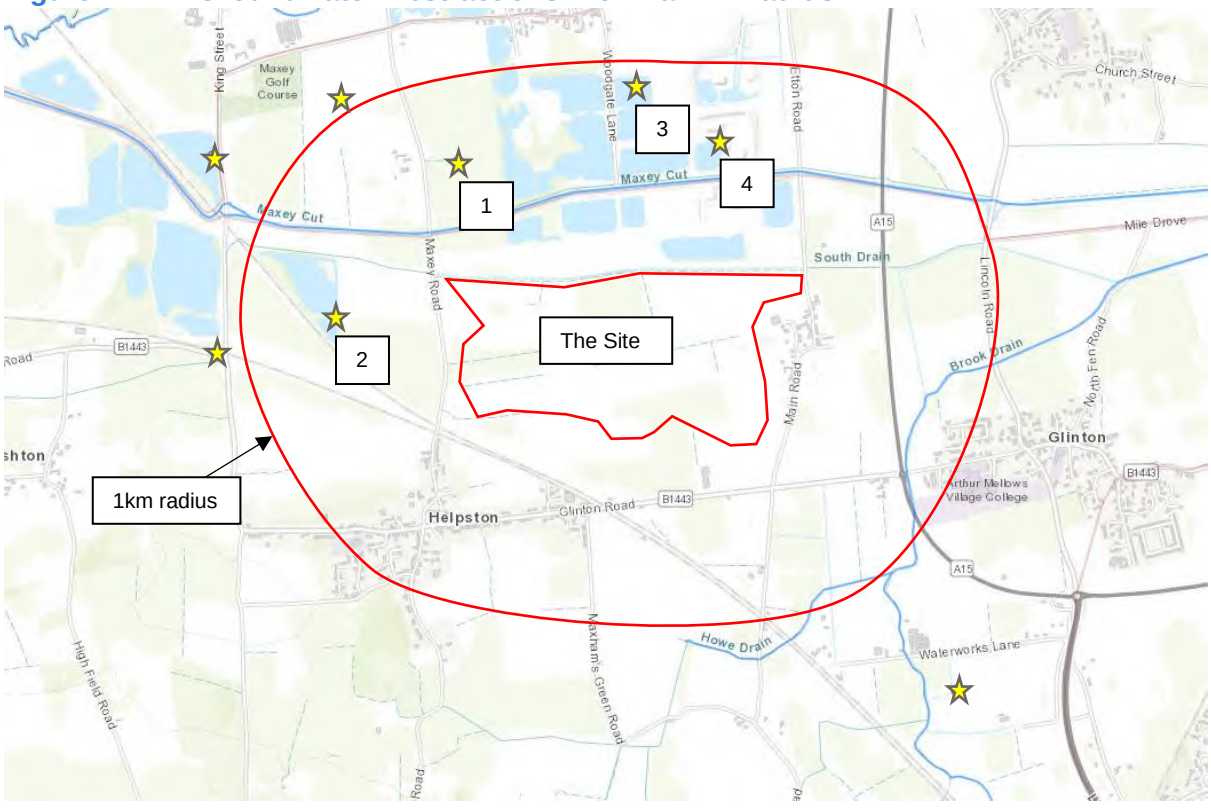
The Maxey Crossing Extension is largely located within a Flood Risk Zone 1. This is an area of land which has been assessed as having a less than 1 in 1,000 annual probability of flooding from rivers or the sea. The very edge of the north-eastern corner of the site (north-east of Phase 1) is within a Flood Risk Zone 2. This part of the site has however been quarried and the restored under a separate regime. Given that the remainder of the site (Phases 2 to 6) lies within a Flood Risk Zone 1, the risk of flooding from rivers and the sea is low.

A Flood Risk Assessment was completed and submitted as part of the Planning Application for the proposed Scheme[12]. This assessment concludes that the proposed scheme will not exacerbate off-site flood risk under the proposed design which incorporates a series of flood attenuation / wetland habitat ponds with outfall elevations at 8.5mAOD in the west, 8.0mAOD near the centre of the site, and 6.5mAOD towards the east of the site.

3.8 Abstractions

Groundwater and surface water abstractions within a 1km radius of the site are illustrated on Figure 24 and Figure 25 respectively and listed in Table 4 and Table 5.

Figure 24 Groundwater Abstractions within a 1km radius



[12] BCL Consultant Hydrogeologists Limited (2022) Maxey Quarry. Flood Risk Assessment. Version 4

Table 4 Groundwater Abstractions within a 1km radius

Figure Reference	Licence holder	Licence Number	Source	Use	Annual Quantity (m^3)
1	N A Garford & Sons	5/31/13/*G/0037C	Sand and gravels	Spray Irrigation	13,638
2	Frank Bros	5/31/13/*G/0021	Sand and gravels	Spray Irrigation	45,000
3	G Purllant & Sons	5/31/13/*G/0080	Sand and gravels	Spray Irrigation	9,900
4	Tarmac Trading Limited	5/31/13/*G/0088/R01	Sand and gravels	Process water	7,150

There are several groundwater abstractions positioned to the west of the site, whilst the other abstractions are north of the Maxey Cut. All of the groundwater abstraction licences positioned within a 1km radius of the site are therefore considered to be upgradient of the site. Due to their positions, these abstractions cannot be impacted by the proposed activity and are therefore not considered to be receptors.

There are several surface water abstractions to the north of the site which appear to be associated with Maxey Cut and nearby ponds. There are also several further abstractions just outside of the 1km radium associated with the Maxey Cut and Brook Drain. These surface water abstractions are downgradient of the proposed development and are therefore considered to be significant receptors.

Figure 25 Surface water Abstractions within a 1km radius

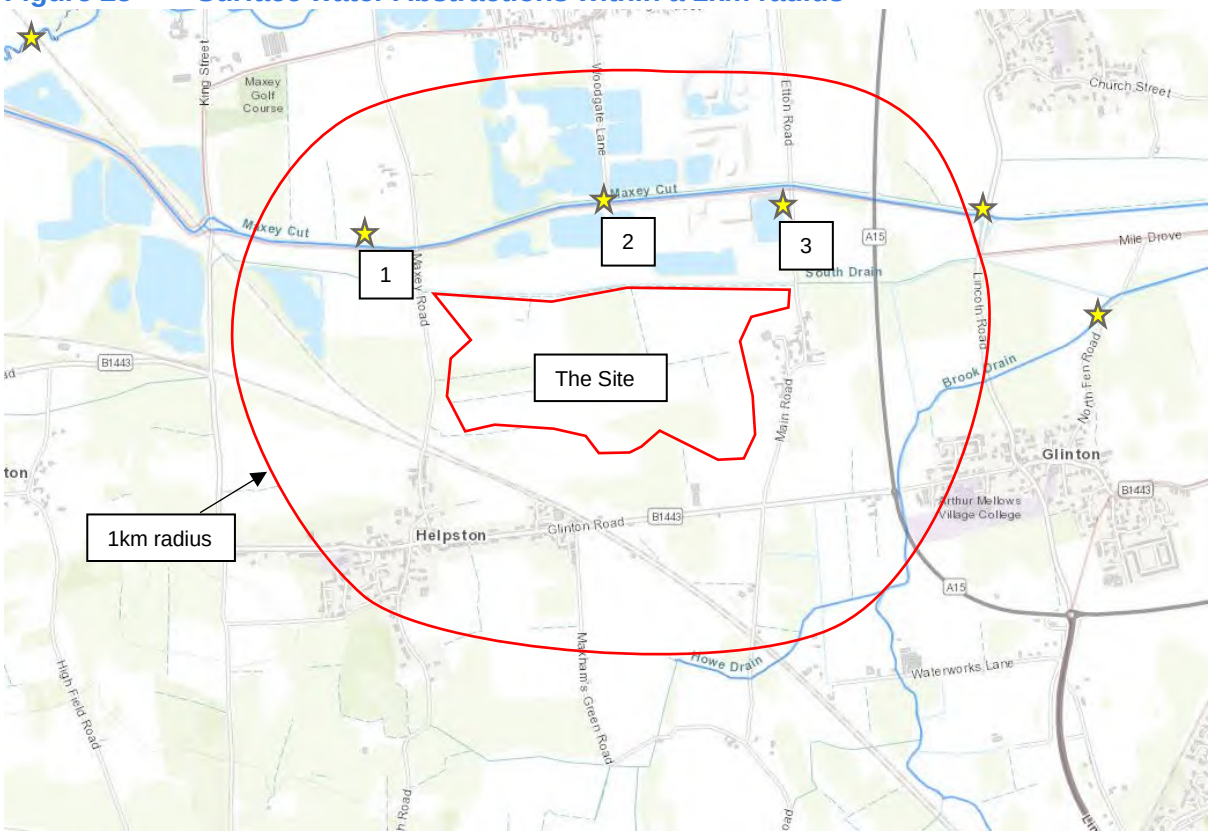


Table 5 Surface water Abstractions within a 1km radius

Figure Reference	Licence holder	Licence Number	Source	Use	Annual Quantity (m^3)
1	N A Garford & Sons	5/31/13/*S/0002	Surface water	Spray Irrigation	6,819
2	G Purllant & Sons	5/31/13/*S/0012B	Surface water	Spray Irrigation	9,100
3	Sharpe	5/31/13/*S/0074	Surface water	Spray Irrigation	25,000

3.9 Habitat Sites

A search of the Magic website (http://www.magic.gov.uk/) has identified no habitats/Natura 2000/European sites within a 3km radius of the site. However, there are several habitats sites located at distance from the site including:

- Deeping Gravel Pits Site of Scientific Interest (SSSI) – 3.5km to the north-east
- Langtoft Gravel Pits SSSI – 4.1km to the north
- Castor Hanglands SSSI and National Nature Reserve (NNR) – 3.8km to the south
- Barnack Hills and Holes SSSI, NNR and Special Area of Conservation (SAC) – 4.8m to the south-west

Although not a European habitat site, the Etton Maxey Nature Reserve lies approximately 1km north-east of the site. The reserve is managed by the Langdyke Countryside Trust in association with Tarmac and covers an area of 34 hectares. The Nature Reserve was previously a gravel pit and is being restored to a combination of pond, meadows and wild-flower abundant banks.

3.10 Other Receptors

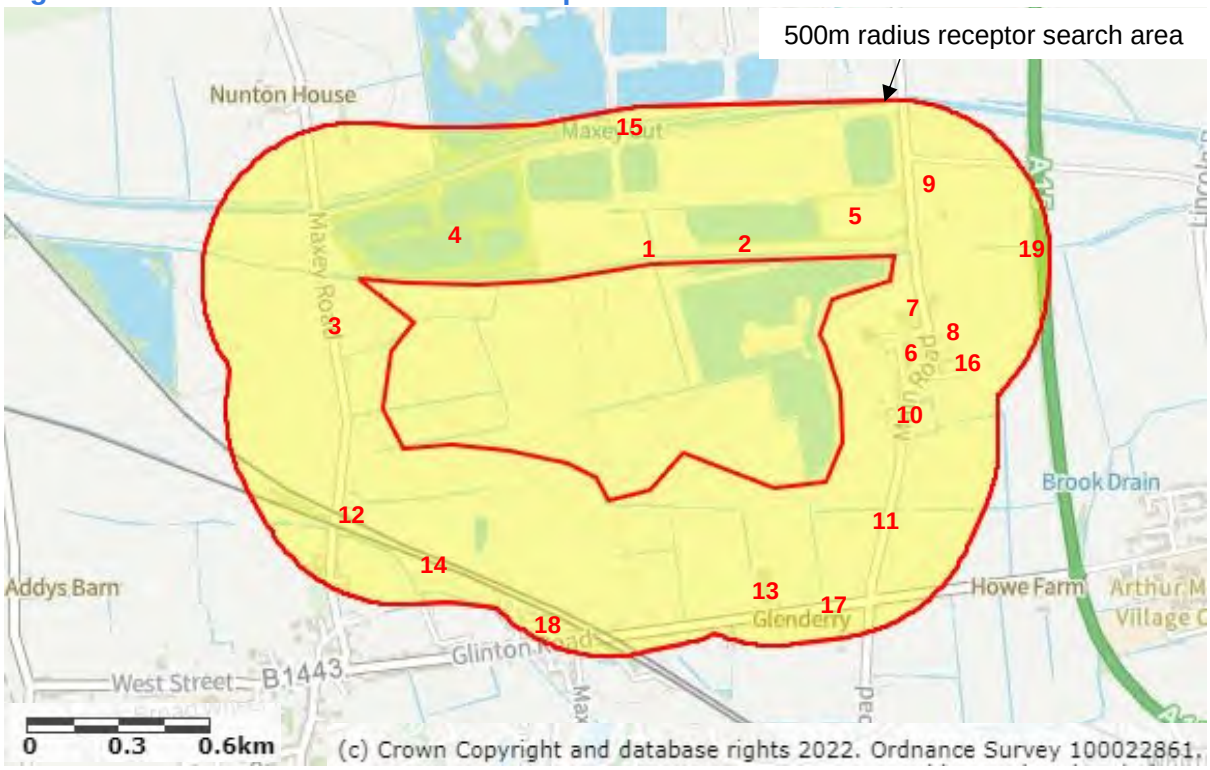
A number of buildings in the villages of Maxey and Etton located directly to the North and to the East of the site respectively, are Grade II listed and as such, these villages are designated Conservation Areas.

A review of sensitive receptors within 500m is listed in Table 6. The location of each sensitive receptor is indicated in Figure 26.

Table 6 Potentially Sensitive Receptors within 500m of Maxey Crossing Extension

Receptor No.	Receptor	Category	Direction from Site	Approximate distance from the site boundary (m)	Location Relative to Prevailing Wind Direction	Frequency Downwind (%)
1	South Drain	Watercourse	N	<10	Crosswind/ Downwind	11.78
2	Etton/Maxey Bridleways/Footpaths	Public Rights of Way	N	<10	All directions	11.78
3	Maxey Road	Public Highway	W	<10	Upwind	1.57
4	Restored Maxey Quarry Lakes	Surface water/ Ecological	NW	<10	Crosswind	7.16
5	Vergette Wood Meadow	Public/ Ecological	NE	<10	Downwind	13.62
6	Rectory Farm and adjacent properties	Agricultural/ Residential	E	170	Downwind	6.75
7	St Stephen's Church	Public	NE	170	Downwind	13.62
8	32 Main Road, Etton and adjacent properties	Residential	NE	180	Downwind	13.62
9	High Meadow, Langdyke	Public/ Ecological	NE	200	Downwind	13.62
10	Golden Pheasant Public House	Public	E	200	Crosswind	6.75
11	4 Main Road Etton and adjacent properties	Residential	SE	240	Crosswind	3.22
12	1 & 2 Crossing Cottages	Residential	SW	280	Upwind	3.63
13	The Elms Glinton Road	Residential	S	330	Crosswind	3.88
14	East Coast Mainline	Railway	SE	380	Upwind	3.22
15	Maxey Cut	Watercourse	N	420	All directions	11.78
16	The Orchard and adjacent properties	Residential	E	430	Upwind	6.75
17	B1443 Glinton Road	Public Highway	S	440	Crosswind	3.88
18	Budget Paper Supplies	Commercial	S	490	Upwind	3.88
19	A15 Main Road	Public Highway	E	490	Downwind	6.75

Figure 26 Location of Sensitive Receptors



The closest residential receptors to the site are:

1) Etton village positioned ~150 – 250m to the east;
2) Helpston village located ~250m to the south-west;
3) Elm Court situated ~320m to the south;
4) Nunton House positioned ~550m to the north-west;
5) Howe Farm located ~700m to the south-east;
6) Glinton village positioned ~930m to the south-east;.

3.11 Air Quality

The site is not located within an Air Quality Management Area (AQMA) for PM10, NO_X or SO_2[13].

4 Conceptual Site Model

A simple conceptual model can be constructed for the site, based on the relationship:

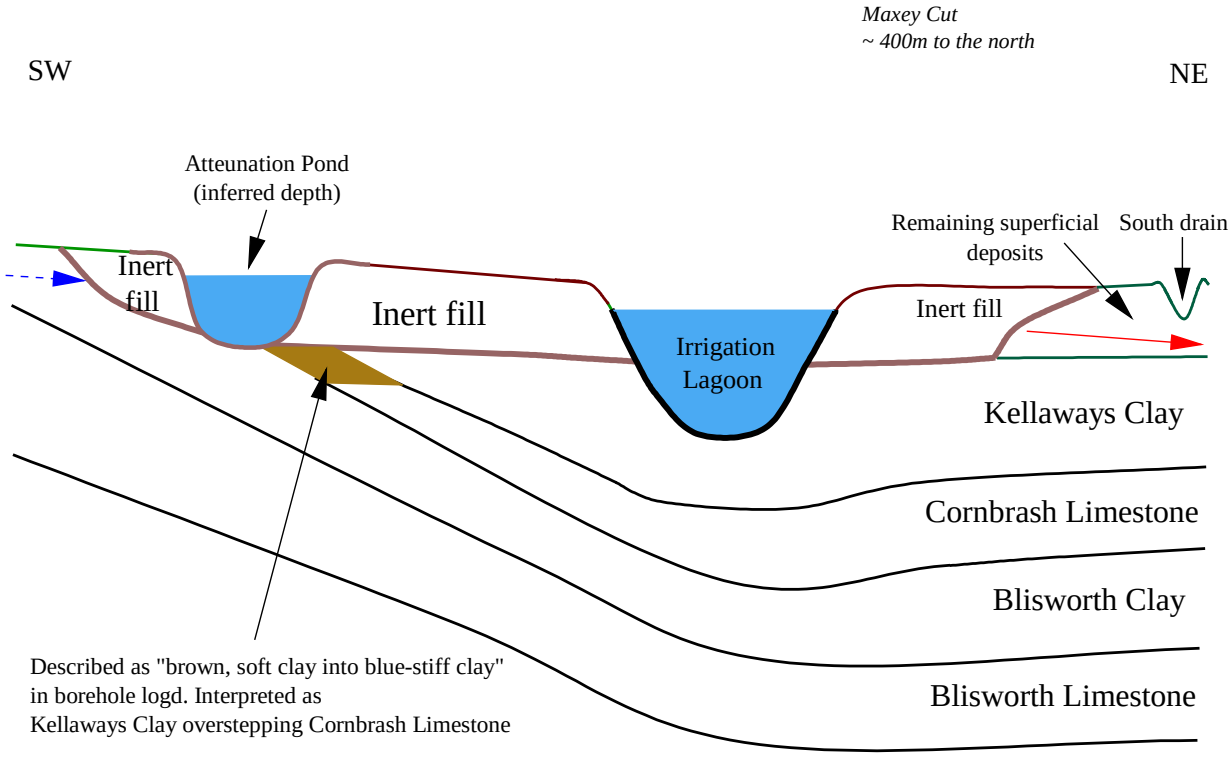
Source → Pathway → Receptor

[13] https://uk-air.defra.gov.uk/aqma/maps/

This relationship is shown schematically in Figure 27 in which:

- the source is the inert fill material;
- the pathway is the quarry fill material or remaining in-situ sand and gravel river terrace deposits downgradient of the site; and
- the receptor is groundwater (within the remaining sand and gravel deposits and bedrock aquifers) and surface water abstracted for agricultural use and localised surface water features including the South Drain and Maxey Cut and the River Welland.

Figure 27 Conceptual Site Model (Southwest to Northeast Section)



An attenuation layer will be placed using overburden material (soils and alluvium) stockpiled during the excavation and quarrying phase. This will be placed at ≤1x10^{-7}m/s, however, it is anticipated that a significantly lower hydraulic conductivity will be achieved.

The Site will be constructed to encourage surface water run-off to collect within the restored wetland lagoons and phase 1 irrigation lagoon which will remain as a permanent feature following restoration. Run-off flowing towards the northeast will reach the South Drain immediately north of the Site. Although in continuity with the groundwater within the superficial river terrace deposits, flow is predominantly below the level of the South Drain bed therefore flow will continue towards the Maxey Cut, a manmade alleviation tributary of the River Welland.

An *in-situ* geological barrier exists beneath the Site with the Blisworth Clay sub-cropping in the western area of the Site and the Kellaways Clay sub-cropping in the eastern area of the Site due to the easterly dip of the underlying strata. This low permeability strata extends across

the Site, acting as an aquitard preventing surface water ingress into the underlying Cornbrash and Blisworth Limestone aquifers, which are themselves low permeability units. Monitoring data demonstrates that groundwater in both limestone units is confined, consequently there is only a minimal vertical hydraulic gradient and thereby reduces the effective vertical hydraulic gradient acting on the limestones.

The infill for restoration is proposed to be predominantly comprised of clean excavation material. Due to the nature of the materials to be accepted at the site:

- Contamination is not expected; and,
- Soils / infill material waste types will be restricted, hence potentially contaminating compounds and substances will not be present at concentrations that may cause environmental harm.

5 Pollution Control Measures

5.1 Site Engineering

The site is to be restored using imported and site derived materials. All works will be undertaken behind amenity bunds intended to attenuate noise and dust caused by the works.

Placement of Material
The quarry void is to be dewatered prior to the placement of any materials. Site derived and imported materials will be placed and compacted before dewatering ceases and the lower section of the infilled profile will be hydrated to the recovered water table. The imported materials will be placed by vehicle at the site of deposit and then spread out to achieve the required thickness by dozer. The dozer will then compact the material.

Artificial Geological Barrier
The requirement for an inert landfill "liner" is an in-situ artificial geological barrier compacted to a hydraulic continuity of ≤1x10^{-7}m/s. This hydraulic conductivity can be readily achieved by a silty sand type material. The purpose of this lining system is as a chemical attenuation barrier, and not at hydraulic barrier. Consequently, a groundwater flux through the infill is to be expected, albeit that expectations are that once compacted, any throughflow will be minimal to negligible.

However, the accompanying Hydrogeological Risk Appraisal (Report K6036-ENV-R006) presents further details on the inter-relationship of the imported and site derived materials with the water system, including the recommendation of mitigation measures where required. As noted above, as only inert materials will be imported to the site, the potential for pollution is low and wholly impermeable physical barriers or capping layers are not required.

This artificial barrier will be achieved via placement of cohesive material derived from imported or site derived soil forming materials. The soils will consist of at least 10% passing a medium silt to clay particle size grading which can readily achieve a hydraulic conductivity of ≤1x10^{-7}m/s. However, the entirety of the imported fill is expected to meet and exceed this criteria (*i.e.* to compact to a lower hydraulic conductivity) and act as a geological barrier when placed.

Notwithstanding the above, the suitability of the material in the outer layers of the restored structure will be specifically selected for their purpose as a chemical attenuation barrier and visually inspected to ensure that it meets the criteria for an inert landfill artificial geological barrier, i.e. that:

- there are no particles greater than 125mm present within the soil used for the barrier layer;
- the material is not oozing excess water; and
- the materials shall be sufficiently plastic to allow the material to be rolled into a sausage of 3mm thickness or less without crumbling.

All site derived material (*i.e*. interburden and overburden) not suitable for mineral processing into a commercial sand or gravel product is expected to meet this criteria.

The material stockpile will be inspected before placement of waste soils at the edges of the site to identify suitability of the material. Any unsuitable materials shall be used to form the central core of the restoration profile, unless the materials on detailed on visual inspection do not meet the site's acceptance criteria, in which case they will be rejected and removed from site.

There is a preference to utilise site derived interburden at the lower extent of the profile. However, the exact quantity available will be dependent on the materials balance identified during operations.

Soil will be placed in thin layers of ~300mm and compacted via a bulldozer to achieve a hydraulic conductivity and barrier equivalent to $1x10^{-7}$m/s at 1m thickness. Compaction of the artificial geological barrier material / mineral liner shall be achieved using a bulldozer with a minimum incident loading of 3000kg/m^2.

All material will be placed dry into a dewatered area of the quarry. It should however be noted that the primary purpose of an inert landfill complaint geological barrier is to act as an attenuation barrier, hence some seepage is expected.

5.2 Landfill Gas Management and Monitoring Infrastructure

The waste types proposed for site restoration are by design inert and non-landfill gas producing. Consequently, landfill gas management is not required.

5.3 Surface Water Management and Monitoring Infrastructure

During Infilling
Surface water management is required during the dewatering phase of the mineral extraction and subsequent restoration works to allow construction to take place and placement of material "dry". This will be completed under transfer licence AN/031/0013/010.

Post-Restoration
The created restoration profile will be graded to allow rainfall/surface water runoff to drain to the restoration waterbodies created. Figure 28 illustrates the anticipated direction of surface water within the designed restoration scheme and how features within the planned restoration scheme will prevent excessive accumulations of water within the site.

Following capture of these waters within the created attenuation features, any subsequent off-site water discharges will flow to the Eastfield Drain located along the southern edge of the extension site[12]. A small area located in Phase 1 in the northeast of the site, has been

designed to drain directly into the South Drain as required by an agreed pre-development condition.

The Western Cut-Off and Southern Diversion Drain will be created along the southern boundary (if approved by the IDB) to maintain downstream continuity of the surface water drainage system (Figure 28). The installation of these drains will counteract the removal of drains currently existing within the site that will be lost during the excavation works.

The rest water level elevations of the restoration waterbodies are to approximately accord with pre-development groundwater elevations within the superficial deposits, though these features will be largely hydraulically isolated from groundwater by inert infill / native clay infill used to form them during restoration works.

Figure 28 Surface Water Drainage Plan (Extract from BCL June 2022 FRA)

5.4 Aftercare Management

There are no aftercare management requirements for the site once restored, outside of that stipulated in the Planning Permission. In accordance with condition 5 of Planning Permission 22/01203/MMFUL (Appendix A), the operator must complete the following:

> *"Prior to the working of each phase incorporating any ecological afteruse, a Landscape and Aftercare Strategy based on the "Detailed Phase Planting Plan" Drawing Number M032-00421-5 dated 26/10/2022, shall be submitted to and approved in writing by the Mineral Planning Authority. The scheme shall include, but is not limited to;*
>
> *i. the timing of planting*
> *ii. Provisions for replacement planting should any die, become diseased or be removed within 5 years, and*
> *iii. Details of aftercare measures for a period no less than 5 years*
>
> *The development shall thereafter be carried out in complete accordance with Cambridgeshire and Peterborough Minerals and Waste Local Plan Policy 19"*

In accordance with Condition 6 of the Planning Permission, an agricultural aftercare scheme is required, detailing the following prior to the commencement of the waste recovery activity:

> *"i). Measures for soil replacement, stone removal and under-drainage*
> *ii). The depth of sub and top soils to be placed*
> *iii). Remediation measures for any areas of differential settlement and;*
> *iv). Provision for a minimum of 5 years agricultural aftercare with an outline aftercare strategy"*

The site will be returned to a combination of agriculture, which will be managed by the tenant farmer. The remainder of the site will be returned to a grassland meadow and wetland areas which is intended to develop a natural habitat.

5.5 Technical Standards

The chemical attenuation / artificial geological barrier layer for the site will be placed in accordance with the methodology set out within this report.

Imported materials are to undergo a strict Waste Acceptance procedure, which includes knowledge of the source, source site historical activities and a Basic characterisation, which where appropriate will include laboratory test data. Contaminated materials, or suspected contaminated materials are to be excluded from the site. The Waste Acceptance procedures are outlined in the WRP.

The site will be managed in accordance with the Planning Permission to mitigate against excessive noise.

Technical standards are considered further within the accompanying Environmental Risk Assessment (14-K6036-ENV-R004) and Hydrogeological Risk Assessment (K6036-R06).

6 Monitoring

6.1 General

Monitoring is targeted towards the type and phase of operations, which can be considered as being of three types:

1. quarry operations
   - general amenity (noise, dust)
   - water resources (dewatering)
   - spillages
2. infilling (Recovery Permit operation)
   - materials acceptance
   - water quality
3. long term (until permit surrender)
   - water quality

- ground gas

The monitoring schedule is presented in the accompanying Hydrogeological Risk Appraisal (Report K6036-ENV-R006) with more detail provided in the sections below.

6.2 Groundwater

Groundwater level monitoring should continue on at least a quarterly basis until the development commences unless otherwise agreed with the Environment Agency at:

- MX05/07 to the southwest
- PZ01 to the southwest
- PZ03 to the southwest
- PZ02 & PZ08 to the southeast
- MX99/2
- PZ09 to the northwest
- PZ06 & PZ10 to the north
- BH22/01 to the northeast
- BH22/02 to the northeast
- BH22/03 to the east
- MX99-4 to the east

Baseline information has been collected at the site for groundwater level and quality monitoring and is discussed in the accompanying HRA. This monitoring programme is currently based on a quarterly programme, which his expected to be transposed into the longer term schedule under the permit.

Groundwater levels collected over time should be compared to the baseline data. This will allow seasonal variations in groundwater level to be distinguished from any quarry dewatering effects.

Recommendations have also been set out for quarterly groundwater quality monitoring in the accompanying Hydrogeological Risk Appraisal (Report K6036-ENV-R006).

6.3 Surface Water

It is proposed to monitor water levels during the operational period within the following surface water bodies:

- Eastfield Drain (upstream and downstream)
- South Drain (upstream and downstream)

- Outfalls from the site into the drains

Recommendations have also been set out for quarterly surface water quality monitoring in the accompanying Hydrogeological Risk Appraisal (Report K6036-ENV-R006).

Monitoring will also be undertaken in accordance with any issued discharge consents.

6.4 Noise

Noise monitoring will be conducted in accordance with the "Scheme of Noise Management and Monitoring as at 6 February 2024" to ensure site operations adhere to Condition 8 of Planning Permission 22/01203/MMFUL. The condition stipulates that the following free field Equivalent Continuous Noise Levels, LAeq T should not be exceeded at the listed local receptors:

Four Winds	55dB LAeq 1h(free field)
Dwellings at Etton	50dB LAeq 1h (free field)
Nunton House Farm	47dB LAeq 1h (free field)
Level Crossing Helpston	49dB LAeq 1h (free field)
Maxey Crossing	48dB LAeq 1h (free field)
Main Street Etton	47dB LAeq 1h (free field)

The Noise Management and Monitoring Scheme is appended to this report as Appendix B.

7 Site Condition Report

7.1 Requirements of a Site Condition Report

As the entirety of the area within the environmental permit boundary is subject to quarrying followed by the permanent deposition of waste, it is considered that a Site Condition Report (SCR) is not required, as all existing ground materials will be removed.

Notwithstanding the above, Tarmac will continue to implement management measures throughout to ensure that any likelihood of contamination to land, surface water and groundwater will be reduced during the operational process on Site.

A copy of the contents of the EMS is attached.

Appendix A – Planning Permission 22/01203/MMFUL

Telephone: 01733 453410 (9am - 1pm Mon, Wed, Fri)
Email: planningcontrol@peterborough.gov.uk
Case Officer: Mr A O Jones
Our Ref: 22/01203/MMFUL
Your Ref:

PETERBOROUGH CITY COUNCIL

Planning Services
Sand Martin House
Bittern Way
Fletton Quays
Peterborough
PE2 8TY

DX 12310 Peterborough 1
01733 747474

Mr Daniel Walker
David L Walker Ltd
89 Station Road
Eckington
Sheffield
S21 4FH

26 March 2024

Dear Mr Walker

Application for Planning Permission

Proposal: Importation of 1.325 million cubic metres of inert materials, utilising existing ancillary facilities and haul routes, for restoration to agriculture, water storage and biodiversity enhancements including provision of a viewing area

Site address: Maxey Quarry High Street Maxey Peterborough

Your client: Tarmac Trading Ltd

Further in the above matter, please find enclosed our formal decision notice relating to your client's application for planning permission. Please be sure to remind your client that the scheme should be carried out in line with the approved plans. This will avoid the need for any enforcement action.

Making changes to the approved plans
In the event that you wish to change your proposal, please contact your case officer who will advise you on whether the change can be dealt with as a "non-material" or "material" amendment. In either case you will have to complete a form and provide fresh drawings.

Complying with the approved plans
We would like to draw your attention to 'precedent conditions':- these are conditions which require you to either do certain works or submit something for approval prior to starting any work. These conditions must be complied with. Please check your Decision Notice carefully and familiarise yourself with its requirements, allowing plenty of time for the conditions to be complied with before work commences. If these conditions are overlooked you may invalidate your consent, risk enforcement action being taken and may need to submit a further application.

In addition you should be aware that failing to build in accordance with the approved plans or properly discharging conditions often causes problems and delays if selling the property.

Complying with conditions
Please read the conditions attached to this permission carefully. Some conditions may require you to submit more information to us before you can start work.

If further information is required you will need to submit a separate application together with the required supporting documentation. The relevant application form (PF27) for discharge of

conditions can be downloaded from our application One Stop Shop at www.peterborough.gov.uk/planningoss

Please ensure that the required details are submitted in duplicate and if you are applying to discharge more than one condition that the supporting information is clearly separated and referenced to each individual condition.

There is a fee required with an application to discharge planning conditions, however this is chargeable per application rather than per condition, please ensure that this is enclosed as part of your application. For further information please visit our application One Stop Shop or contact Planning Services on 01733 453410.

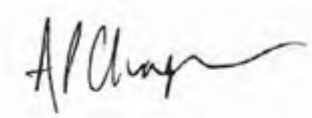
Appeals against conditions

You should also be aware that the applicant has the right to appeal against any conditions attached to this Notice, please see https://www.gov.uk/government/organisations/planning-inspectorate for details. If you are concerned about any condition you should contact the case officer in the first instance for advice.

Your feedback on our service is welcomed

We are interested in finding out what you thought of our service and how we might make it better. To give us feedback please go to http://consult.peterborough.gov.uk/portal/pscss.

Yours sincerely



Adrian Chapman
Executive Director: Place and Economy

PETERBOROUGH CITY COUNCIL

Planning Services
Sand Martin House
Bittern Way
Fletton Quays
Peterborough
PE2 8TY

DX 12310 Peterborough 1
01733 747474

NOTICE OF PLANNING PERMISSION

Town and Country Planning Act 1990

GRANTED

Reference	22/01203/MMFUL
Proposal	Importation of 1.325 million cubic metres of inert materials, utilising existing ancillary facilities and haul routes, for restoration to agriculture, water storage and biodiversity enhancements including provision of a viewing area
At	Maxey Quarry High Street Maxey Peterborough
Applicant	Tarmac Trading Ltd
Date valid	23 August 2022

Environmental Impact Assessment Regulations 2017

The NPPF states that there is a presumption in favour of sustainable development - in terms of decision taking this means approving development proposals that accord with the development plan without delay.

Subject to the imposition of the attached conditions, the proposal is acceptable having been assessed in light of all material considerations including weighing against relevant policies of the development plan.

The material considerations for the proposed amendments centres on the issues of traffic and transport, intensification of use and associated noise, dust and Public Rights of Way implications.

The conditions outlined below offer appropriate mitigation in line with Cambridgeshire and Peterborough Minerals and Waste Local Plan Polices 1, 3, 4, 6, 17, 18, 19, 20, 21, 22, 23, 24 and 25.

Conditions

Permission is granted subject to the following conditions and reasons:

C 1 The development hereby permitted shall be begun before the expiration of three years from the date of this permission.

Reason: In accordance with Section 91 of the Town and Country Planning Act 1990 (as amended).

C 2 The importation of inert materials for use in the restoration of Phases 2-6 hereby permitted shall be carried out in complete accordance with the following approved plans;

- Location Plan, Drawing Number M032-00421-1, dated 27/07/2022
- Site Plan, Drawing Number M032-00421-2, dated 27/07/2022
- Phasing Plan, Drawing Number M032-00421-03, dated 27/07/2022
- Concept Restoration Plan, Drawing Number M032-00421-4A, dated 22/08/2022
- Detailed Phase Planting Plan, Drawing Number M032-00421-5 dated 26/10/2022
- Phase 1 & 2 Detailed Phase Planting Plan, Drawing Number M032-00421-6 dated 26/10/2022
- Phase 3 & 4 Detailed Phase Planting Plan, Drawing Number M032-00421-7 dated 26/10/2022
- Phase 5 & 6 Detailed Phase Planting Plan, Drawing Number M032-00421-8 dated 26/10/2022

Reason: To clarify what is hereby approved.

C 3 The importation of 1,325,000 cubic metres of inert materials hereby approved shall cease no more than 15 years after it has commenced.

Reason: In the interests of protecting surrounding uses in accordance with the Cambridgeshire and Peterborough Minerals and Waste Minerals and Waste Local Plan Policy.

C 4 Prior to the commencement of any top or sub soil stripping in each phase (or part phase) a scheme of soil handling and movement shall be submitted to and approved in writing by the Mineral Planning Authority. The scheme shall include, but is not limited to;

i) soil handling techniques (e.g. Defra's Good Practice guide for Handling Soil, moving soils when in a dry and friable condition, avoiding soil handling during and shortly after significant rainfall, not handling and moving soils between November and March);
ii) identifying the origin, intermediate and final locations of all soils (top and sub) for use in agricultural restoration, as defined by soil units, together with details balancing the quantities, depths and areas involved;
iii) bund formation and management

The development shall thereafter be carried out in complete accordance with the approved scheme.

Reason: In the interest of securing the sustainable use of soils in accordance with Cambridgeshire and Peterborough Minerals and Waste Minerals and Waste Local Plan Policy 24.

C 5 Prior to the working of each phase incorporating any ecological afteruse, a Landscape and Aftercare Strategy based on the "Detailed Phase Planting Plan", Drawing Number M032-00421-5 dated 26/10/2022, and the relevant "Detailed Phase Planting Plan", shall be

submitted to and approved in writing by the Mineral Planning Authority. The scheme shall include, but is not limited to;

i) the timing of planting
ii) provisions for replacement planting should any die, become diseased or be removed within 5 years, and
i11) details of aftercare measures for a period no less than 5 years

The development shall thereafter be carried out in complete accordance with the approved Landscape and Aftercare Strategy, other than such minor variations as may be required in the annual detailed programmes for the forthcoming year which have been approved by the Mineral Planning Authority.

Reason: To secure appropriate and beneficial afteruse in accordance with Cambridgeshire and Peterborough Minerals and Waste Local Plan Policy 19.

C 6 Prior to the commencement of development, an agricultural aftercare scheme shall be submitted to and approved in writing by the Mineral Planning Authority. the scheme shall include, but is not limited to;

i) measures for soil replacement, stone removal and under-drainage
ii) the depth of sub and top soils to be placed
iii) remediation measures for any areas of differential settlement
iv) provision for a minimum of 5 years agricultural aftercare with an outline aftercare strategy

Soil replacement and agricultural aftercare shall thereafter be carried out in complete accordance with the approved scheme other than such minor variations as may be required in the annual detailed programmes for the forthcoming year which have been approved by the Mineral Planning Authority.

Reason: In the interest of securing the sustainable use of soils in accordance with Cambridgeshire and Peterborough Minerals and Waste Local Plan Policies 19 and 24.

C 7 The importation, deposition and engineering of imported materials within the site shall only be undertaken between the hours of;

0700 - 1900 hours Mondays to Fridays
0700 - 1300 hours Saturdays
and at no other times including Sundays, Public or Bank Holidays.

Reason: In order to minimise the impact on the surrounding locality and protect surrounding uses in accordance with Cambridgeshire and Peterborough Minerals and Waste Local Plan Policy 18.

C 8 The free field Equivalent Continuous Noise Level, LAeq T, at the noise sensitive premises nearest the site, due to operations in the site, shall not exceed the relevant criterion limit specified below at each nominated dwelling:

Four Winds	55 dB LAeq 1h (free field)
Dwellings at Etton	50 dB LAeq 1h (free field)
Nunton House Farm	47 dB LAeq 1h (free field)
Level Crossing Helpston	49 dB LAeq 1h (free field)
Maxey Crossing	48 dB LAeq 1h (free field)
Main Street Etton	47 dB LAeq 1h (free field)

Reason: In order to protect the amenity of nearby residential occupiers, and in accordance with Cambridgeshire and Peterborough Minerals and Waste Local Plan Policy 18.

C 9 Developmnet shall be undertaken in complete accordance with the 'Scheme of Noise Management and Monitoring as at 6 February 2024'.

Reason: In order to protect the amenity of adjacent occupiers, and in accordance Cambridgeshire and Peterborough Minerals and Waste Local Plan Policy 18.

C10 The development shall be undertaken in complete accordance with the "Submission to discharge condition 10" (dust management and monitoring) Rev A.

Reason: In order to protect the amenity of adjacent occupiers and the environment in accordance Cambridgeshire and Peterborough Minerals and Waste Local Plan Policy 18.

C11 No floodlighting or site lighting shall be installed or operated outside of the processing plant site.

Reason: In order to protect the amenity of adjacent occupiers and highway users from light pollution in accordance with Cambridgeshire and Peterborough Minerals and Waste Local Plan Policy 18.

C12 The provision of a wheelwash and maintenance of the haul road shall be in accordance with the "Submission to discharge condition 12" document, Rev A, with the wheelwash retained for the duration of the importation of materials to the site.

Reason: In the interests of highway safety and in accordance with Cambridgeshire and Peterborough Minerals and Waste Local Plan Policy 23.

C13 All mobile plant used on site must be equipped with, and may only use, "broadband" type reverse alarms.

Reason: To ensure that operations are carried out in a manner which will safeguard the amenity of the area and minimise disturbance to adjacent land users in accordance with Cambridgeshire and Peterborough Minerals and Waste Core Local Plan Policy 18.

C14 The development hereby approved shall be carried out in complete accordance with the "Maxey Quarry Scheme of Rights of Way Crossings".

Reason: In order to safeguard the amenity of users of Public Rights of Way in accordance with Cambridgeshire and Peterborough Minerals and Waste Core Strategy policy CS37.

C15 No more material shall be imported than will allow for a minimum soil profile of 300mm of topsoil, 300mm of upper subsoil and 600mm of lower subsoil of original site won soils to be placed on the infilled material such that the finished profile fits accordingly with the approved restoration levels.

Reason: To ensure the provision of a suitable restoration platform and the sustainable use of soils in accordance with Cambridgeshire and Peterborough Minerals and Waste Local Plan Policies 4 and 19.

C16 Plant and vehicle movements shall be restricted to clearly defined haul routes or to the overburden / imported inert materials surface and shall not cross areas of topsoil or subsoil except for the express purpose of soil stripping or replacement operations.

Reason: To minimise dust and to ensure the sustainable use of soils in accordance with Cambridgeshire and Peterborough Minerals and Waste Local Plan Policy 28.

C17 For temporary operations essential for site preparation work and restoration such as soil stripping and replacement, bund formation and removal, the free field noise level due to operations at the nearest point to the locations identified in condition 8, shall not exceed 70 dB LAeq, 1 hour (free field). The Mineral Planning Authority shall be notified between 7 and 21 days in advance of essential temporary operations. Temporary operations shall not take place for more than eight weeks in any calendar year.

Reason: In the interests of the amenity of the nearest residential occupiers in accordance with Cambridgeshire and Peterborough Minerals and Waste Local Plan Policy 18.

C18 Notwithstanding the provisions of the Town and Country Planning (General permitted Development) Order 1995 (or any other statutory instrument revoking and re-enacting that order) no fixed or mobile plant, machinery or buildings connected with the development shall be erected or placed on site without the express permission of the Mineral Planning Authority.

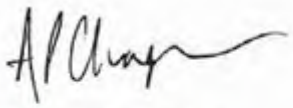
Reason: For the avoidance of doubt of the extent of the development and operations hereby permitted, to safeguard the amenity of the area, minimise disturbance to adjacent land users and to minimise the impact on the highway network of any additional vehicles that may seek to utilise such plant or structures, in accordance with Cambridgeshire and Peterborough Minerals and Waste Local Plan Policies 19 and 23.

Statement of compliance

The proposal as submitted was not in accordance with local and national planning policy. The local planning authority have worked with the applicant in a positive and proactive manner based on seeking solutions to problems arising in relation to dealing with the planning application. Amendments were discussed and agreed with the applicant to bring the proposal into compliance with policy, and the application can therefore be approved in accordance with Paragraph 38 of the National Planning Policy Framework (2023).

Authorisation

Authorised by:



Adrian Chapman
Executive Director: Place and Economy

Date the decision was made: 26 March 2024

Informatives

General Notes

1.1 Planning permission does not constitute approval under the Building Regulations or Bye-law approval relating to new streets and buildings.

1.2 It is an offence under Section 171 of the Highways Act 1980 to temporarily deposit building materials, rubbish or other things on the public highway or make a temporary excavation on it without the written consent of the Highway Authority. The Highway Authority may give its consent subject to such conditions as it thinks fit.

1.3 The applicant is reminded that under the Wildlife and Countryside Act 1981(Section 1) (as amended) it is an offence to take, damage or destroy the nest of any wild bird while that nest is in use or being built. Trees and scrub are likely to contain nesting birds between 1 March and 31 August. Trees within the application site and/or in close proximity to the development should be assumed to contain nesting birds between the above dates unless a survey has shown it is absolutely certain that nesting birds are not present.

Appeals to the Secretary of State

1 The applicant has a right to appeal to the Secretary of State against any conditions of this planning permission, under Section 78 of the Town & Country Planning Act 1990.

2 If you want to appeal against your local planning authority's decision then you must do so within **6 months** of the date of this notice.

3 Appeals can be made online at: https://www.gov.uk/planning-inspectorate.
If you are unable to access the online appeal form, please contact the Planning Inspectorate to obtain a paper copy of the appeal form on
tel: 0303 444 5000.

4 The Secretary of State can allow a longer period for giving notice of an appeal but will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.

5 The Secretary of State need not consider an appeal if it seems to the Secretary of State that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

6 If you intend to submit an appeal that you would like examined by inquiry then you must notify the Local Planning Authority and Planning Inspectorate (inquiryappeals@planninginspectorate.gov.uk) at least 10 days before submitting the appeal. Further details are on GOV.UK.

Purchase Notices

If the Local Planning Authority or the Secretary of State grants permission subject to conditions the owner may claim that he/she can neither put the land to a reasonably beneficial use in its existing state nor render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted. In these circumstances the owner may serve a purchase notice on the Council to purchase his interest in the land in accordance with the provisions of Part VI of the Town and Country Planning Act 1990.

Starting Work too soon

If you start work on this development before complying with conditions that require to be met before work starts, your action has made this planning permission invalid. A fresh planning application will then be required, with the associated cost and delay.

Third Party Rights to challenge a planning decision

Currently there are no third party rights of appeal through the planning system against a decision of a Local Planning Authority. Therefore, if you have concerns about a planning application and permission is granted, you cannot appeal that decision.

Any challenge under current legislation would have to be made outside the planning system through a process called Judicial Review.

A 'claim for judicial review' includes a claim to review the lawfulness of a decision, action or failure to act in relation to the exercise of a public function, in this case, a planning decision. The court's permission to proceed is required in a claim for Judicial Review. A claim for Judicial Review is dealt with by the Administrative Court and if leave to judicially review a planning decision is granted, the Judicial Review will be decided by a judge at the High Court.

An application to Judicial Review a decision must be made within **6 weeks** of the decision about which you have a grievance being made. For further information on judicial review and the contact details for the Administrative Courts, please go to http://www.justice.gov.uk/

Appendix B - Tarmac Maxey Scheme of Noise Management and Monitoring – Whole of Maxey Crossing as at 6 February 2024

Tarmac Maxey Quarry – Importation operations in Maxey Crossing Extension

Scheme of Noise Management and Monitoring as at 6 February 2024

The Scheme of Noise Management and Monitoring dated 25 November 2010 for the ongoing mineral extraction, processing and restoration operations in the Maxey Crossing Extension remains in place.

The importation operations in Phase 1 were subject to control via the scheme approved under condition C6 of consent ref 20/01545/FUL.

This scheme is provided to reaffirm controls to be applied under consent ref 22/01203/MMFUL.

Both schemes required monitoring at the premises below

No.	Dwelling	Description of Noise Monitoring Location
1	Four Winds	At front of dwelling on lawn by pond, subject to access, or at the field edge south of the dwelling
2	Dwellings at Etton	Apple Acre, up track towards fields, by last dwelling and south east of large agricultural building
3	Nunton House Farm	Opposite side of local road, by footpath sign
4	Maxey Crossing	~ 50 metres north of the dwellings, on a field track ~10 metres to the edge of the local road
5	Helpston Crossing	At the side of No. 86 Glinton Road, on a field track ~10 metres to the edge of the B1443
6	Main Road Etton	Hardstanding area in field, at side of the road and footpath, south of the village, ~ 50 metres south of isolated dwellings

Table 1 – Summary Details of Monitoring Locations

The monitoring locations are shown on the Noise Monitoring Locations Plan provided at Attachment A.

The locations were selected as being representative of the nearest dwellings in each direction to the existing quarry site and the Maxey Crossing Extension area for the ongoing noise monitoring of mineral extraction and importation activities at the site.

If access is not available to any of the proposed monitoring locations, alternative locations will be selected for monitoring and detailed in the noise monitoring report.

Normal day to day activities will vary little once the work has commenced with the rate of infilling and the actual infilling location being the principal causes of variation over the course of the permitted period for the infilling operations.

Accordingly, it is proposed that the operating company shall monitor noise levels at the six defined properties twice monitoring in the first year of operations in each phase, when site equipment is operating normally.

It is expected that the site noise monitoring of the infilling operations could be undertaken at the same time as the ongoing site noise monitoring of the ongoing mineral extraction, processing and restoration operations in the Maxey Crossing Extension, if appropriate.

The measurements shall be carried out in accordance with the provisions of BS4142:2014 + A1: 2019 for the selection of equipment and calibration procedure. The measurements shall be of 15 minutes duration at each location and the information to be reported shall be the $L_{A90,T,\text{ free field}}$ and $L_{Aeq,T,\text{ free field}}$ noise levels, the date and time of the survey. The weather conditions shall be adequately described and the audible events contributing to the measured levels shall be noted. In particular, the causes of site generated noise shall be noted together with their approximate location.

Where practicable, extraneous noise should be paused out of the survey but where this proves impossible a note shall be made of the best estimate of noise from the site. Where extraneous noise dominates the overall noise level, a clear statement to that effect shall be included in the report. Where extraneous noise is below the site noise contribution, but is considered to be affecting the result, a correction shall be made to the site noise to allow for the extraneous portion.

If extraneous noise intrudes on the survey and cannot be paused out or corrected out, consideration shall be given to moving closer to the site boundary. It may not be possible to carry out noise monitoring at some of the proposed locations, for example because of unusual local activity such as roadworks. In these cases a correction shall be made for the difference in distance to the survey point and the dwelling in accordance with the calculation method in BS5228:-1: 2009 + A1: 2014 Part 1:Noise.

Where overall noise exceeds the site noise limits in Condition C 5, but it is apparent that site noise is not responsible, a clear statement to that effect shall be made. If it appears that site noise is itself exceeding the relevant noise limit at any dwelling, a full 1 hour sample shall be undertaken.

As well as the noise measurement results and corresponding dates and times, each noise monitoring report shall include details of instrumentation and calibration and weather conditions as set out in sub sections d), e), f) and g) of Section 10 “Information to be reported” of BS4142:2014 + A1: 2019. Copies of the monitoring reports shall be kept on site for five years from the monitoring date. The operator shall provide the MPA with particulars of the noise monitoring within 14 days of a written request.

If a complaint about noise from the site is received by the MPA or environmental health development and if considered justified, the relevant authority can seek an explanation from the operator for the cause of the complaint. If the cause was a one-off event that would not be replicated then no further action would be taken. However, if it is likely that the event giving rise to the complaint would be repeated then additional noise monitoring could be requested. This requirement could be satisfied by bringing forward the routine noise monitoring exercise or by additional monitoring.

If the results of the noise monitoring are such that the $L_{Aeq,\text{ 1 hour, free field}}$ site noise limits are exceeded, the operator shall notify the planning authority as soon as practicable within seven working days of the date of the noise monitoring. The operator shall then propose a scheme of mitigation measures to reduce site noise levels,

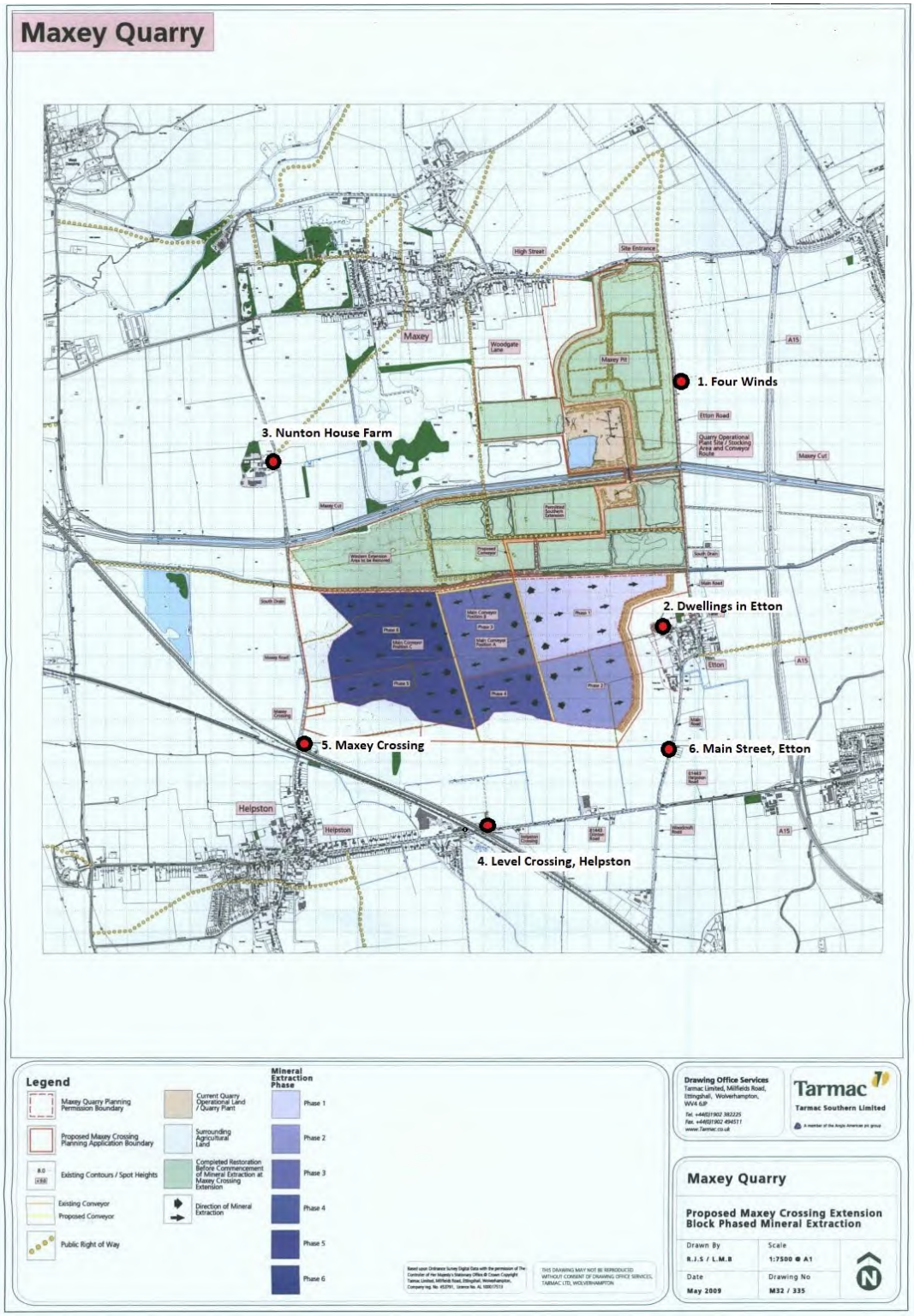
so far as is reasonably practicable, to the values listed above. The operations that have been identified as the cause of the excess will cease within seven days of the date of the noise monitoring and will not recommence until a scheme of noise mitigation has been agreed with the MPA for implementation.

The operator previously agreed to the following noise suppression measures relating to mineral extraction in the Maxey Crossing Extension area:

- The selection and use of modern, well maintained equipment.
- Adhere strictly to the stated operating hours of the site and ensure that site working hour restrictions are effectively communicated to all site staff and subcontractors
- The use of an excavator for the profiling of imported materials to achieve a noise output of 105 dB L_{WA} or less.
- The maintenance 3 metre high screening bunds between the excavation/restoration area and the dwellings in Etton.
- Minimise drop heights of materials
- Maintain speed limit on haul road from site accesss, to ensure that birds on the nearby nature reserves are only subject to Low Level Disturbance Stimuli
- Audible reversing warning systems on mobile plant and vehicles should be of a type which, whilst ensuring that they give proper warning, has a minimum noise impact on persons and other sensitive receptors outside sites . The existing site currently uses Brigade Smart Alarms as part of the reversing systems which are permitted under the current consent.
- Keep internal haul routes clear and well maintained. Avoid steep gradients where possible. Regularly inspect routes for potholes and repair as necessary
- Operatives should be trained to employ appropriate techniques to keep site noise to a minimum and should be effectively supervised to ensure that best working practice in respect of noise reduction is followed.

The site shall be operated in complete accordance with this scheme for the duration of the development.

Attachment A - Noise Monitoring Locations Plan



Drawings

Legend

Recovery Permit Boundary

TARMAC
A CRH COMPANY

Site Name:
M032 - Maxey

Drawing Name:
Recovery Boundary

Drawn By:	Scale @ A3:
S Halliday	1:10,000
Date:	**Drawing No:**
21/11/2023	M032-00421-2

N

Maxey Quarry

Block Phased Mineral Extraction

Proposed Maxey Crossing Extension

Legend

- Maxey Quarry Planning Permission Boundary
- Proposed Maxey Crossing Planning Application Boundary
- Existing Contours / Spot Heights (8.0, +9.0)
- Existing Conveyor
- Proposed Conveyor
- Public Right of Way
- Current Quarry Operational Land / Quarry Plant
- Surrounding Agricultural Land
- Completed Restoration Before Commencement of Mineral Extraction at Maxey Crossing Extension
- Direction of Mineral Extraction

Mineral Extraction Phase

- Phase 1
- Phase 2
- Phase 3
- Phase 4
- Phase 5
- Phase 6

Drawing Office Services
Tarmac Limited, Millfields Road,
Ettingshall, Wolverhampton,
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Tel. +44(0)1902 382225
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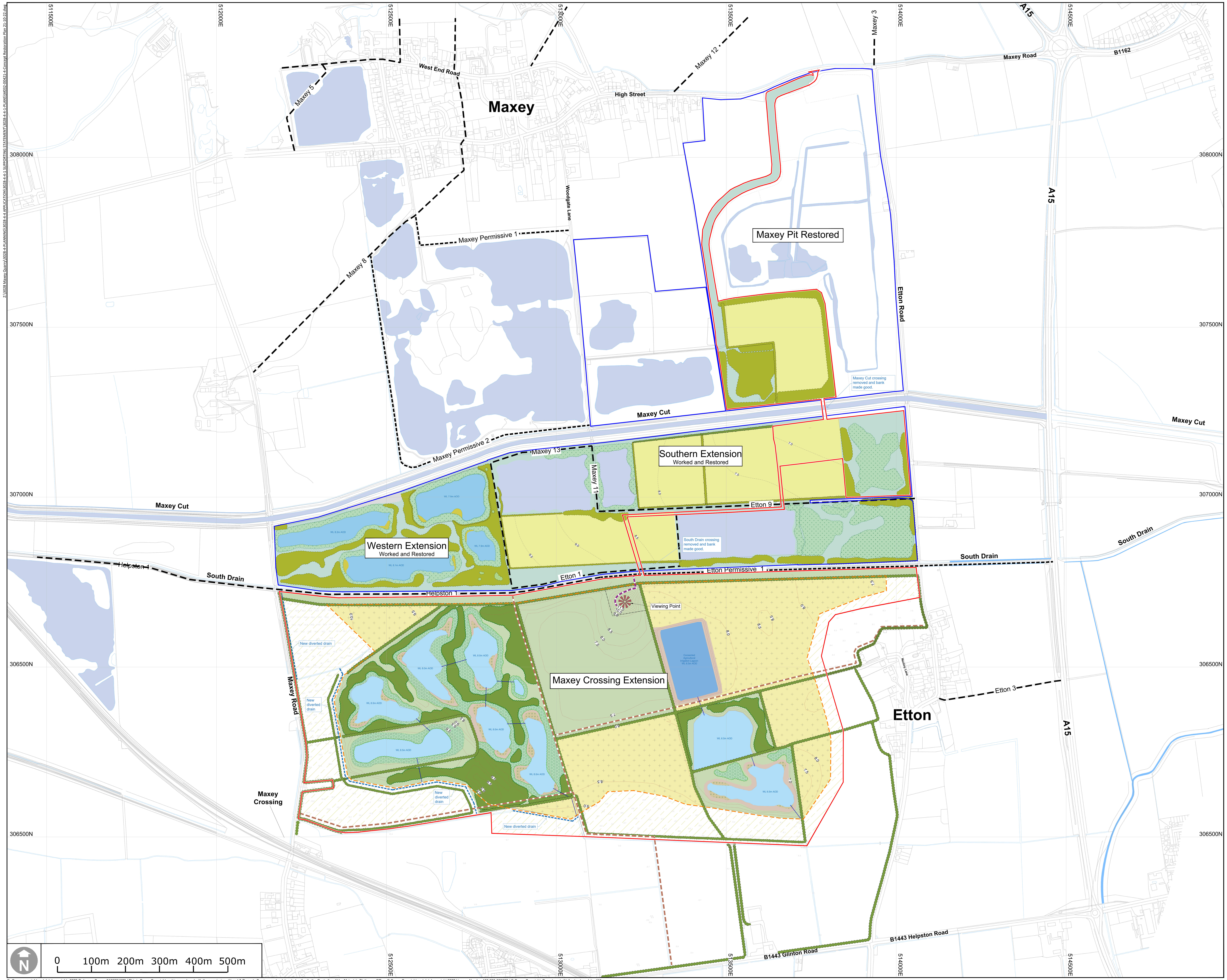
www.Tarmac.co.uk

Tarmac
Tarmac Southern Limited
A member of the Anglo American plc group

Maxey Quarry

Proposed Maxey Crossing Extension Block Phased Mineral Extraction

Drawn By	Scale
R.J.S / L.M.B	1:7500 @ A1
Date	Drawing No
May 2009	M32 / 335



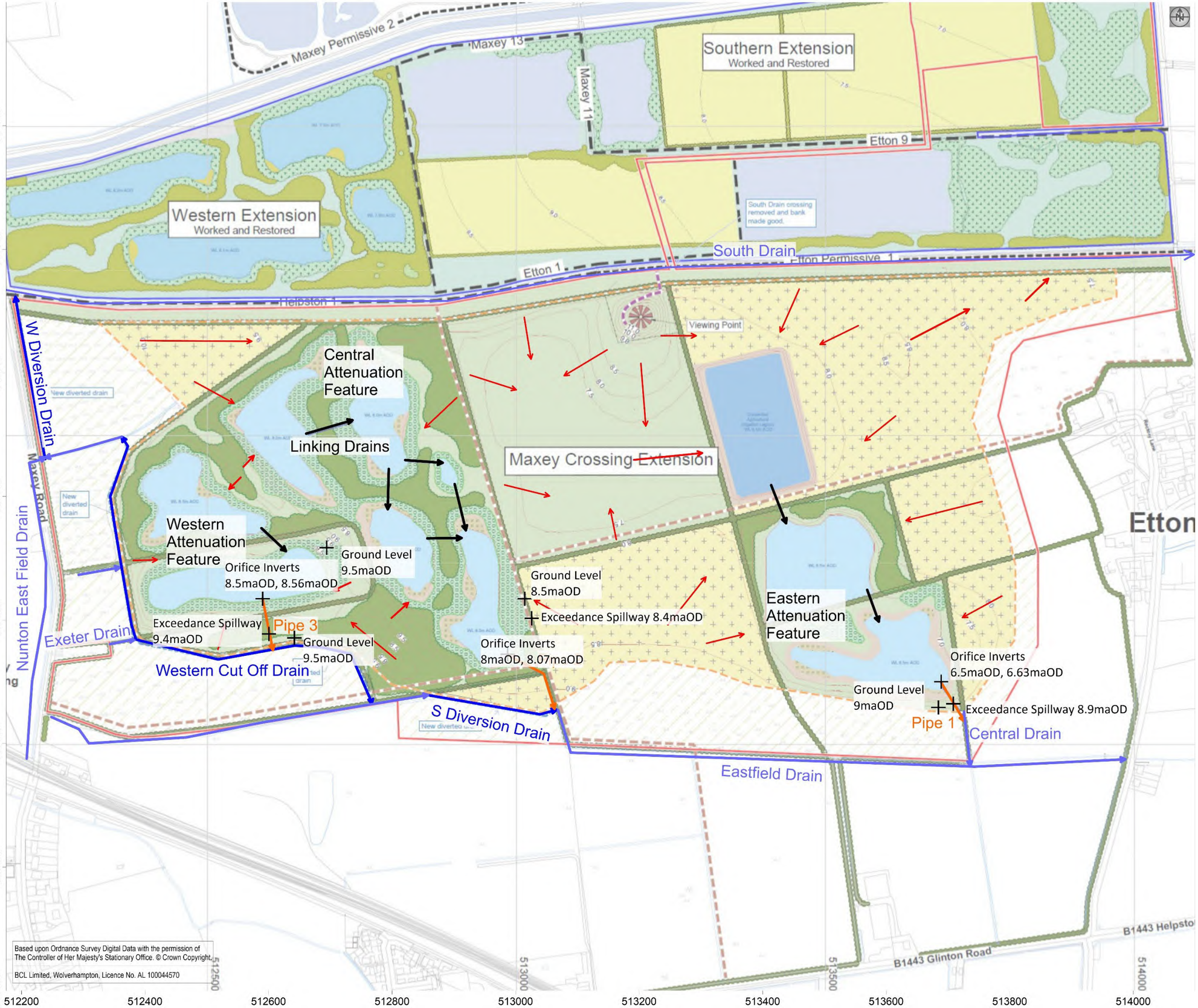
Legend

- Consented Maxey Crossing Extension Site
- Other land under Tarmac control
- Extents of proposed importation area
- Existing spot level
- Etton 3 — Existing right of way and reference
- 8.0 — Consented restoration surface contour (at 0.5m intervals)
- 7.5 — Proposed restoration surface contour (at 0.5m intervals)
- Consented land restored to agriculture
- Consented wet woodland
- Consented dry woodland
- Consented hedgerow
- Consented tall grasses/ fenland
- Consented emergant vegetation
- Consented fishing lake
- Consented wildlife lake
- Consented agricultural irrigation lagoon
- Consented footpath
- Retained farmland progressively returned to agriculture
- Proposed land restored to agriculture
- Proposed land restored to lowland meadow
- Proposed wet woodland
- Proposed dry mixed decidous woodland
- Proposed hedgerow
- Proposed wet grassland
- Proposed reedbed
- Proposed diverted drain
- Proposed pipe
- Proposed wildlife lake
- Proposed viewpoint
- Proposed permissive footpath link to Viewpoint

DAVID JARVIS ASSOCIATES

TARMAC
A CRH COMPANY

Site Name: M032 - Maxey	
Drawing Name: Concept Restoration Plan	
Drawn By: DJA	**Scale @ A1:** 1:5,000
Date: 21/10/2022	**Drawing Number:** M032-00421-4A



Southern Extension / Proposed Development

Open Drain

Pipe

Existing Watercourse

Proposed Watercourse

Surface Runoff

S_TSL_MQ_PAR22_001

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BCL HYDRO

Tarmac Trading Limited

Maxey Quarry, Peterborough

LLFA Response Sep 2022

Figure A1: Exceedance Plan

Drawn By: PS	Scale: 1:6,000
Date:14/10/2022	Format: A3L