

TARMAC TRADING LIMITED

FLOOD RISK ASSESSMENT

**PLANNING APPLICATION UNDER SECTION 73 OF THE TOWN
AND COUNTRY PLANNING ACT 1990 (AS AMENDED) FOR
NON COMPLIANCE WITH CONDITIONS 2 AND 12 OF
PLANNING CONSENT FUL/2020/0079 IN RESPECT OF THE
FORMER PLANT SITE AREA**

**AT SPIXWORTH QUARRY
NORFOLK**



**PREPARED BY:
DAVID L WALKER LIMITED**

JUNE 2024

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SECTION 1 INTRODUCTION

- 1.1 A Flood Risk Assessment (FRA) has been prepared in support of the planning application for non-compliance with conditions 2 and 12 of planning consent FUL/2020/0079 to enable changes to scheme of restoration in the former plant site at Spixworth Quarry, near Norwich.
- 1.2 Tarmac's interests at the site are subject to a lease with the landowners who own and manage the wider agricultural holdings at Grange Farm, Spixworth.
- 1.3 The landowners have identified a need to establish and maintain an irrigation reservoir on the wider agricultural holding and have identified the existing void space in the further plant site as a potentially suitable location.
- 1.4 This application has been developed by Tarmac and the landowners to secure an alternative scheme of restoration for the application site to support the sustainable future of the wider farm unit. This is proposed to be achieved by way of an application for non-compliance with plans and details approved under conditions 2 and 12 of the consent.
- 1.5 It is proposed that the irrigation reservoir will have an operational capacity of approximately 150,000m³. This will be achieved by implementing a cut and fill engineering operation, using on site materials to form the reservoir landform. The target rest water level is at or around 19.60m AOD.
- 1.6 The soil bunds that form the perimeter around the application site will where required be reprofiled and the area landscaped in a manner sympathetic to the wider farm landholding. A landscaping concept has been developed which is detailed amongst other matters at Section 3 of the Supporting Statement that accompanies the application. By retaining the soils on site in the form of bunds they remain available for use elsewhere at a future date maintaining their value as a high quality soils resource.
- 1.7 The proposed variation of the restoration plans under the consent will enable the establishment and use of an irrigation reservoir to ensure that the landholdings associated with Grange Farm, Spixworth are resilient to the effects of climate change.
- 1.8 The proposals detailed in this application seek to provide an enhanced scheme of restoration to the benefit of the Grange Farm arable unit; the enhancement of the Norfolk ecological network; and the maintenance of the high-quality distinctive landscape the forms the fringe of the village of Spixworth.
- 1.9 The proposals seek to retain large areas of established hedgerow and woodland planting that have been planted by Tarmac and its successors and/or have self-seeded on the legacy mineral working, and

these areas have matured to provide Green Infrastructure which will be retained and managed as part of these proposals.

- 1.10 Full details of the proposed restoration landform are provided at Section 3 of the Supporting Statement along with supporting plans and appendices.
- 1.11 This assessment has been prepared in accordance with the provisions of the technical guidance appended to the National Planning Policy Framework (NPPF), The Flooding and Coastal Change Planning Practice Guide, as well as standing advice on flood risk and sequential test produced by the EA.
- 1.12 The application boundary relates to the former mineral extraction area and plant site area at the site. The application site comprises a former plant site area surrounded by soils screening bunds erected in accordance with permitted detail.
- 1.13 Full details of the site setting is provided at Section 2 of the Supporting Statement along with supporting plans and appendices. A topographical survey of the existing site is reproduced at Appendix A

SECTION 2 TYPE OF DEVELOPMENT AND LOCATION

- 2.1 This FRA has been prepared has been prepared in support of the planning application for non-compliance with conditions 2 and 12 of planning consent FUL/2020/0079 to enable changes to scheme of restoration in the former plant site at Spixworth Quarry, near Norwich.
- 2.2 Table 3 of the Flooding PPG provides a framework for Flood Risk Vulnerability Classification. In accordance with this table, the proposals are considered to comprise a water compatible landuse as it is associated with the continued undertaking of restoration operations at a sand and gravel workings and is therefore appropriate land use in Flood Zone 1. The revised restoration landform would create “water transmission infrastructure” and are therefore also viewed as being water compatible.
- 2.3 The application site has already been accepted as a location suitable for sand and gravel extraction (with restoration using on site materials).
- 2.4 As such it is considered that the strategic test (i.e. stage 1 of the sequential test) has already been met. Similarly, the land use (i.e. water compatible) is considered compatible in Flood Zone 1 (refer to guidance in the Flooding PPG). As such, in accordance with Stage 1 of the standing advice on flood risk for sites within Flood Zone 1, the strategic test is again confirmed as being met.

SECTION 3 DEFINITION OF FLOOD HAZARD

- 3.1 The principal flood hazards are associated with the fluvial flooding from the Spixworth Beck, which itself is a tributary of the River Bure. There is no known direct continuity between the application site and the beck. The EA mapping for river sources is provided at Figure 1 below.
- 3.2 The primary mechanism for a flooding event would be when the volume of water flowing down the sources, in particular the Spixworth Beck, exceeds their capacity leading to overtopping.

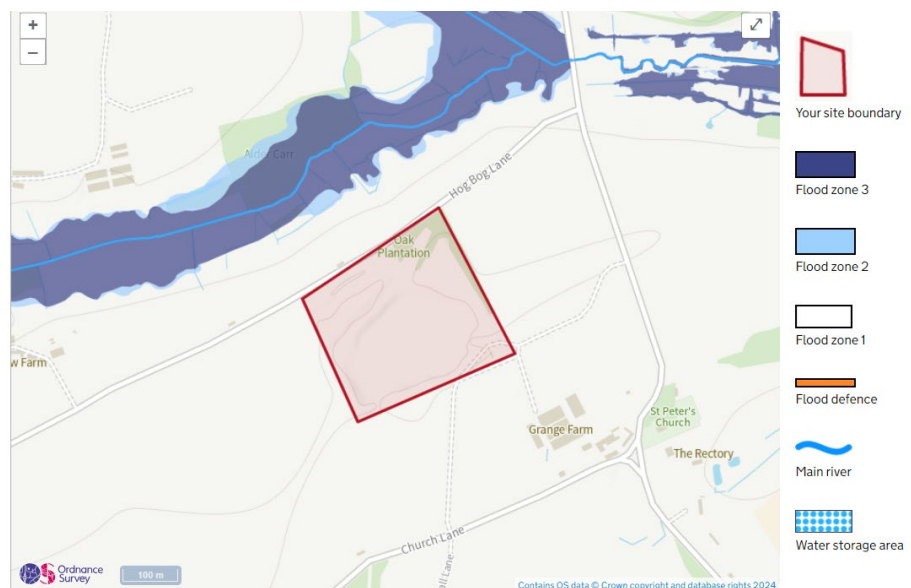


Figure 1 – Extract from EA Flood Mapping, showing extent of risk from fluvial flooding.

- 3.3 Secondary potential is in respect of the threat of the groundwater flooding as the River Bure and its tributaries maybe in partial continuity with the mineral deposits worked in the area.
- 3.4 The former plant site area was worked dry, and there are no active requirements for water management.
- 3.6 Active pumping is therefore required to ensure that the workings do not become inundated as a result of groundwater inflow. Mapping on the Stage 2 Broadland SFRA indicates that the site is at a low risk of groundwater flooding (refer to Appendix B).
- 3.7 Areas of risk for flooding from pluvial sources are shown on Figure 2 below and are mainly off site.
- 3.8 There is no foul sewage infrastructure on site and therefore no risk of flooding in this regard.

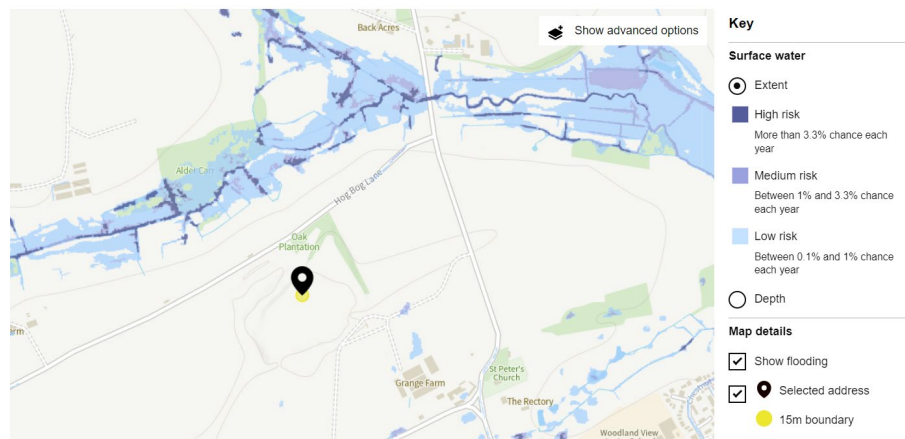


Figure 2 – Extract from EA Flood Mapping, showing extent of risk from surface water/pluvial flooding.

SECTION 4 PROBABILITY

- 4.1 Fluvial flood mapping is shown at Figure 1 above. From this, it can be seen that the floodplain associated with the Spixworth Beck is not present on the site. It is therefore confirmed that the activities (existing and proposed) at the site would not be affected by a 1:100 year return event, or likely be a shorter return period event.
- 4.2 Taking into account the site location and based on the Environment Agency's functional floodplain map, it is considered that there is a low risk of flooding occurring at the site, both during operations and after restoration.
- 4.3 Furthermore, there is a low risk of any consequential impacts to adjoining land uses because the workings provide a large element of flood storage capacity. Should such a flood event occur it will not be resultant of, or impinge on the proposed continuation of permitted operations, and are an acknowledged risk by the Applicant and landowner as a risk inherent to the nature of the operation, and has safe systems of work in place for such an event.
- 4.4 In respect of restoration, the approved drawings include a landform that will maintain an element of flood storage capacity even taking into account climate change effects. Whilst the proposed changes to site restoration will result to changes in the approved landform, the ready availability of freeboard capacity as part of the reservoir design means that flood storage capacity remains available.
- 4.5 Broadland District Council (with the other councils in the JNPA) has prepared a Strategic Flood Risk Assessment as part of the evidence base for the Greater Norwich Local Plan. This has been prepared to Stage 2 level. The findings of the Strategic Flood Risk Assessment mainly verify the findings of the Agency's model, and provides future projections for climate change (see Figure 3).

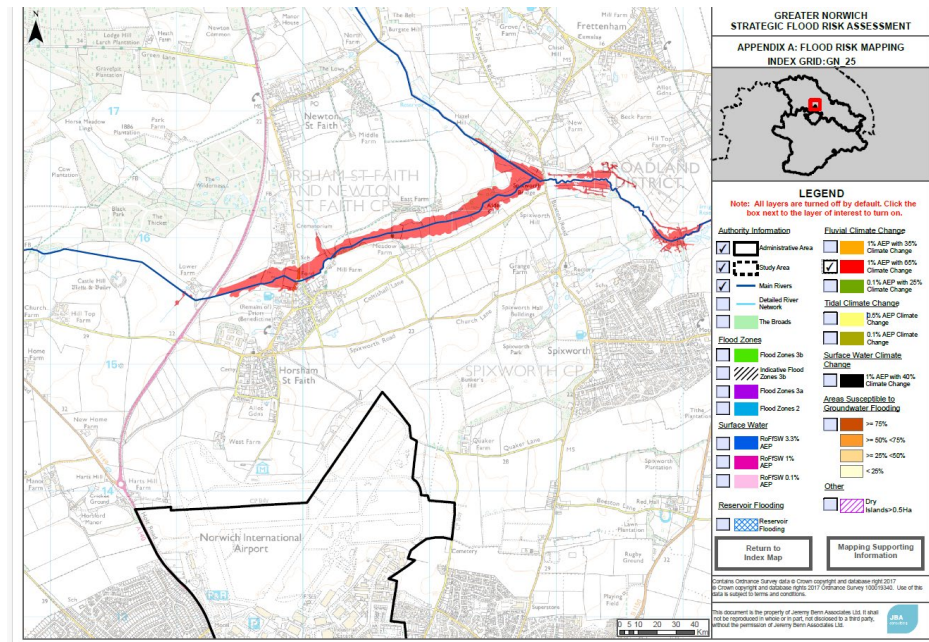


Figure 3 – Extract from SRR Mapping, showing extent of risk from fluvial flooding with 65% increase for climate change

4.6 It is considered unlikely that any climate change effects will be encountered.

SECTION 5 DEVELOPMENT PROPOSALS

5.1 The proposals associated with this scheme are detailed in the Supporting Statement that accompanies this planning application. A topographical survey of the existing site is reproduced at Appendix A, upon which the extent of the plant site area has been projected.

5.2 It is proposed that the irrigation reservoir will have an operational capacity of approximately 150,000m³. This will be achieved by implementing a cut and fill engineering operation, using on site materials to form the reservoir landform. The target rest water level is at or around 19.60m AOD. The design illustrated on submitted plans provides for a 1:2.5 batter on the inner and outer edges of the bund wall of the reservoir.

5.3 It is proposed to excavate into the base of the plant site landform to win materials to form the bund walls of the reservoir. The subsoils and overburden materials stored in the bunds that surround the existing plant site landform cannot be used as those materials do not have the correct engineering properties for such a use. It is proposed to excavate from the current base of 17m AOD down to 10m AOD. This will also involve a cut of the existing batters to regrade the landform to achieve the design batters noted above (refer to Plan SP11_06).

SECTION 6 FLOOD RISK MANAGEMENT

- 6.1 Given the water compatible nature of the operations (existing and proposed); and the scope of the proposals allied to the position of the site in relation to the functional floodplain, it is considered that there is no specific need for additional flood risk management..
- 6.2 The existing surface water management regime will be maintained for the duration of the proposals, with no impact on surrounding land uses.
- 6.3 No flood risk management is required in respect of pluvial, groundwater or sewer sources of flooding.

SECTION 7 OFF SITE IMPACTS AND PROPOSED MITIGATION MEASURES

- 7.1 Given that there are mitigation works required in association with the proposals, there will be no consequential increase in flood risk elsewhere.
- 7.2 The proposals envisage returning the land to land uses which attain Greenfield run off rates, and as such, there will be no off site impacts or requirement for mitigation measures in this regard.

SECTION 8 MANAGEMENT OF RESIDUAL RISKS

- 8.1 There are no proposed site specific measures to protect the site from flooding associated with these proposals as these water compatible activities are consistent with land uses in Flood Zone 1, consequently there is a minimum residual risk, and the management protocols are centred around a resilience policy rather than resistance.
- 8.2 The subject area as a whole is fairly open, with easy means of communication. In the event that there is a perceived risk of the subject area becoming inundated, observations will be maintained, and access prohibited.
- 8.3 In the event of a perceived risk of inundation, an evacuation plan will be maintained to ensure the official evacuation of mobile plant, machinery or persons. Where required, a Flood Management plan will be maintained on site to define the appropriate responses in accordance with EA guidance.
- 8.4 There are no residual risks in respect of pluvial, groundwater or sewer sources of flooding.

SECTION 9 SUMMARY

- 9.1 A Flood Risk Assessment has been prepared in support of the planning application for non-compliance with conditions

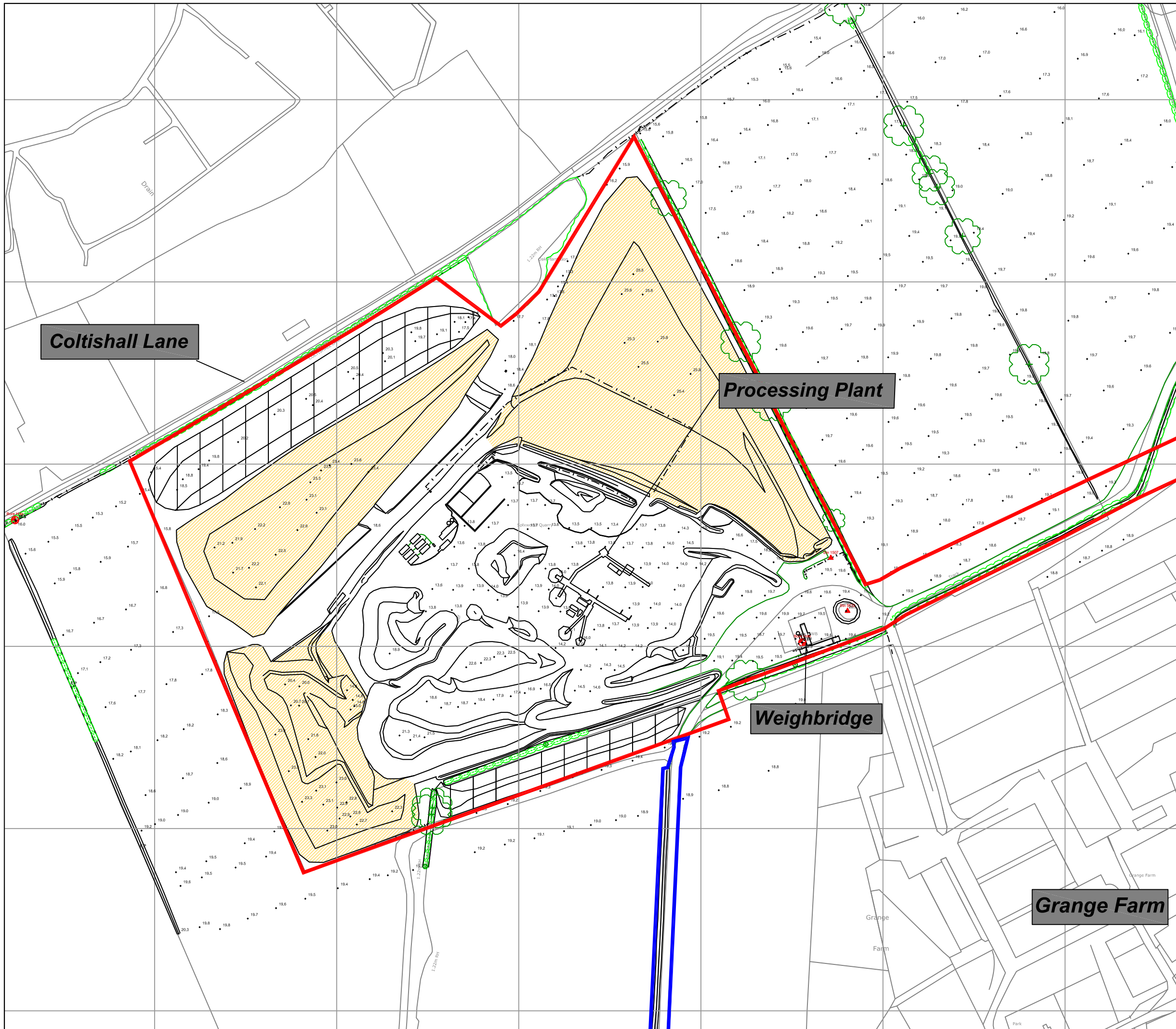
2 and 12 of planning consent FUL/2020/0079 to enable changes to scheme of restoration in the former plant site at Spixworth Quarry, near Norwich.

9.2 This assessment has defined the potential hazards and the probabilities of flood events occurring, and taking into account the site location and based on the Environment Agency's functional floodplain map and supplementary detail, it is considered that there is a risk of flooding occurring at this location.

9.3 However, this is acknowledged by the Applicant, and can be contained within the site, with no increased risk on adjoining land or properties.

Appendix A

Site Plan and Topographic Survey



Legend

- Extent of Tarmac Interest*
- Application Site*



Site Name:
F307 - Spixworth

Drawing Name:
Plant Site - Extension of Time

Site Plan

Drawn By:

DW

Scale @ A3:

1:2,000

Date:

19/10/2020

Drawing Number:

F307-00013-02



Appendix B

Extract from Strategic Flood Risk Assessment
published by Broadland Council January 20217

GREATER NORWICH STRATEGIC FLOOD RISK ASSESSMENT

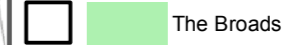
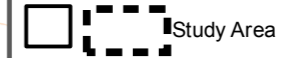
APPENDIX A: FLOOD RISK MAPPING INDEX GRID: GN_25



LEGEND

Note: All layers are turned off by default. Click the box next to the layer of interest to turn on.

Authority Information



Flood Zones



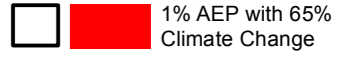
Surface Water



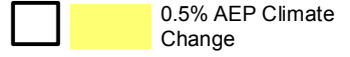
Reservoir Flooding



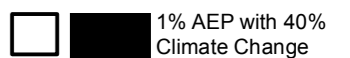
Fluvial Climate Change



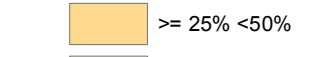
Tidal Climate Change



Surface Water Climate Change



Areas Susceptible to Groundwater Flooding



Other



Return to Index Map

Mapping Supporting Information

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