

# FLOOD RISK ASSESSMENT

Proposed Extension to Ken Wilkins Print  
Colwick Industrial Estate  
Private Road No 1  
Netherfield  
Nottingham  
NG4 2JQ



**RM ASSOCIATES**

10 Main Street  
Thorpe on the Hill  
Lincoln  
LN6 9BG  
Tel 01522 681728  
Mobile 07967 304737  
Email: [ray.rmassociates@gmail.com](mailto:ray.rmassociates@gmail.com)  
October 2020 Version 1

RMA

## Contents

INTRODUCTION .....	1
APPLICATION SITE.....	1
Table 1: Flood Zones Definition .....	2
Table 2: Flood Risk Vulnerability Classification.....	2
Site Levels.....	3
DRAINAGE AUTHORITIES .....	3
Environment Agency .....	3
Flood Zones .....	4
Risk of Flooding from Rivers & Sea .....	4
River Trent .....	4
River Trent Flood Defences .....	4
River Trent Breach Analysis.....	5
Modelled Extents.....	5
Floodplain Heights .....	5
Climate Change .....	6
Recommended Finished Floor Levels.....	6
FLOODING FROM OTHER SOURCES .....	6
SURFACE WATER FLOODING .....	7
SEQUENTIAL APPROACH.....	7
Table 3: Flood risk vulnerability and flood zone 'compatibility' .....	8
Sequential Test and Exceptions Test.....	8
CLIMATE CHANGE .....	8
Table 1 Peak River Flow Allowances .....	9
Table 2 Peak Rainfall Intensity.....	9
Table 3 Peak Sea Level Rise .....	9
DRAINAGE STATMENT .....	9
Surface Water Drainage.....	9
Foul Water Drainage.....	10
FLOOD RESILIENCE CONSTRUCTION.....	10
CONCLUSION .....	11

## Figures

Map 1	Environment Agency Flood Map
Map 2	River & Sea Flood Map
Map 3	Flood Defence Location Map
Map 4	Breach Hazard Map
Map 5	Modelled Extents Map
Map 6	Floodplain Heights Map
Map 7	Breach Floodplain Heights Map
Map 8	Risk of Flooding from Surface Water Map
Plan 1	Location Plan
Plan 2	Site Plan
Plan 3	Proposed Ground Floor
Plan Plan 4	Proposed First Floor
Plan Plan 5	Topographical Survey

# FLOOD RISK ASSESSMENT FOR A PROPOSED EXTENSION TO KEN WILKINS PRINT, COLWICK INDUSTRIAL ESTATE, PRIVATE ROAD NO 1, NETHERFIELD, NOTTINGHAM, NG4 2JQ

## INTRODUCTION

The Government has placed increasing priority on the need to take full account of the risk associated with flooding at all stages of the planning and development process. This seeks to reduce the future damage to property and the risk to life from incidents of flooding. Their expectations relating to flooding are contained in the National Planning Policy Framework Feb 2019, (NPPF), which identifies how the issue of flooding is dealt with in the drafting of planning policy and the consideration of planning applications by avoiding inappropriate development in areas at risk from flooding and to direct development away from areas at highest risk.

The NPPF provides that development in areas at risk of flooding should be avoided and seeks to direct development away from areas at highest risk. There is a sequential, risk-based approach to the location of development avoiding where possible, flood risk to people and property managing any residual risk and taking account of the impacts of climate change.

This document has been prepared solely as a flood risk assessment and drainage statement on behalf of the client, Lindum Group Ltd. RM Associates accepts no responsibility or liability for any use of this document other than by the client, for the purposes for which it was originally commissioned and prepared. If any unauthorised Third Party comes into possession of this report; they rely on it at their own risk and RM Associates owe them no duty of care or skill. All comments contained in this report, including any conclusions are based upon information available at the time of writing the report. RM Associates accepts no liability if additional information exists or becomes available after the time of writing this report. This document is the copyright of RM Associates The reproduction or transmission of all or part of this document, whether by photocopying or storing in any medium by electronic means or otherwise, without the prior written consent of RM Associates is prohibited.

This report contains public sector information licensed under the Open Government Licence v3.0.

## APPLICATION SITE

The proposed site is located at Colwick Industrial Estate, Private Road No 1, Netherfield, Nottingham, NG4 2JQ within the administrative area of Gedling Borough Council. The National Grid Reference at the centre of the site is SK61929 40636 **Plan 1**

This flood risk assessment has been prepared for the erection of a three-storey extension of a 4236m.sq increase footprint of the existing factory which is located in a major industrial area. The ground floor is to be extended to provide additional manufacturing and storage area. The first floor will provide additional welfare facilities for the operation department, including canteen and changing areas, the second-floor additional office space. Plans 2, 3 & 4

The Site would be classed as Major Development applying the National Planning Policy Guidance (NPPG) as the site is to be developed for more than 1000sm.

The National Planning Policy Framework Guidance NPPG defines three levels of flood risk depending upon the annual probability of fluvial flooding occurring.

Zone 1 – Low Probability (<0.1%)

Zone 2 – Medium Probability (0.1 – 1.0%)

Zone 3 – High Probability (>1.0%)

The proposed development site is shown mainly to be within Flood Zone 3 High Probability' as detailed on the Environment Agency's Flood Zone Maps **without defences**, and as defined in Table 1 of NPPG.

**Table 1: Flood Zones Definition**

Flood Zone 3- High Probability
<p><b>Definition</b> Land assessed as having a 1 in 100 or greater annual probability of river flooding (&gt;1%) or a 1 in 200 or greater annual probability of flooding from the sea (&gt;0.5%) in any year.</p> <p>The water-compatible and less vulnerable uses of land are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone. The more vulnerable and essential infrastructure uses should only be permitted in this zone if the Exception Test is passed. Essential Infrastructure permitted in this zone should be designed and constructed to remain operational and safe for uses in times of flood</p> <p><b>Flood Risk Assessments requirements</b> All proposals in this zone should be accompanied by a Flood Risk Assessment.</p> <p><b>Policy aims</b> Developers and local authorities should seek opportunities to:</p> <ul style="list-style-type: none"> <li>• reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques.</li> <li>• relocate existing development to land with a lower probability of flooding.</li> <li>• create space for flooding to occur by allocating and safeguarding open space for flood storage.</li> </ul>

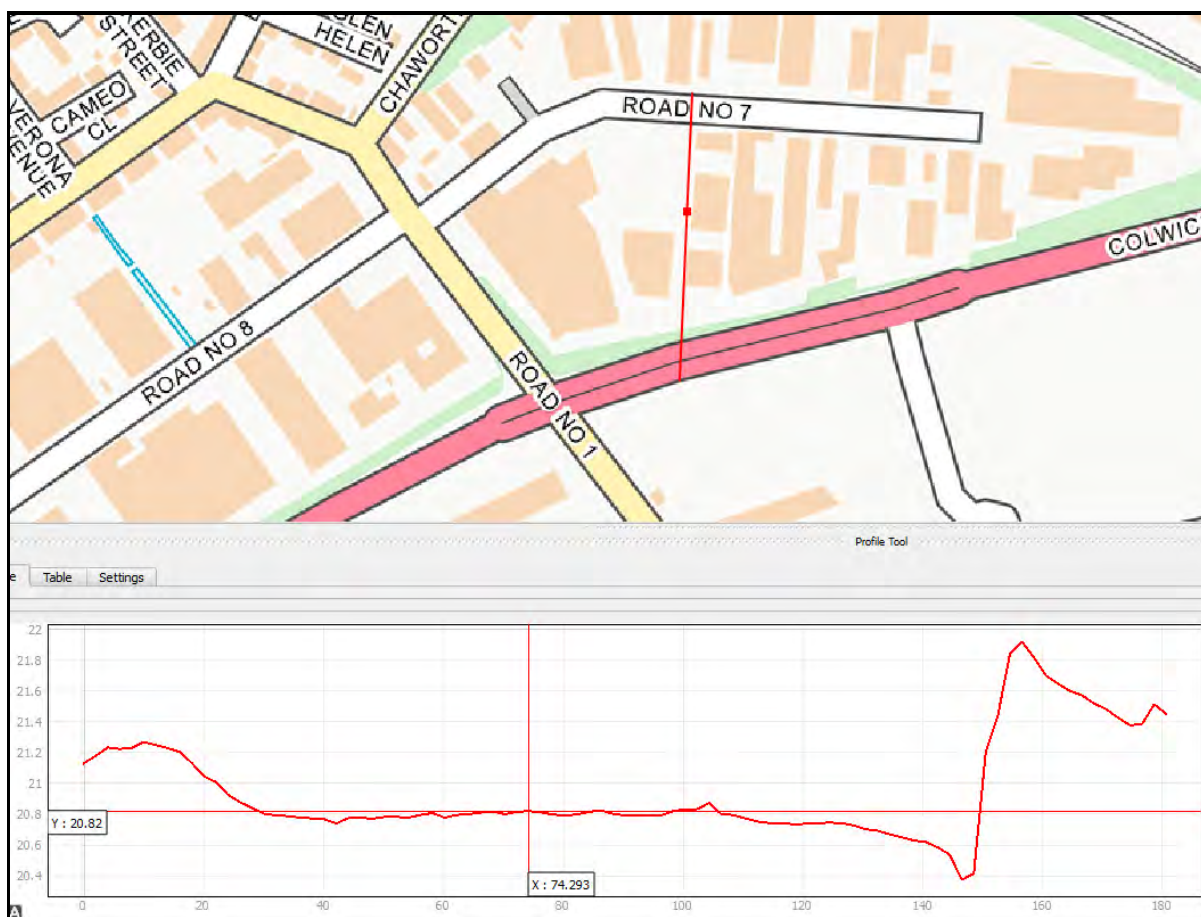
Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the industrial use for the site is classified as "Less Vulnerable," Table 1 of NPPG states that such uses are permitted in this zone, subject to the exceptions test.

**Table 2: Flood Risk Vulnerability Classification**

Less Vulnerable
<ul style="list-style-type: none"> <li>• Police ambulance and fire stations that are not required to be operational during flooding</li> <li>• Buildings used for shops, financial, professional, and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in "more vulnerable" and assembly and leisure.</li> <li>• Land and buildings used for agricultural and forestry.</li> <li>• Waste treatment (except land fill and hazardous waste facilities).</li> <li>• Minerals working and processing (except for sand and gravel working).</li> <li>• Water treatment works that do not need to remain operational during times of flood.</li> <li>• Sewage treatment works (if adequate measures to control pollution and manage sewage during flood events are in place).</li> </ul>

## Site Levels

From the topographical survey and Lidar 2m DTM data , the existing site is roughly a flat rectangle. The ground levels around the existing building average 20.82mODN, the road No 7 level at the site entrance is 21.27mODN and the Colwick Loop Road (A612) is 21.57mODN. **Plan 5**



Lidar 2m DTM Data

## DRAINAGE AUTHORITIES

### Environment Agency

The Environment Agency has permissive powers for reducing the risk of flooding from designated main rivers and from the sea.

The following potential source of flooding affecting the development site has been identified as:

- River Trent

The nearest Main River to the site is the River Trent, which is around 550m to the south of the site.

The flood zone maps indicate that the area would be flooded without flood defences.). The Flood Map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood event with a 0.5% chance of occurring

in any year for flooding from the sea, or a 1% chance of occurring for fluvial (river) flooding. It also shows the extent of the Extreme Flood Outline which represents the extent of a flood event with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater. To meet the requirements of the National Planning Policy Framework, these defences are removed in their entirety to produce the Flood Map for Planning (Rivers and Sea). The map therefore shows the full extent of areas that would be at risk of flooding if no defences existed and water could spread out across the floodplain.

### Flood Zones

These maps show that the site is considered at risk from fluvial flooding as it is all located within a defended area zoned as Flood Zone 3a. The maps indicate that the area would be flooded without flood defences, which are in place, (with an annual probability of more than 1.33% return frequency of less than 1 in 100 years for fluvial flooding). **Map 1**

### Risk of Flooding from Rivers & Sea

The Risk of flooding from Rivers and Sea shows that the site for the site is at Low risk. Low means that each year this area has a chance of flooding of less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%). This takes into account the effect of any flood defences that may be in this area. Flood defences reduce, but do not completely stop the chance of flooding as they can be over-topped or fail. **Map 2**

### River Trent

Information provided by the Environment Agency from the Greater Nottingham SFRA model at node 414011 gives the following modelled, in-channel, flood levels: Return Period Level 1.0% (1 in 100) 21.81mODN, 0.1% (1 in 1000) 22.22mODN Table 2.1 River Trent Flood Levels.

Node point reference	Location	5% (1 in 20 year) modelled level (mAOD)	5% (1 in 20 year) modelled flow (m <sup>3</sup> /s)	1% (1 in 100 year) modelled level (mAOD)
404011810	SK 62188 40119	21.04	593.29	21.81
404011560	SK 62390 40237	20.93	593.36	21.74
404011310	SK 62623 40149	20.89	593.20	21.70

Source: Greater Nottingham SFRA, Black and Veatch, October 2010

Node point reference	Location	1% (1 in 100 year) modelled flow (m <sup>3</sup> /s)	0.1% (1 in 1000 year) modelled level (mAOD)	0.1% (1 in 1000 year) modelled flow (m <sup>3</sup> /s)
404011810	SK 62188 40119	649.93	22.22	677.47
404011560	SK 62390 40237	648.83	22.17	675.69
404011310	SK 62623 40149	655.20	22.12	696.69

Source: Greater Nottingham SFRA, Black and Veatch, October 2010

These levels are “in-channel” levels and therefore may not represent the flood level on the floodplain, particularly where the channel is embanked or has raised defences.

### River Trent Flood Defences

The Colwick Industrial Estate is protected by flood defences, which were raised and strengthened as part of the



River Trent left bank flood alleviation scheme which was completed in 2012/13. The flood defences are designed to provide a 1 in 100-year standard of flood protection with an additional freeboard to the area, the crest level of the defence is around 23.00mODN. **Map 3**

The findings of the updated modelling indicate that the Trent Left and Right Bank Flood Alleviation Scheme has reduced the area of risk of flooding, particularly in the Colwick and Netherfield areas. The scheme provides a standard of protection for the area for a 1 in 100year (1% chance of occurring in any given year).

Flood defences which are present along the river edge reduce the risk of flooding. Whilst the defences are generally in a good condition there is always a chance, they can be over-topped or fail during extreme floods.

### River Trent Breach Analysis

Taking the precautionary approach, the Hazard Rating following a breach which in Flood Risk Assessment (FD 2320) Guidance for New Development Phase 2 R& D Technical Report these are classified as low <0.75, moderate 0.75-1.25, significant 1.25-2.50 and extreme >2.50 based upon an empirical measure of velocity and depth.

$$HR = d \times (v + 0.5) + DF$$

Where v = Flood flow velocity(m/sec) D = Flood depth (m)

DF = A debris factor included to represent the greater damage, or risk of injury to people, that can occur if debris is swept along with the water. = 0.5 for depths <0.25 or 1.0 for depths.

For the degree of Flood Hazard to be classified as low HR must be <0.75

Flood Hazard			Description
	<0.75	Low	<b>Caution</b> – Flood Zone with shallow flowing water or deep standing water.
	0.75 – 1.25	Moderate	<b>Danger for Some</b> - (i.e. children) Danger Flood Zone with deep or fast flowing water.
	1.25 – 2.0	Significant	<b>Danger for Most</b> – Danger Flood Zone with deep fast flowing water.
	>2.0	Extreme	<b>Danger for All</b> – Extreme Danger Flood Zone with deep fast flowing water.

The Environment Agency has recently carried out a Hazard Mapping for the River Trent following a breach to the defences. The Hazard Map for the 1 in 100-year (including 30% climate change forecast) fluvial flow, shows that the majority of the site is within a hazard area between 1.25 - 2.0 (Danger for Most) **Map 4**

### Modelled Extents

The site is not shown on the Modelled Extents map to be affected up to a 100-year event with 50% climate change allowance. **Map 5**

### Floodplain Heights

The Environment Agency have produced modelled breach floodplain heights mapping with defences. These

maps show that the site is not affected for any scenario year.

They have also produced modelled breach floodplain heights mapping which shows that the floodplain level at the site following a breach to the defences for 1 in 100year modelled breach (including 30% climate change forecast) would be 22.29mODN

**Map 6** shows the floodplain heights and **Map 7** shows the breach floodplain heights

### Climate Change

The site lies within the Humber River Basin District, Peak River flows should be adjusted to reflect the latest climate change allowances (Table 1) Climate Change. Allowances. It must also be assumed, to provide a worst-case scenario, that flood defences have been raised during this period to cater for the rise in river level.

The above results have a climate change increase of 20% added to the peak river flows whereas the guidance now indicates that 20% and 30% should be added for Less Vulnerable developments, up to 2115, in Humber RBD.

### Recommended Finished Floor Levels

The Environment Agency's recommendations for major Less Vulnerable development in Flood Zone 3 that the ground floor should be raised as high as practicable (minimum of 300mm) above the existing ground level. In this particular case there is an operational need for the floor level of the extension to be the same as existing to enable the use of forklifts to pass from area to area. A safe refuge is provided at first floor level, where all the welfare facilities for the staff are provided. Flood resilience techniques will be incorporated into the development as outlined later in the report.

## FLOODING FROM OTHER SOURCES

Flooding is a natural process and can happen at any time from sources other than watercourses and the sea.

- Flooding from land can occur from intense rainfall, often over short duration of time that is unable to soak into the ground or enter the drainage system. However, with the natural topographic nature of the ground having no high ground around the site, this will not cause any rapid inundation of the site.
- The area is not known to suffer from any groundwater problems.
- Flooding from sewers can occur from over loading from heavy rainfall caused by blockages or having inadequate capacity.
- Non-natural or artificial sources of flooding such as reservoirs, lakes, or canals where water is stored above natural ground level could cause flooding if the structure fails or is over topped. There are no known sources within the vicinity of the site.



## SURFACE WATER FLOODING

The site for the proposed dwelling is shown on the Low Risk scenario Surface Water flood maps, for the 1 in 1000-year event, to be affected from surface water flooding with depths above 300mm. With the area shown to be affected being provided with a positive drainage it is doubtful that this will occur. **Map 8**

The maps for surface water and revised maps for river and sea flooding define the risk as High, Medium, Low and Very Low. The chance of flooding for the area defined in any given year is shown below:

- **High:** greater than 1 in 30 (3.3%).
- **Medium:** between 1 in 100 (1%) and 1 in 30 (3.3%).
- **Low:** between 1 in 1000 (0.1%) and 1 in 100 (1%).
- **Very Low:** less than 1 in 1000 (0.1%)

Unlike the fluvial mapping, which is based on a detailed hydraulic model, this mapping is based purely on applying rainfall to a digital terrain model. As such this mapping serves to represent a worst-case scenario which may well overstate the actual probability of flooding in this area.

There is a caveat on the Defra Data website, as to the use of these maps and that they are not to be used to identify that an individual property will flood. Because of the way they have been produced and the fact that they are indicative, these maps are not appropriate to act as the sole evidence for any specific planning or regulatory decision or assessment of risk in relation to flooding at any scale without further supporting studies or evidence.

## SEQUENTIAL APPROACH

When applying the sequential approach for flood risk in accordance NPPF the site of the development would fall into Flood Zone 3 (High Probability) as the site is shown not to be within the fluvial flood plain as shown on the Environment Agency's Flood Map without defences in place.

The Environment Agency categorise land into one of three Flood Zones.

- Flood Zone 1 is land outside the 0.1% floodplain (with a chance of flooding of less than 0.1% chance in any given year)
- Flood Zone 2 is land that falls between the 1 in 100-year extent and the 1 in 1000-year extent (a chance of flooding between 1% and 0.1% in any given year)
- Flood Zone 3a is land which falls within the 1 in 100-year flood extent (has a 1% chance of a flood occurring in any given year).

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the proposed development for residential use is classified as, "More Vulnerable" with Table 1 of NPPG stating that such uses are appropriate in this zone

(as summarised in Table 3 NPPG).

**Table 3: Flood risk vulnerability and flood zone ‘compatibility’**

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Flood Zone 1	✓	✓	✓	✓	✓
	Flood Zone 2	✓	✓	Exception Test Required	✓	✓
	Flood Zone 3a	Exception Test Required	✓	✗	Exception Test Required	✓
	Flood Zone 3b Functional Floodplain	Exception Test Required	✓	✗	✗	✗

### Sequential Test and Exceptions Test

NPPF Guidance Paragraphs 155 - 165 requires development within high areas of flood risk be determined using a sequential risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account the impacts of climate change.

The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. The NPPF states that development should not be permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding. It is important to note that the Sequential Test does not specifically mean that sites such as this cannot be developed, rather that sites at less risk should be developed first.

Planning Practice Guidance states: - When applying the Sequential Test, a pragmatic approach on the availability of alternatives should be taken. For example, in considering planning applications for extensions to existing business premises it might be impractical to suggest that there are more suitable alternative locations for that development elsewhere.

It is considered that as the whole of the site stands within Flood Zone 3 and there is not a less vulnerable area within the site, where the extension could be relocated, it is considered that the proposed extension complies with Local Plan policies and therefore, with the sequential and exceptions test as set out in The National Planning Policy Framework.

## CLIMATE CHANGE

Global warming is now recognised that it is likely to affect the frequency and severity of extreme events as both tidal and fluvial flooding. The Climate change allowances in the NPPF Guidance was updated on the 17<sup>th</sup> December 2019.

The site is located within the Anglian River Basin, for sites within Flood Zone 3a and for “More Vulnerable” land uses the Higher Central and Upper End river flow allowances figures in Table 1 should be used.

**Table 1 Peak River Flow Allowances**

Table 1 Peak river flow allowances by river basin district (1981 to 2000 baseline)				
River basin District	Allowance category	Total potential change anticipated for '2020s' (2015 to 2039)	Total potential change anticipated for '2050s' (2040 to 2069)	Total potential change anticipated for '2080s' (2070 to 2115)
Humber	Upper End	20%	30%	50%
	Higher Central	15%	20%	30%
	Central	10%	15%	20%

The effect of global warming on peak rainfall allowances is given in Table 2.

**Table 2 Peak Rainfall Intensity**

Table 2 Peak rainfall intensity allowance in small and urban catchments (1981 - 2000 baseline)			
Applies across all of England	Total potential change anticipated for 2010 to 2039	Total potential change anticipated for 2040 to 2059	Total potential change anticipated for 2060 to 2115
Upper End	10%	20%	40%
Central	5%	10%	20%

The annual sea rise due to climate change is given in NPPF and the recommended contingency allowances are stated in Table 3.

**Table 3 Peak Sea Level Rise**

Table 3 Peak sea level allowance for each epoch in (mm) per year with cumulative sea level rise for each epoch in brackets (use 1981 to 2000 baseline)						
Area of England) (Use River Basin maps	Allowance	2000 to 2035	2036 to 2065	2066 to 2095	2096 to 2125	Cumulative Rise 2000 to 2125 (m)
Humber	Higher Central	5.5 (193mm)	8.4 (252mm)	11.1 (333mm)	12.4 (372mm)	1.15m
Humber	Upper End	6.7 (235mm)	11 (330mm)	15.3 (459mm)	17.6 (528mm)	1.55m

The site is not subject to any tidal flooding.

## **DRAINAGE STATMENT**

### **Surface Water Drainage**

Applications for developments where the proposals will result in the increase the amount of surface water run-off require that an appropriate drainage strategy to be undertaken to ensure that the surface water discharge mimics the existing pre-development regime. The site for the proposed extension already consists of impermeable surfacing which is positively drained.

Any proposed surface water drainage system will need to be designed to account for the effects of climate change over the lifetime of the development. Based on the recommendations the proposed drainage systems should be sized for the critical 1 in 100-year storm event and to allow for a 40% increase in rainfall intensity for climate change.

In accordance with recognised guidance, Part H of the Building Regulations 2010 and National Planning Policy Framework, there is a hierarchy of where surface water should discharge. This hierarchy should be followed where practicable, and is as follows:

- 1) Infiltration
- 2) Watercourse
- 3) Public sewer

The surface water from the roof of the extension will be connected into the existing surface water drainage system. All parking and circulation areas are existing.

### Foul Water Drainage

Foul drainage from the properties will be collected in underground pipes designed in accordance with Building Regulations. Document H. and be connected into the foul drainage system within the site.

As there is a positive drainage system capable of receiving flows from the development there is no likely impact on neighbouring property.

### FLOOD RESILIENCE CONSTRUCTION

Any impact of damage to the properties can be foreseen and mitigated against by relatively simple design and construction techniques. There are two forms of flood protection works: -

- **Flood-resistance or proofing works-** these try to reduce the amount of water entering a building.
- **Flood-resilient works:** - these reduce the amount of damage caused by water entering the building.

The proposed development will have the following resilient measures incorporated in the construction in accordance with "Improving the flood performance of new buildings" CLG (2007).

- Water, electricity, and gas meters: should be located above the predicted flood level. Electrical services: electrical sockets, heating systems: boiler units and ancillary devices should be installed at least 500mm above the ground floor level to minimise damage to electrical services Electric ring mains should be installed at first floor level with drops to ground floor sockets and switches.
- The ground floor to be constructed with a solid concrete floor with no voids beneath and no low-

level wall vents.

- Avoid the use of absorbent cavity insulation to the ground floor level and use the closed cell type.
- Plasterboard to be fixed horizontally to the ground floor area, for ease of replacement.
- Where possible, all service entries should be sealed (e.g. with expanding foam or similar closed cell material). Closed cell insulation should be used for pipes which are below the predicted flood level.
- As this site is in an area that is capable of receiving flood warnings from the Environment Agency Floodline Warning Direct system. It is recommended that the property Owner contact the Environment Agency's Floodline on 0845 988 1188 to register the property to receive advance warning of flooding by telephone, mobile, fax, SMS text, email or pager. The Environment Agency aim to issue a 'severe flood warning' approximately 2 hours before existing defences are overtopped.

## **CONCLUSION**

- The site does have the protection of flood defences which are well maintained by the Environment Agency. The Environment Agency's Flood Map shows the site for the proposed industrial extension to be within to lie in a defended area of Flood Zone 3.
- The residual fluvial flood risk to the site is from a possible breach of the flood defences, however, the risk of a breach occurring is considered to be low, as these defences have only been recently constructed and are inspected for defects on a regular basis by the Environment Agency.
- The Flood Risk Vulnerability Classification in Table 2 of NPPG the proposed industrial development is classified as "Less Vulnerable", with Table 1 of NPPG stating that such uses are appropriate in this zone.
- The whole of the site stands within Flood Zone 3 and there is not a less vulnerable area within the site where the extension could be relocated, it is considered that the proposed replacement dwelling complies with the sequential and exceptions test as set out in The National Planning Policy Framework.
- A safe haven is provided at first floor level, for the staff to await rescue or wait for flood levels to recede.
- Any impact of damage to the properties can be foreseen and mitigated against by relatively simple design and construction techniques. They will be constructed using materials which are flood resilient construction as stated in the report.
- Flooding from other sources is unlikely to affect the site.
- No obvious constraints have been identified that may impact the proposed development and the type of mitigation measures that can be used to reduce the flood risk, there is no increase in the flood risk to others.

# Flood map for planning

Your reference  
**Colwick Ind E**

Location (easting/northing)  
**461909/340603**

Created  
**27 Oct 2020 14:07**

**Your selected location is in flood zone 3 – an area with a high probability of flooding that benefits from flood defences.**

## This means:

- you may need to complete a flood risk assessment for development in this area
- you should ask the Environment Agency about the level of flood protection at your location and request a Flood Defence Breach Hazard Map (You can email the Environment Agency at: [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk))
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (find out more at [www.gov.uk/guidance/flood-risk-assessment-standing-advice](http://www.gov.uk/guidance/flood-risk-assessment-standing-advice))

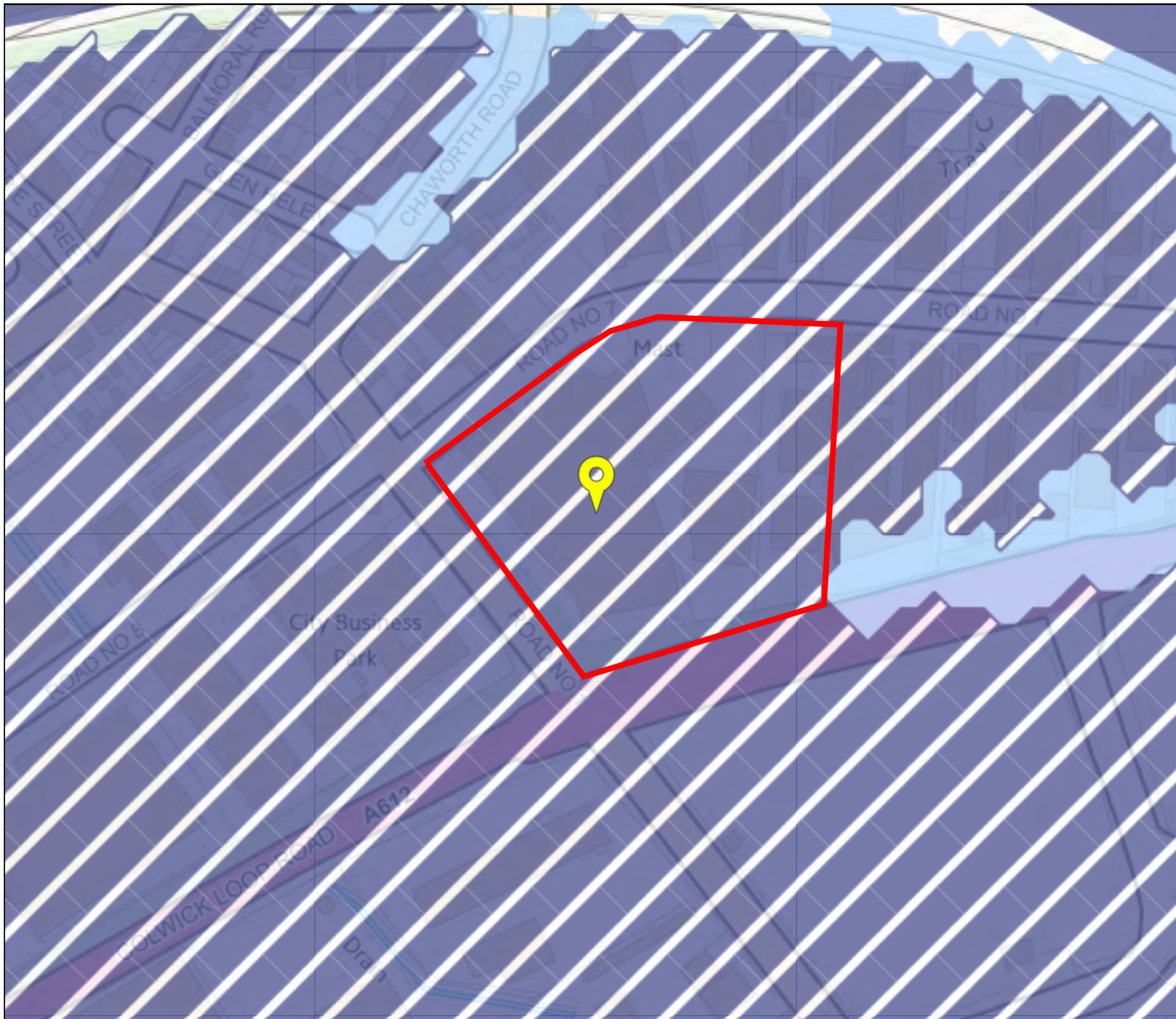
## Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

The Open Government Licence sets out the terms and conditions for using government data.  
<https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>





## Flood map for planning

Your reference

**Colwick Ind E**

Location (easting/northing)









**461909/340603**

Scale

**1:2500**

Created

**27 Oct 2020 14:07**

-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefiting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area

0 20 40 60m



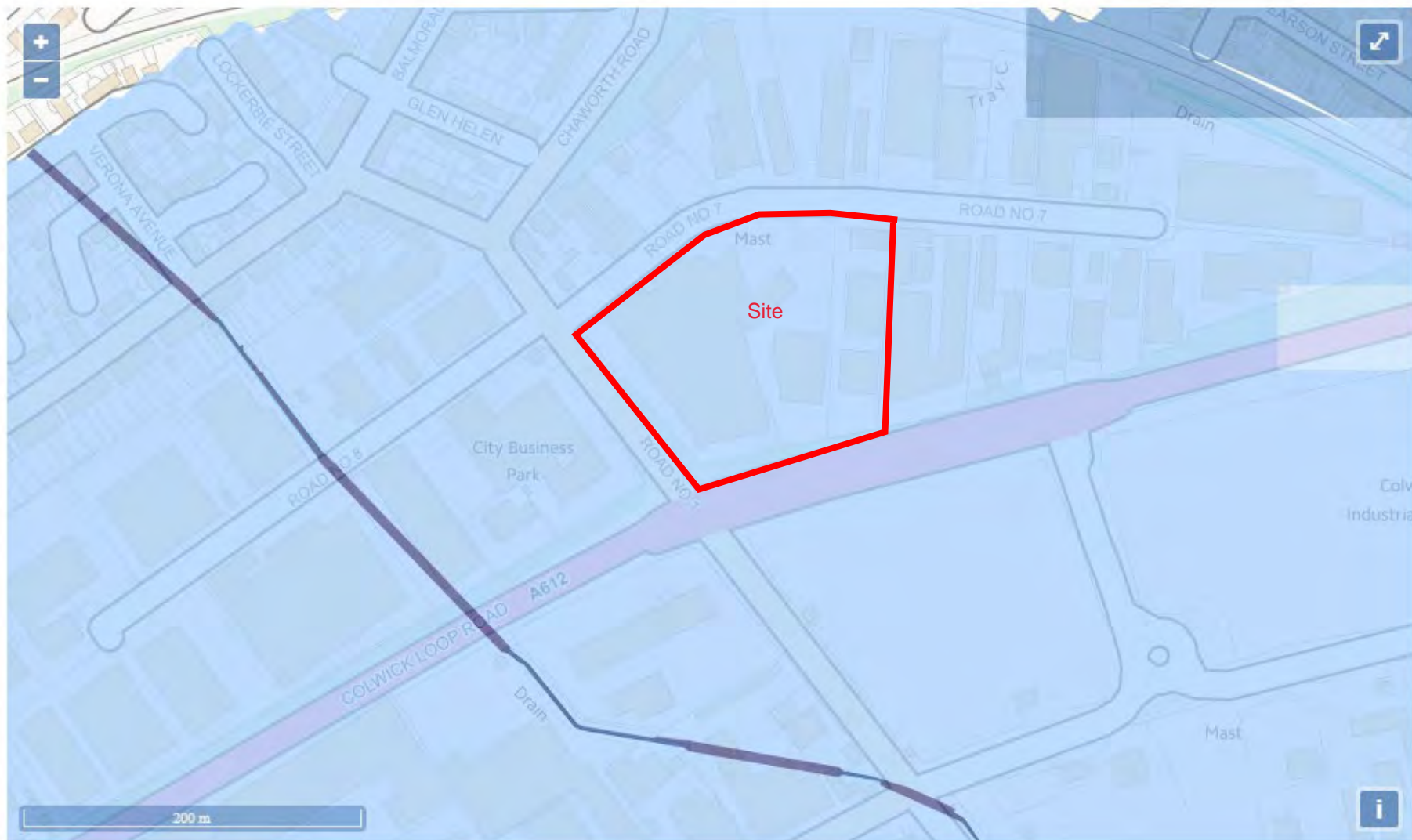
Flood risk

Extent of flooding



Location

Colwick Ind Estate



Extent of flooding from rivers or the sea

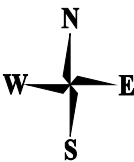
● [High](#) ● [Medium](#) ● [Low](#) ● [Very low](#)



**Flood Defence Map centred on Road No.7, Colwick,  
- created 29 June 2020 Ref: [EMD166136]**



Scale 1:10,000



**Legend**

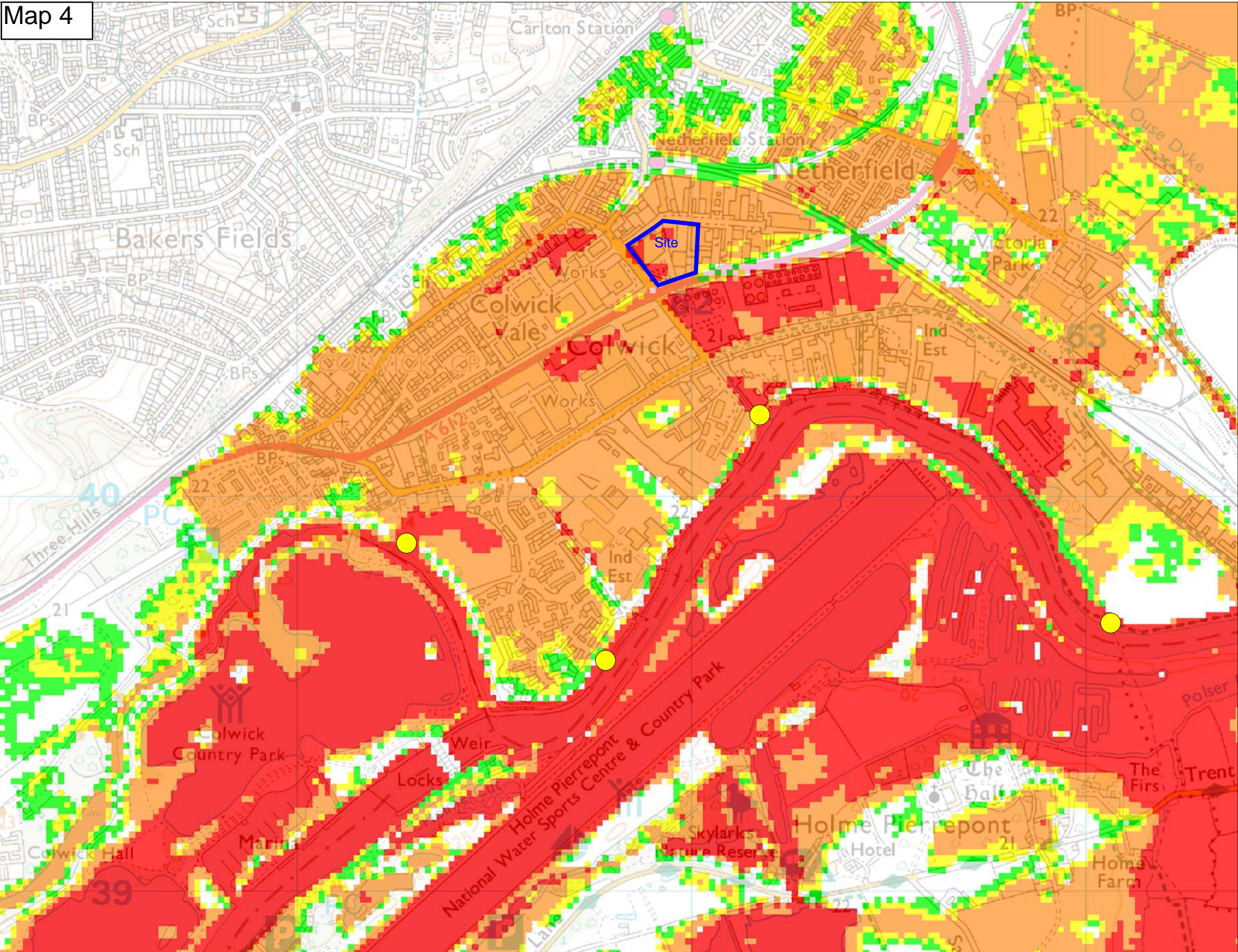
 Flood Defence Locations


A Strategic Flood Risk Assessment may be available, providing further information for this site. Please contact your Local Planning Authority to access this information as it will need to be considered within any Flood Risk Assessment submission.



Breach Hazard Map (Section Q)

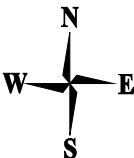
Greater Nottingham River Trent Climate Change Scenario, Environment Agency, 2016






Environment  
Agency


Scale 1:10,000





Legend


 Breach Location

**Breach Hazard Rating (FD2320)**  
1 in 100 year  
(Including 30% Climate Change Forecast)

 Danger for all (greater than 2)

 Danger for most (1.25 - 2)

 Danger for some (0.75 - 1.25)

 Low (Less than 0.75)

Source:

Greater Nottingham River Trent Climate Change Scenario, Environment Agency, 2016

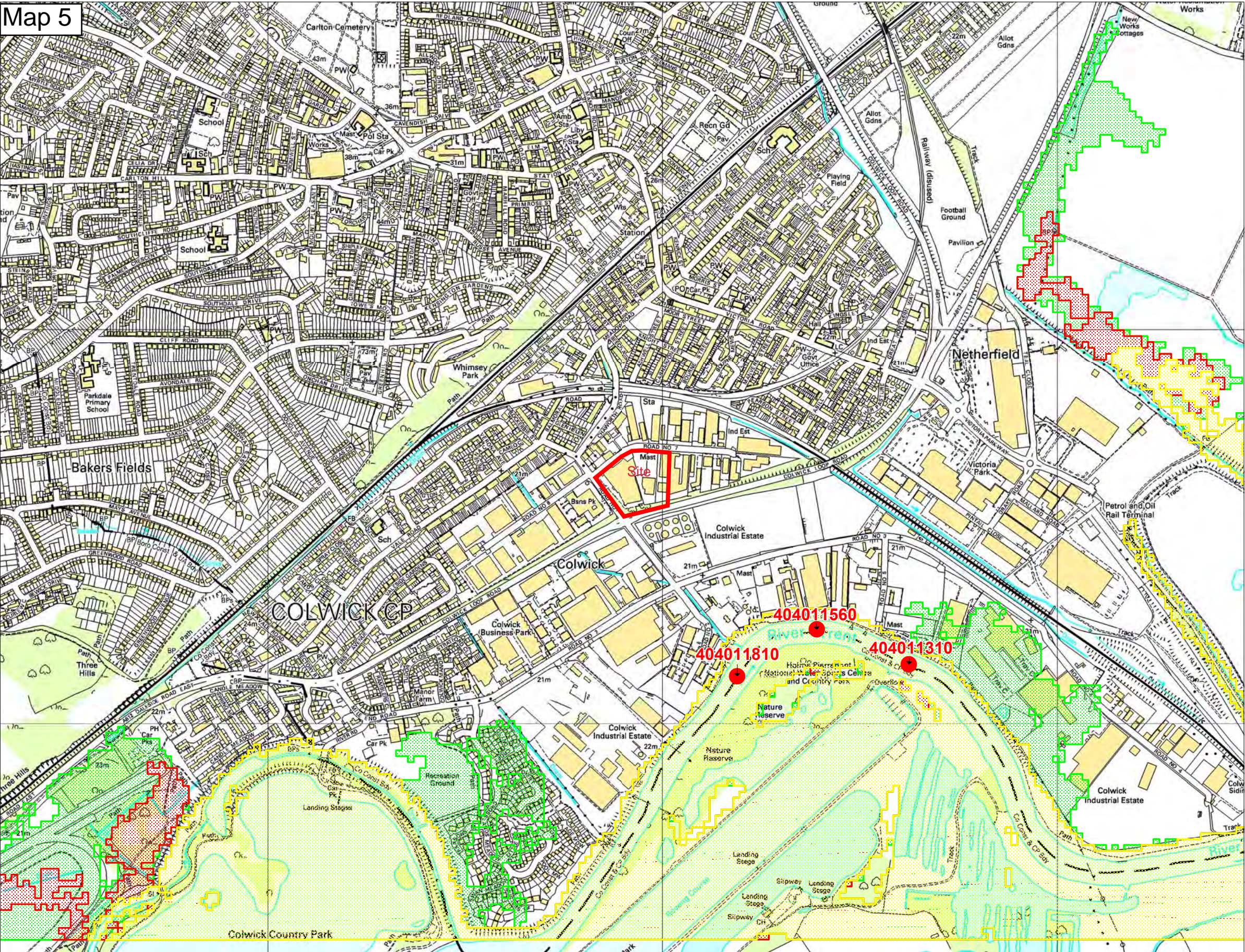
A Strategic Flood Risk Assessment may be available, providing further information for this site. Please contact your Local Planning Authority to access this information as it will need to be considered within any Flood Risk Assessment submission.

© Environment Agency copyright and / or database rights 2017. All rights reserved. © Crown Copyright and database right. All rights reserved. Environment Agency, 100024198, 2017.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)



Modelled Extents Map centred on Road No.7, Colwick,  
- created 29 June 2020 Ref: [EMD166136]



Scale 1:10,000



Legend

- 1 in 100 year Modelled Extent (with 20% Climate Change Forecast)
- 1 in 100 year Modelled Extent (with 30% Climate Change Forecast)
- 1 in 100 year Modelled Extent (with 50% Climate Change Forecast)

Modelled Node Location and Reference

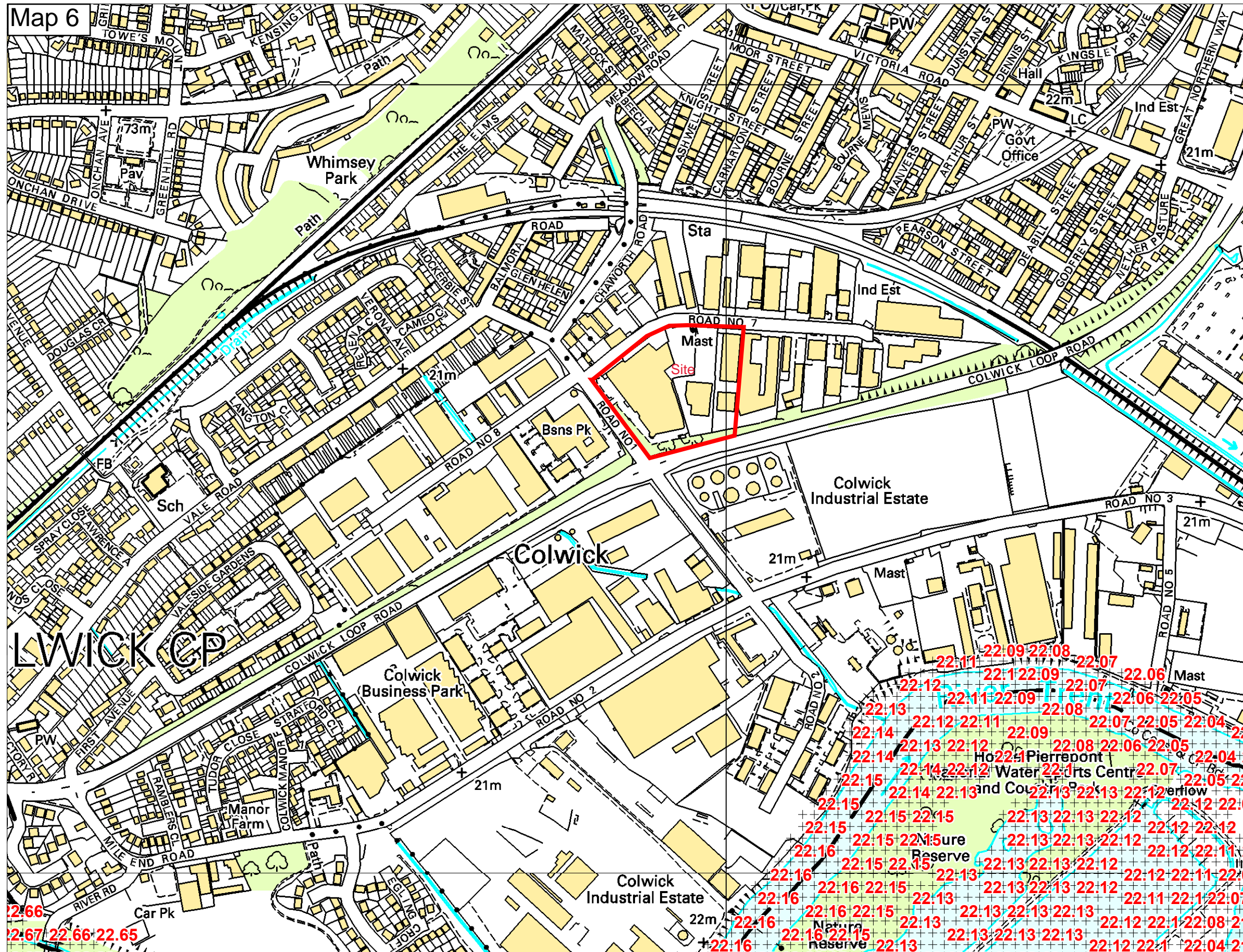
Source:  
Greater Nottingham, River Trent,  
Climate Change Scenario,  
Environment Agency, 2016

A Strategic Flood Risk Assessment may be available, providing further information for this site. Please contact your Local Planning Authority to access this information as it will need to be considered within any Flood Risk Assessment submission.



# Floodplain Heights Map (Section 49)

## Greater Nottingham River Trent Climate Change Scenario, Environment Agency, 2016



Scale 1:5,000



### Legend

**x.xx** 1 in 100 year  
(Including 30% Climate Change Forecast)  
Floodplain Level (mAOD)

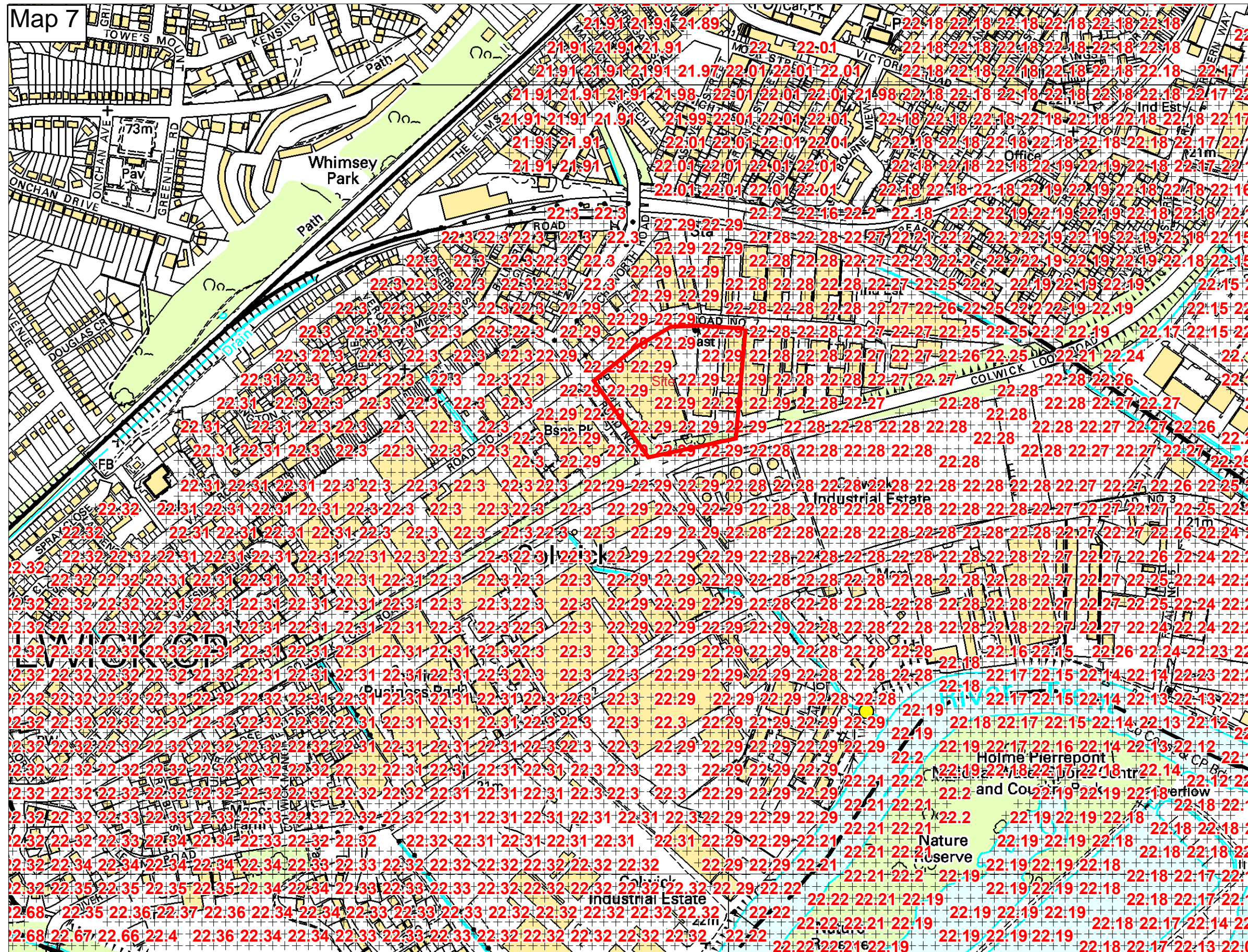
Source:  
Greater Nottingham River Trent Climate  
Change Scenario, Environment Agency,  
2016

A Strategic Flood Risk Assessment may be available, providing further information for this site. Please contact your Local Planning Authority to access this information as it will need to be considered within any Flood Risk Assessment submission.



# Breach Floodplain Heights Map (Section 49)

## Greater Nottingham River Trent Climate Change Scenario, Environment Agency, 2016



Scale 1:5,000



### Legend

x.xx 1 in 100 year Modelled Breach  
(Including 30% Climate Change Forecast)  
Floodplain Level (mAD)

Source:  
Greater Nottingham River Trent Climate  
Change Scenario, Environment Agency,  
2016

● Breach Location

© Environment Agency copyright and / or database rights 2017. All rights reserved. © Crown Copyright and database right. All rights reserved. Environment Agency, 100024198, 2017.

**Contact Us:** National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)



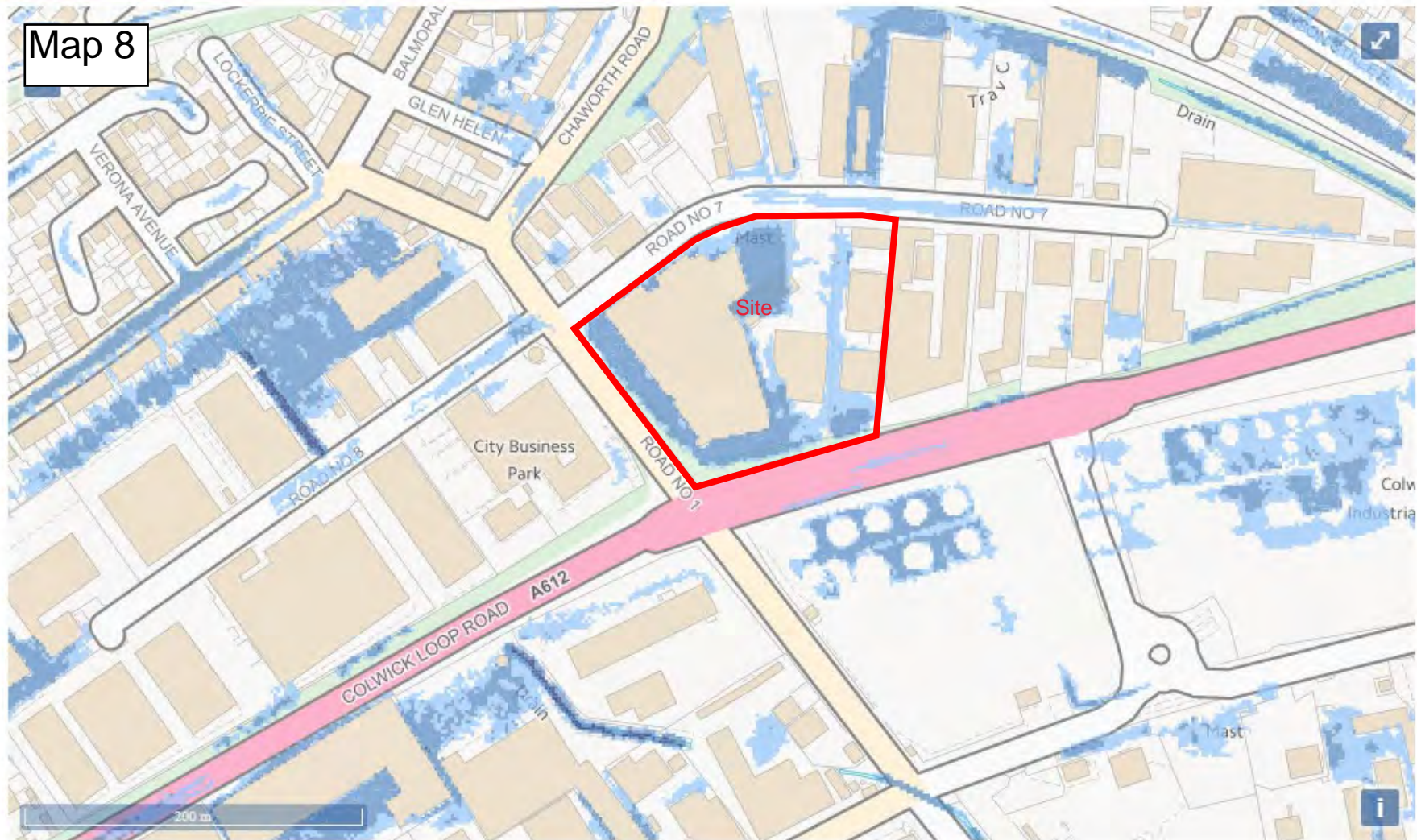
Flood risk

Low risk: depth

Location

Colwick Ind Estate

Map 8



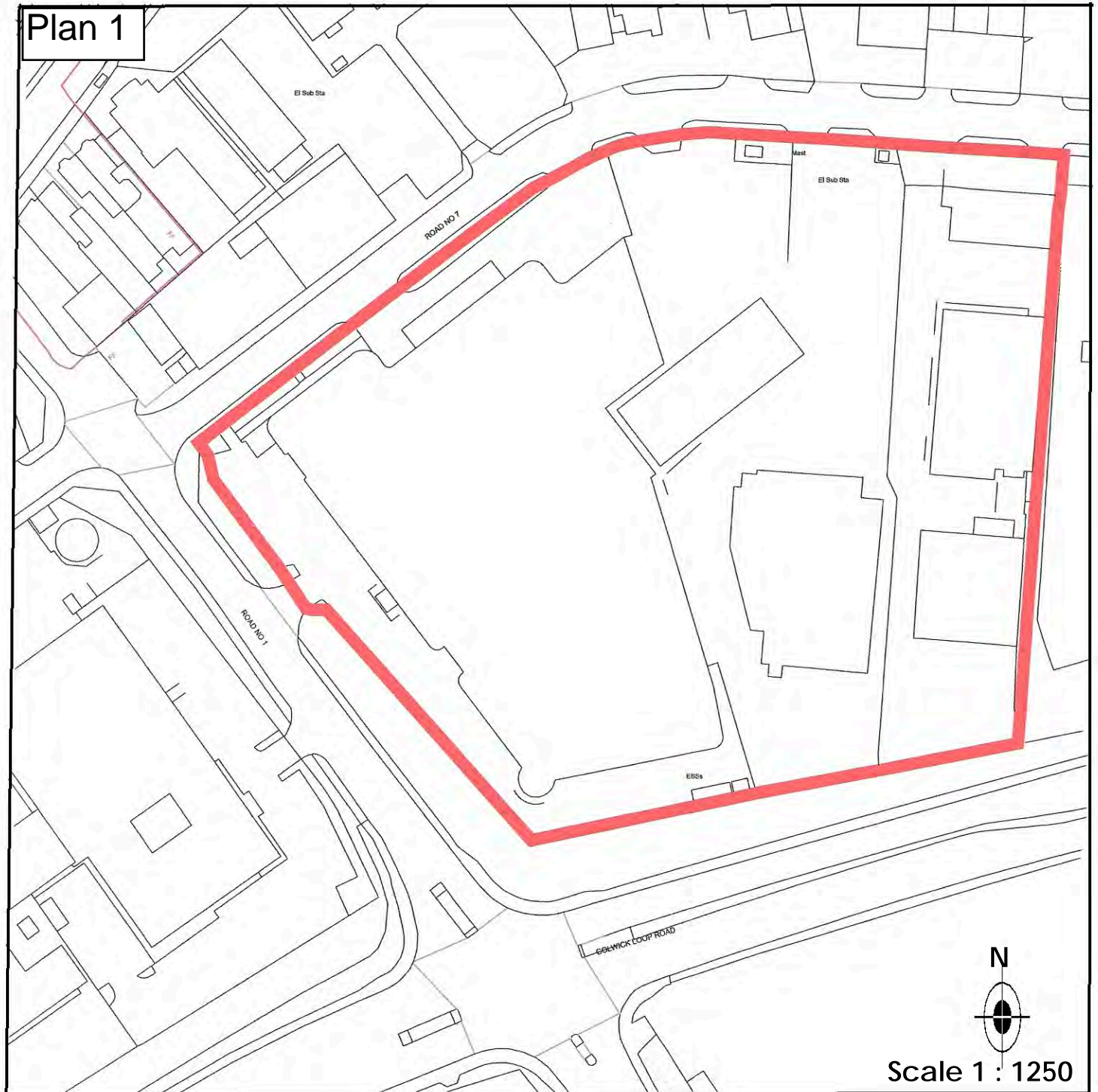
Surface water flood risk: water depth in a low risk scenario

Flood depth (millimetres)

Over 900mm 300 to 900mm Below 300mm

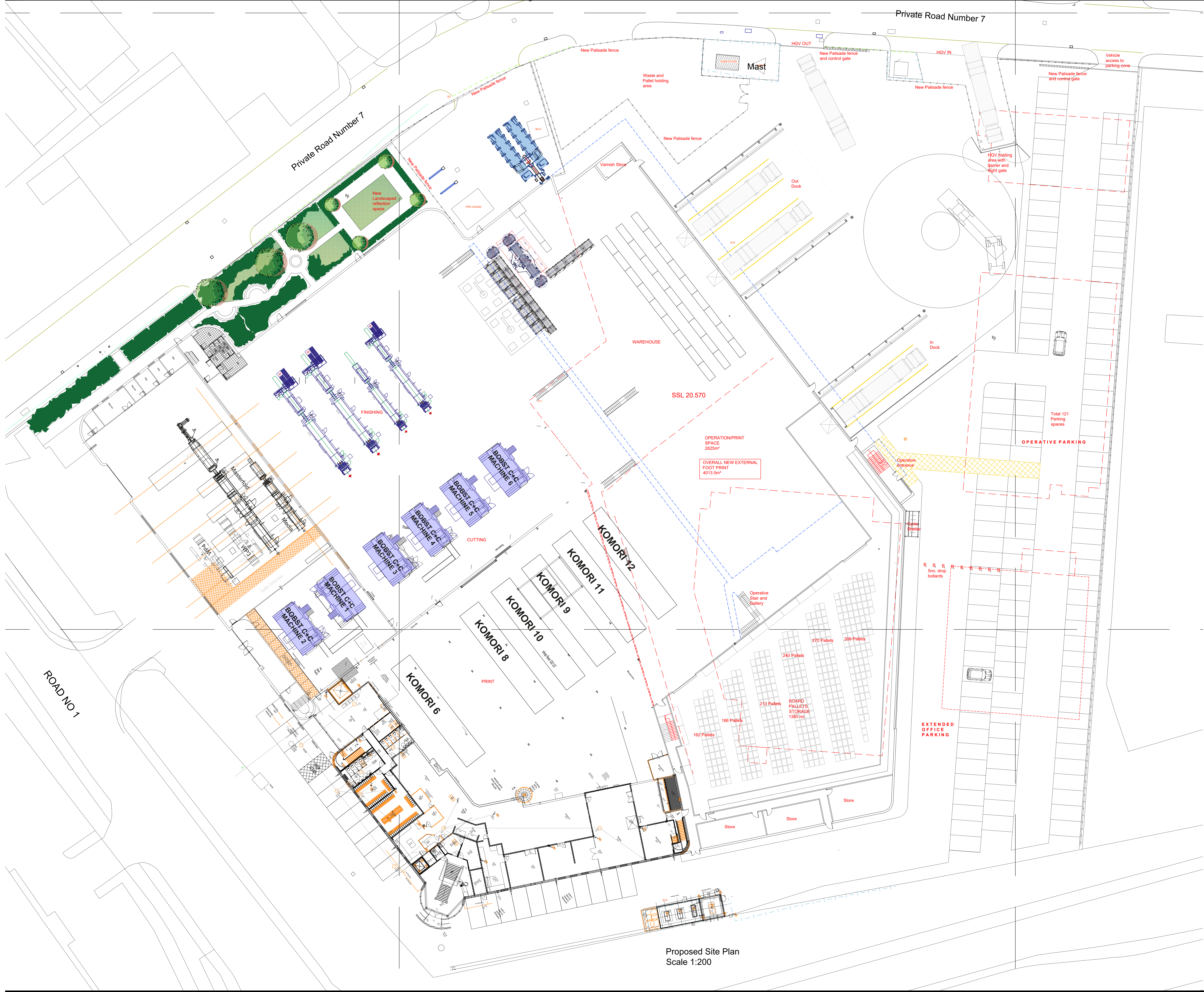


# Location Plan



Ken Wilkins Print  
Colwick Industrial Estate  
Private Road No 1  
Netherfield  
Nottingham  
NG4 2JQ





Proposed Site Plan  
Scale 1:200

Planning

LONDON Construction

London Development Park, Station Road  
North Ealing, London W5 3DA  
Tel: 02032 00000  
Fax: 02032 00001  
E-Mail: london@londonconstruction.co.uk

Drawn By  
Ken Wilkins Print

Project  
Proposed Factory Extension  
And Associated Parking  
Cotwick Ind. Est. Private Road  
No. 1, Nottingham

Drawing Title  
Proposed Site Plan

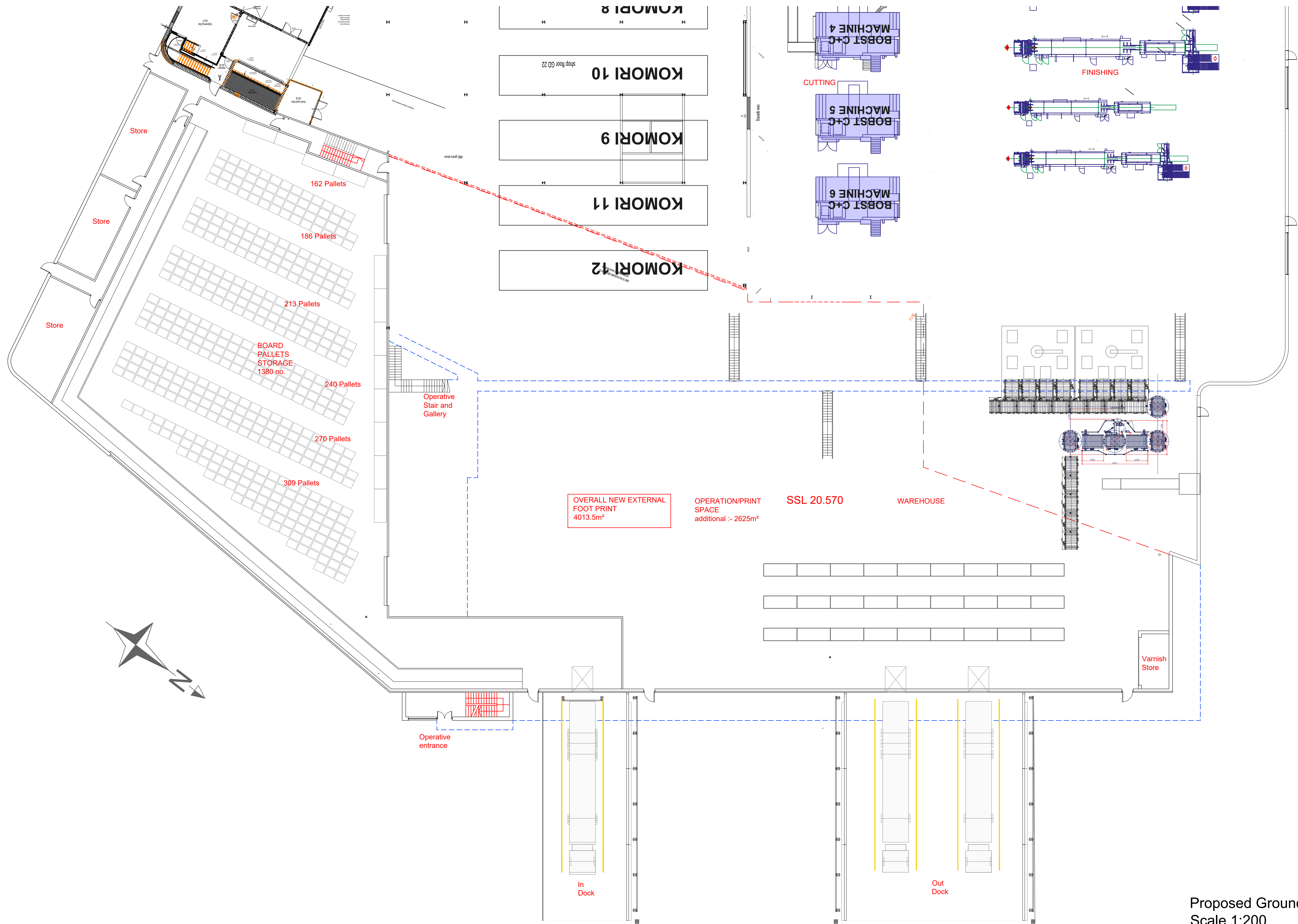
Scale  
1:200 @ A4

Drawn By  
Ken Wilkins

Checked By  
-

20036 - 106





## Planning

**LINDUM Construction**

Lindum Business Park, Station Road  
North Hykeham, Lincoln LN6 5QX  
Tel: (01522) 500300  
Fax: (01522) 862211  
E-Mail: construction@lindumgroup.co.uk

Client  
Ken Wilkins Print

Project  
Proposed Factory Extension  
And Associated Parking,  
Colwick Ind. Est. Private Road  
No. 1, Nottingham

Drawing Title  
Proposed Ground Floor  
Plan

Date  
Oct 2020

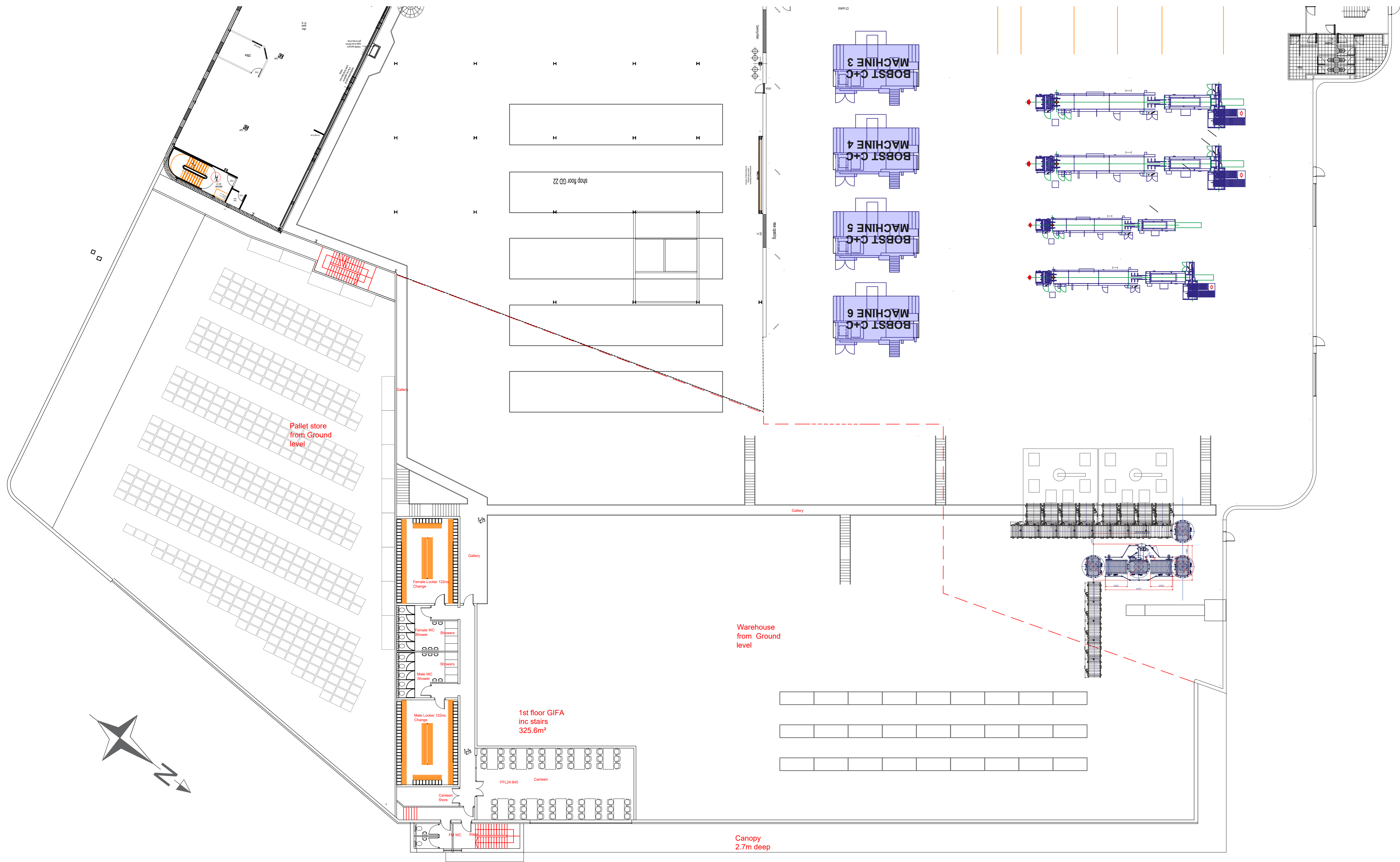
Scale  
1:200 @ A1

Drawn By  
SWC

Client Ref

Drawing Number  
20036 - 107

Revision  
-



Proposed First Floor Plan  
Scale 1:200

# Planning

**LINDUM** Construction

Lincoln Business Park, Station Road  
North Hykeham, Lincoln LN6 5QX  
Tel: (01522) 500300  
Fax: (01522) 862211  
E-Mail: construction@lindumgroup.co.uk

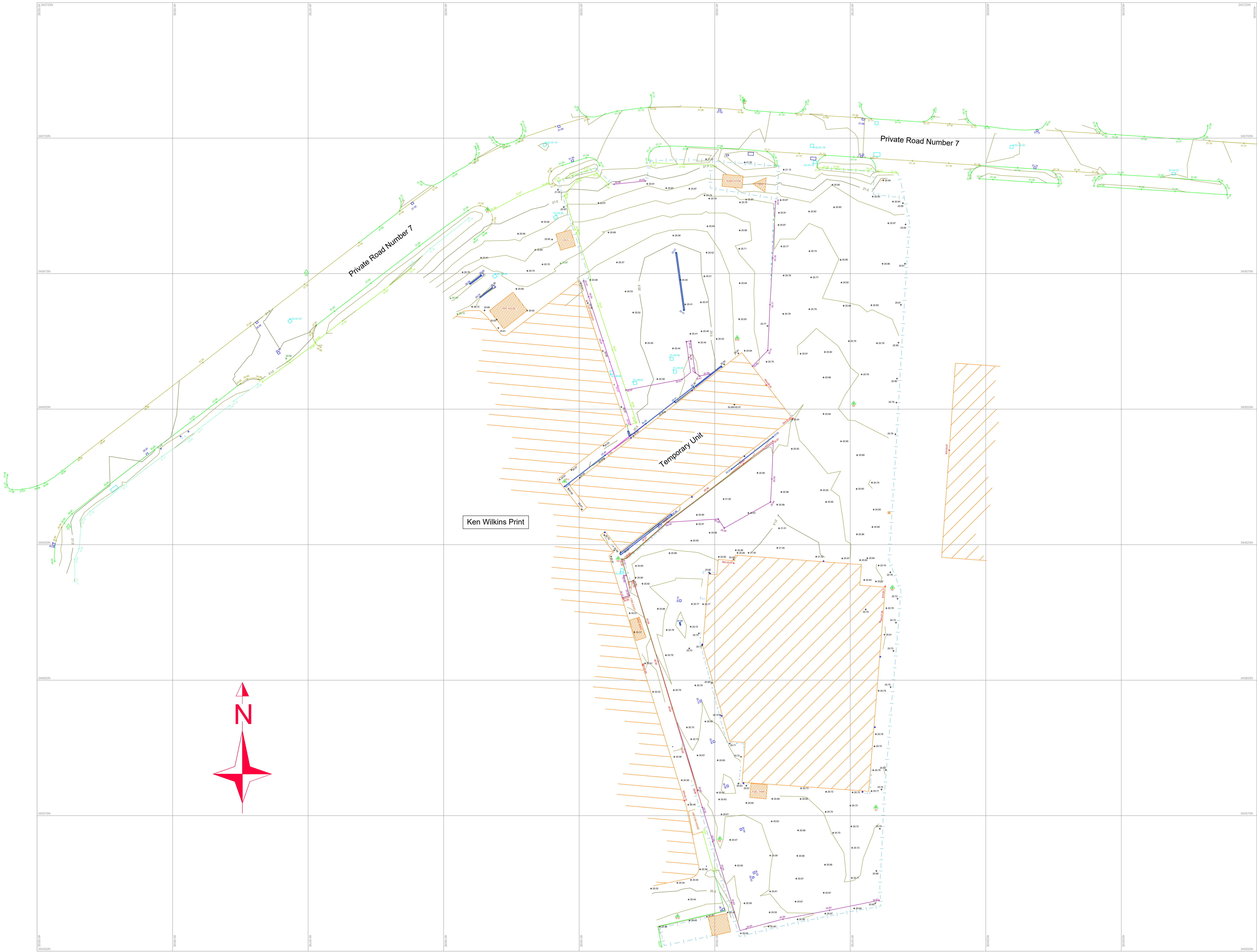
Client  
Ken Wilkins Print

Project  
Proposed Factory Extension  
And Associated Parking,  
Colwick Ind. Est. Private Road  
No. 1, Nottingham

Drawing Title  
Proposed First Floor Plan

Date Oct 2020	Scale 1:200 @ A1
Drawn By SWC	Client Ref
Drawing Number 20036 - 108	Revision -





Station	Easting	Northing	Level
S1	461830.806	340628.443	21.027
S2	461874.679	340675.322	21.250
S3	461908.073	340688.891	21.072
S4	461955.455	340706.930	21.244
S5	461975.637	340651.079	20.761
S6	461982.753	340617.133	20.759
S7	461979.723	340576.593	20.716
S8	461950.939	340570.803	20.613
S9	461932.196	340632.494	20.558
S10	461954.140	340663.190	20.616
S11	461922.294	340636.701	20.595
S12	461943.151	340556.497	20.398

**Survey Notes**

The information shown has been surveyed in accordance to the accuracy of the base scale shown.  
Boundaries shown are physical site features and may not represent legally conveyed ownership.,

Some services may have been omitted due to parked vehicles / obstructions.

This survey has been orientated to the Ordnance Survey (O.S) National Grid (OSGB36) via a Global Positioning System (GPS) and the O.S. Active Network (OS Net).

A true OSGB36 coordinate has been established near to the site centre (S10) via a transformation using the OSTN02 & OSGM02 transformation models.

The survey has been correlated to this point and a further one or more OSGB36 points established to create a true O.S. bearing for angle orientation.

No scale factor has been applied to the survey therefore the coordinates shown are not true O.S. coordinates.

Please refer to the survey station table to enable establishment of the on site grid.

Topographical Legend	
	building line
	wall
	verge
	extent of canopy
	kerb channel
	drop kerb
	tarmac
	concrete edging
	paving/slabs
	fence (annotated)
	building
	manhole cover
	inspection cover
	gas stop cock
	road gully
	bollard/post
	lamp post/lighting column
	stanchion/post
	sign post
	road sign
	water stop cock

REV:	AMENDMENTS:	DRN:	CHK:	DATE:
		ENGINEERING SURVEYING SERVICES LTD 0115 933 0961 f 0115 933 5043 f 07711 160776 m richard@engineering-surveying.co.uk		
Scale:	1:250	Client:	Ken Wilkins Print	
Date Surveyed:	27-03-19			
Date Drawn:	24-04-19			
Project:	Ken Wilkins Print			
Title:	Topographic Survey			
Location:	Colwick, Nottingham			
Job Number	Drawing Number		Revision No.	
19-28	19-28-01			