

TC/FRA&DS/P9298/23/09

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY

AT

**Land South of A5
Watling Street
Hinckley
Leicestershire
LE10 3ED**

FOR



Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

REPORT VERIFICATION

Site Address	Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED
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Document Reference	TC/FRA&DS/P9298/23/09 Flood Risk Assessment & Drainage Strategy
Date Originated	10 February 2023
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Issue no	Date	Status	Issued by
01	10/02/2023	Final	CS
02	03/03/2023	Final	CS
03	26/04/2023	Final	CS
04	24/05/2023	Final	CS
05	23/11/2023	Detailed Design	CS
06	06/03/2024	Updated for Planning	CS
07	08/03/2024	Updated for Planning	CS
08	12/03/2026	Updated For Planning	CS
09	23/03/2026	Updated For Planning	CS

CONTENTS

1	INTRODUCTION	1
1.1	Project Scope / Client Brief	1
1.2	Site Location & Topography	1
1.3	National Planning Policy Framework and Planning Practice Guidelines	1
1.4	Environment Agency Flood Map for Planning	2
1.5	Development Classification	3
1.6	The Proposed Development in Relation to Planning Requirement	5
2	SITE CHARACTERISTICS	6
2.1	Geological Assessment	6
2.2	Existing Surrounding Natural or Manmade Drainage Features	6
2.3	Geotechnical Assessment	7
3	ASSESSMENT OF FLOOD RISK	8
3.1	Explanation of Flood Risk	8
3.2	Flooding Resulting from the Rivers and/or Sea.	8
3.3	Flooding Resulting from Surface Water	9
3.4	Flooding Resulting from Other Sources	10
4	FLOOD MITIGATION	12
4.1	Flood Defence	12
4.2	Flood Defence/Mitigation Recommendations	13
5	SURFACE WATER DRAINAGE STRATEGY	15
5.1	Catchment Assessment	15
5.2	Urban Creep	15
5.3	Climate Change	15
5.4	Proposed Runoff Rates	15
5.5	SuDS Hierarchy	16
5.6	Design Parameters	16
5.7	Surface Water Drainage Proposals	16
5.8	Exceedance Routing	17
5.9	Treatment Processes	17
6	CONCLUSIONS	18
7	REFERENCES	19

APPENDICES

APPENDIX A: DEVELOPMENT PLANS

APPENDIX B: TOPOGRAPHICAL SURVEY

APPENDIX C: SEVERN TRENT CLEAN WATER PLANS

APPENDIX D: ENVIRONMENT AGENCY PRODUCT 4 DATA

APPENDIX E: LEVELS & CATCHMENT PLANS

APPENDIX F: GREENFIELD RUNOFF ESTIMATION

APPENDIX G: SURFACE WATER CALCULATIONS

APPENDIX H: DRAINAGE LAYOUT PLAN

APPENDIX I: SIMPLE INDEX METHOD

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

1 INTRODUCTION

1.1 Project Scope / Client Brief

Thomas Consulting has been commissioned by CNG Fuels to carry out a site-specific flood risk assessment and drainage strategy report in accordance with the National Planning Policy Framework (NPPF) to support a planning application that fulfils the requirements of the statutory local authorities.

1.2 Site Location & Topography

The site is located Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED and the report is to support the development of a Bio-CNG vehicle fuelling station. A copy of the development proposals can be found in Appendix A of this report. The approximate Ordnance Survey (OS) grid reference for the site is 440742 292568 and the location of the fuelling station is shown on Figure 1.



Figure 1: CNG Station location plan (Source: OS Maps, 2026: License No. 100020411)

The proposed site is approximately 0.92Ha and the plot of land comprises entirely of undeveloped greenfield grass land. The plot of land is situated west of the current BP petrol station and sits south of the A5 where an additional adopted slip-road has also been proposed for site access extending the current highway. Opposite the A5 sits an existing traveller site consisting of temporary homes. A topographical survey to ordnance datum has been made available by CNG Fuels and shows the levels of the site averaging between 89.2mAOD and 88.5mAOD. A full copy of the survey can be found in Appendix B.

1.3 National Planning Policy Framework and Planning Practice Guidelines

The NPPF and its Planning Practice Guidance (PPG) states any development other than the following outlined below is classed as a major development.

- Minor non-residential extensions: industrial/commercial/leisure etc extensions with a footprint less than 250 square meters.
- Alterations: development that does not increase the size of buildings e.g. alterations to external appearance.

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

- Householder development: For example, sheds, garages, games rooms etc within the curtilage of the existing dwelling, in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling e.g. subdivision of houses into flats.

The guidance also states that a site-specific flood risk assessment is required for the following site proposals.

- A site proposed in Flood Zone 2 or 3 including minor development and change of use in development type to a more vulnerable class.
- More than 1 hectare (ha) in Flood Zone 1
- Less than 1 ha in Flood Zone 1, including a change of use in development type to a more vulnerable class (for example from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (for example surface water drains, reservoirs)
- In an area within Flood Zone 1 which has critical drainage problems as notified by the Environment Agency

1.4 Environment Agency Flood Map for Planning

National Planning Policy Framework (NPPF) Flood Zones comprise Flood Zone 1, Flood Zone 2, and Flood Zone 3. The Environment Agency's Indicative Flood Map for Planning (Figure 2) shows that most the site is located within the NPPF defined Flood zone 1 however the south east of the site intrudes Flood zone 2.

Flood Zones are based on an areas Annual Exceedance Probability (AEP) of River or Sea Flooding. For example, Flood Zone 1 has a 'Low Probability' of flooding as it has an AEP of <0.1% (Less than 1 in 1000 year) of occurring in any one year. Flood Zone 2 has a 'Medium Probability' having an AEP of 0.1-1.0% (1 in 1000 – 1 in 100 year) chance of river flooding, or 0.1-0.5% (1 in 1000 – 1 in 200 year) chance of tidal/sea flooding.

Flood Zones 3 is split between 'a' and 'b' classifications. Flood Zone 3a has a 'High Probability' of flooding as it has an AEP of >1.0% (More than 1 in 100 year) chance of river flooding, or >0.5% (More than 1 in 200 year) chance of sea/tidal flooding. Flood Zone 3b (The Functional Floodplain) comprises land where water has to flow or be stored in times of flooding. Local planning authorities should identify in the Strategic Flood Risk Assessments areas of a functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map for Planning).

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

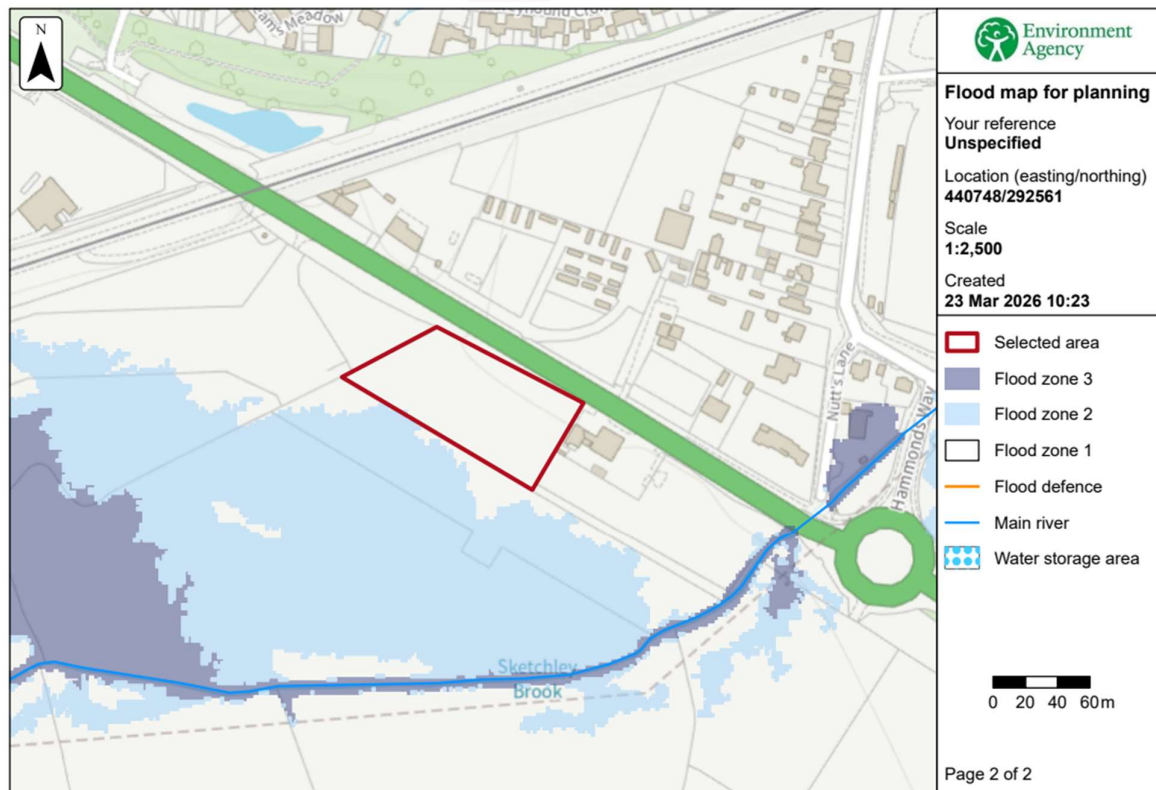


Figure 2: Environment Agency Flood Zone Map (Source: Environment Agency, 2026, GOV.UK)

1.5 Development Classification

The PPG separates each development into a vulnerability class. These classifications can be found in Table 1, whilst in Figure 3 permittable development in relation to its classification is shown.

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

Vulnerability Classification	Development
Essential Infrastructure	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems; and water treatment works that need to remain operational in times of flood. • Wind turbines. • Solar farms
Highly Vulnerable	• Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure'.)
More Vulnerable	• Hospitals • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non-residential uses for health services, nurseries and educational establishments. • Landfill* and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan
Less Vulnerable	• Police, ambulance and fire stations which are not required to be operational during flooding. • Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill* and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do not need to remain operational during times of flood. • Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place. • Car parks.
Water-Compatible Development	• Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel working. • Docks, marinas and wharves. • Navigation facilities. • Ministry of Defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

Table 1: NPPF Flood Risk Vulnerability Classification (Source: National Planning Practice Guidance, 2024)

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	✗	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	✗	✗	✗	✓*

Key:

✓ Development is appropriate

✗ Development should not be permitted.

Figure 3: NPPF Flood Risk Vulnerability Classification (Source: National Planning Practice Guidance, 2024)

1.6 The Proposed Development in Relation to Planning Requirement

As the proposed development footprint is approximately 0.92 Hectares and is partially situated in Flood Zone 2, a flood risk assessment and strategic drainage strategy is required. The site is classed as a major development and according to the PPG would fall under the "Less Vulnerable" class. "Less Vulnerable" developments are acceptable in Flood Zone 2 as shown in Figure 3.

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

2 SITE CHARACTERISTICS

2.1 Geological Assessment

A desk-based study has been carried out to analyse the basic site geology. British Geological Survey (BGS) and Land Information Systems (LandIS) provide mapping which indicates the characteristics of the soil, superficial and bedrock layers across the site Table 2.

Principal Aquifers - These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

Secondary A Aquifers - permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

Secondary B Aquifers - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons, and weathering. These are generally the water-bearing parts of the former non-aquifers.

Secondary (Undifferentiated) Aquifers - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

Geological Assessment			
Geological Layer	Classification	Description	Aquifer Class
Soil	Soilscape 18	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	N/A
Superficial (Drift)	Alluvium	Clay, silt, sand and gravel	Secondary A
Bedrock (Solid)	Mercia Mudstone	Mudstone	Secondary B

Table 2: Geological Assessment

Magic maps which are available online provide data on vulnerability zones such as source protection zones and/or groundwater vulnerability zones. The maps indicate that the site is a medium risk to groundwater vulnerability and the site is not in a source protection zone.

2.2 Existing Surrounding Natural or Manmade Drainage Features

According to the EA Main River Maps the closest known watercourse is approximately 150m southeast from the site. This watercourse is called Sketchley Brook and flows west before connecting to the River Anker.

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

Severn Trent are the water authority for this region. Their detailed sewer records show that there is a 'Pressure Combined' sewer running parallel to the A5 on the proposed development side of the A5 crossing the proposed site entrance and a '4" URPVC Water Main' running under the path on the opposite side of the A5. There is no gravity fed public sewers on their records which are included in Appendix C.

2.3 Geotechnical Assessment

A Preliminary Risk Assessment (PRA – Formally known as a Phase 1) was published on 21/12/22 by Thomas Consulting ref: TC/PRA/P9299/22/01 and suggests based on the superficial strata and bedrock, permeability is likely to be very low on the site.

In January 2023, BEK conducted a Site Investigation & Ground Assessment. Their concluding report referenced: BEK-23005-1 presented results from 7 window sample borehole logs on site. The borehole results were consistent throughout the site and concluded approximately, the top 0.4m-0.5m consisted of grass and topsoils, followed by firm brown sandy gravelly clay for the next 0.8m-2m and then stiff brown and gold clay until reaching to termination depths of between 4.45m-5.45m. The results also show that 5 of the 7 boreholes found didn't encounter any water however one borehole located furthest southeast encountered a slight water strike at 2m (next to trees) and furthest northwest was wet at ground level (next to trees). Furthermore, soakaway testing to BRE 365 was carried out at 2 locations and found that the percolation rate of the shallow strata does not support the use of soakaways on this site.

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

3 ASSESSMENT OF FLOOD RISK

3.1 Explanation of Flood Risk

Flood events are often referred to as their probability of occurrence. This occurrence is usually related to how often a storm may return in any single year. Table 3 shows the storm return periods and how they are expressed as a fraction and percentage in common terminology.

Storm Return Period (Years)	Annual Exceedance Probability (AEP)	
	Fraction	Percentage
2	0.5	50%
10	0.1	10%
25	0.04	4%
50	0.02	2%
100	0.01	1%
200	0.005	0.5%
500	0.002	0.2%
1000	0.001	0.1%

Table 3: Storm Return Period Probabilities

3.2 Flooding Resulting from the Rivers and/or Sea.

Figure 4 shows the EA fluvial flood map derived from the DEFRA online portal. This map indicates areas which may be at risk of flooding from rivers and the sea. High risk is classed as a >3.3% Annual Exceedance Probability (AEP) event and is shown in dark blue. Medium risk is an AEP event of between 3.3-1% and is shown in blue. Low risk is an AEP event of between 1-0.1% and is shown in light blue. Very Low risk is an AEP event of <0.1% and is shown in white.

As can be seen the site is shown to be at low to medium risk of fluvial flooding. The maps show the latest information provided by the EA and considers the protections provided by current flood defences. However, climate change is not assessed as part of the map's information.

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

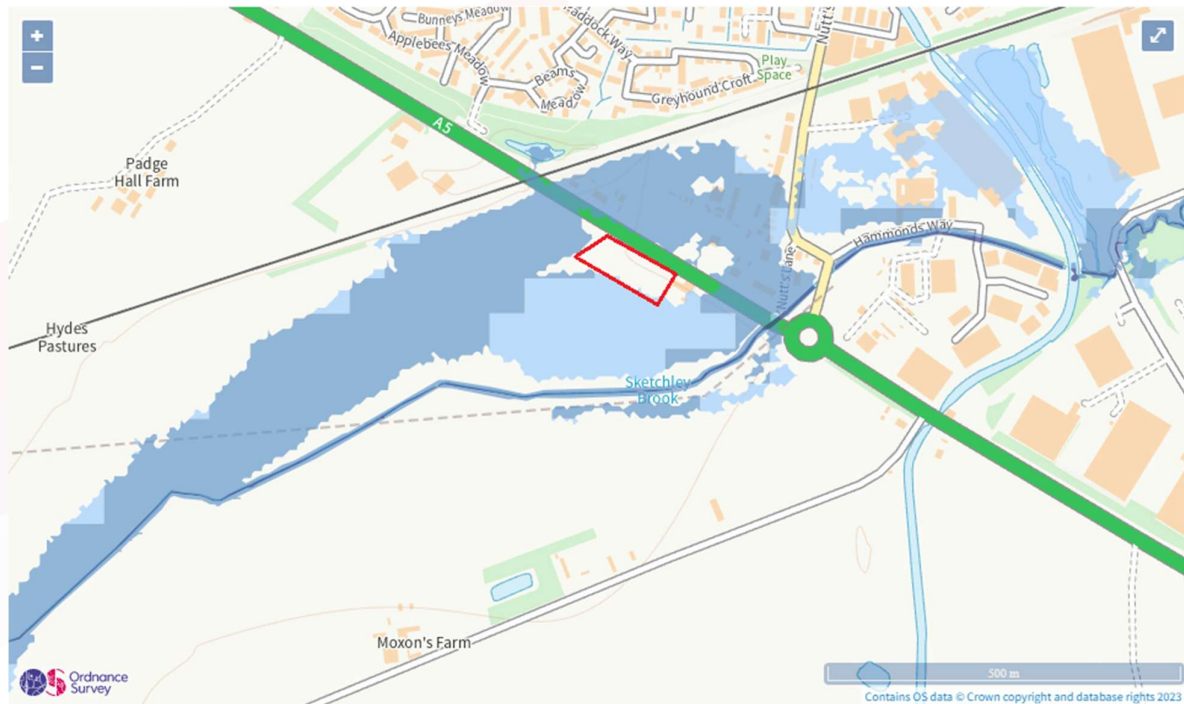


Figure 4: Environment Agency Fluvial Flood Map (Source: Environment Agency, 2023, GOV.UK)

3.3 Flooding Resulting from Surface Water

Also available on the DEFRA online portal are maps provided by the EA showing areas known to be affected by surface water flooding. These maps are based on historic flooding information received from statutory authorities and a generalised model based on digital terrain modelling.

The maps work in the same colour coding as described above for the fluvial maps where High risk AEP events are displayed in Dark Blue, Medium Risk in Blue, Low Risk in Light Blue and Very Low Risk in White. Figure 5 shows the site is predominantly not at risk of surface water flooding however it borders around areas with low and medium extent of flooding.

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

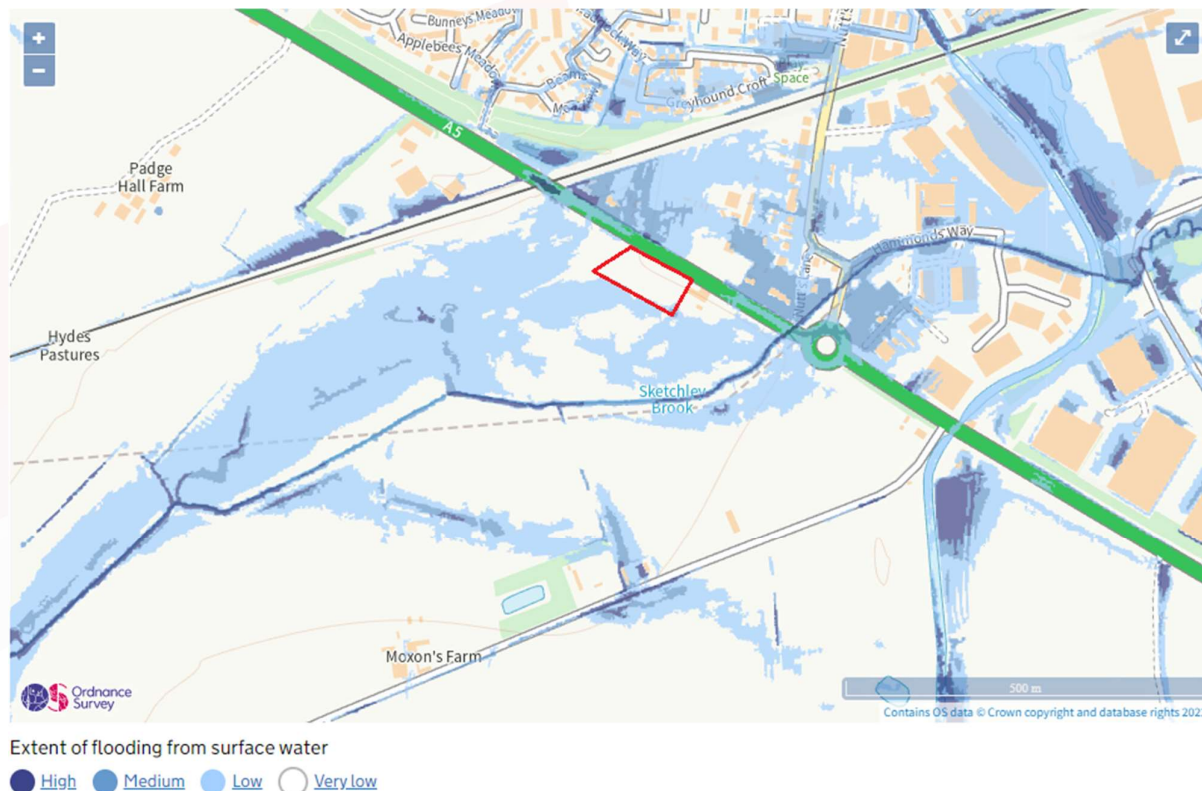


Figure 5: Environment Agency Surface Water Flood Map (Source: Environment Agency, 2023, GOV.UK)

3.4 Flooding Resulting from Other Sources

Hinckley & Bosworth Borough Council provide reference to Level 1 and Level 2 Strategic Flood Risk Assessment (SFRA) completed by JBA Consulting in 2019 and 2020 respectively.

The Level 1 SFRA explains that Sketchley Brook poses a fluvial flood risk to Hinckley and that the region/borough is within the <25% susceptible ground flooding classification. Section 5.7 of their report (Page 54) explains that Borehole records hold valuable information on groundwater flooding. As previously mentioned in section 2.3, window borehole samples concluded that within the site 1 of 7 borehole samples encountered a slight water strike at a depth of 2m whilst 1 other encountered water at ground level.

The DEFRA portal also provides Reservoir Flood Maps produced by the EA, in which a copy for the area can be seen in Figure 6. This map indicates the maximum extent of flooding from reservoirs highlighted in light blue. As can be seen the site is not at risk of flooding from reservoirs and has no other canals or artificial sources nearby that pose any risk of flooding.

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

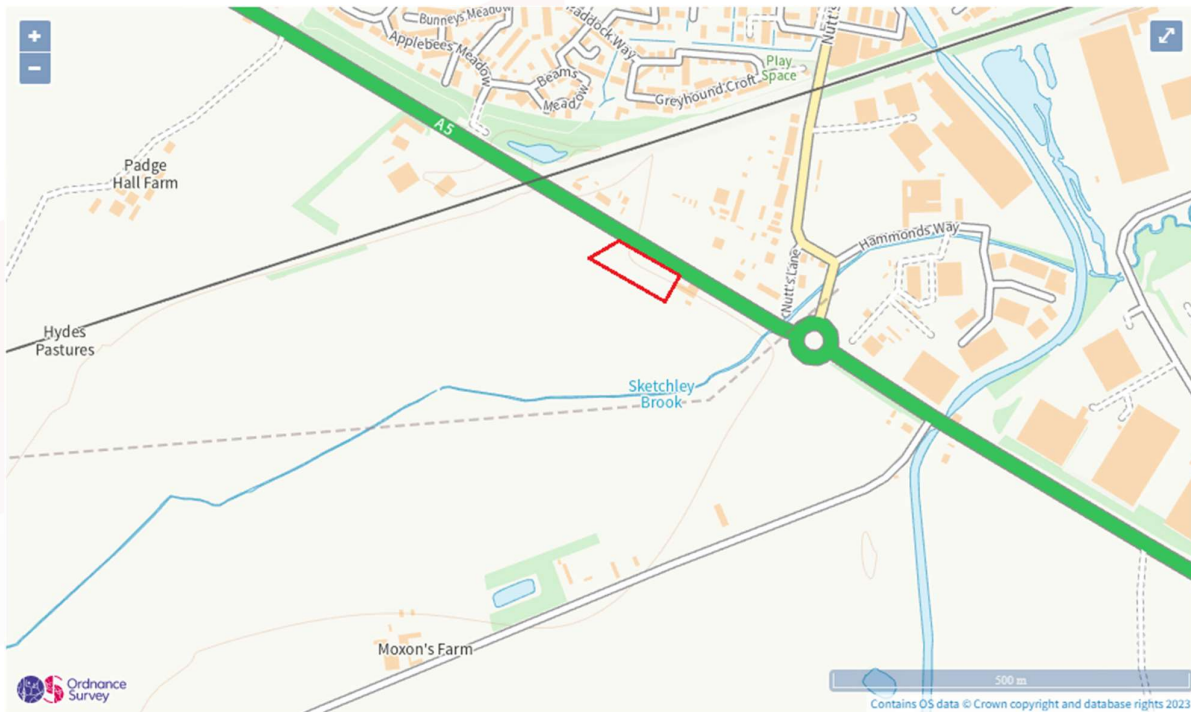


Figure 6: Environment Agency Reservoir Flood Map (Source: Environment Agency, 2023, GOV.UK)

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

4 FLOOD MITIGATION

4.1 Flood Defence

Although the site is partially situated in Flood Zone 2, Product 4 data was readily available from a previous CNG site and has been taken into consideration for a more accurate analysis as the information provided is still relevant. The Product 4 data was requested by TC to the Environment Agency (EA) on 23/02/2022 and was received on 15/03/2022. A reference plan and Product 4 document referenced 253382 was provided showing modelled water levels of Sketchley Brook. Reference to the plan can be made in Figure 7 below showing the node point locations analysed within the document. A full copy of the Product 4 data received from the EA can be found in Appendix D of this report.

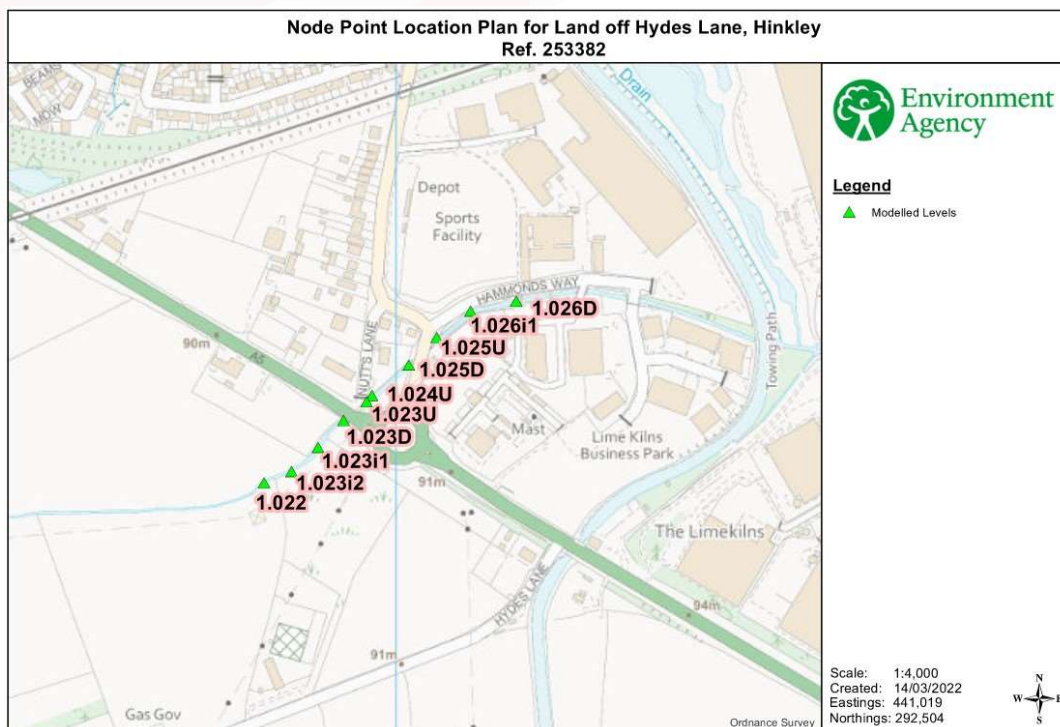


Figure 7: Environment Agency Node Location Plan (Source: Environment Agency, 2022)

The most applicable node references to this assessment are as follows;

- 1.022, 1.023D, 1.023i1, 1.023i2

The modelled data is from analysis undertaken in 2013. Maximum water levels have been provided against the corresponding nodes in the un-defended scenario and have been highlighted in Figure 8 below;

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

Annual Exceedance Probability - Maximum Water Levels (mAOD) UN-DEFENDED				
Node Label	EASTING	NORTHING	1% (1 in 100)	0.1% (1 in 1000)
1.025U	441042	292566	90.22	90.48
1.024U	440975	292506	90.22	90.35
1.023U	440969	292499	90.21	90.34
1.022	440863	292416	88.54	88.72
1.023D	440946	292480	88.92	88.99
1.025D	441013	292538	90.22	90.34
1.026D	441124	292604	90.34	90.55
1.026i1	441077	292594	90.23	90.48
1.023i1	440919	292453	88.70	88.83
1.023i2	440892	292428	88.59	88.76

Figure 8: Environment Agency Max Water Level (Source: Environment Agency, 2022)

The maximum water levels associated with a number of annual exceedance probabilities has also been provided for the defended scenario which have been highlighted in Figure 9 below;

Annual Exceedance Probability - Maximum Water Levels (mAOD) DEFENDED											
Node Label	EASTING	NORTHING	20% (1 in 5)	10% (1 in 10)	5% (1 in 20)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	1% (Climate Change)*	0.5% (1 in 200)	0.1% (1 in 1000)
1.025U	441042	292566	89.594	89.6	89.965	90.17	90.195	90.223	90.29	90.296	90.476
1.024U	440975	292506	89.59	89.59	89.96	90.17	90.19	90.22	90.29	90.30	90.35
1.023U	440969	292499	89.58	89.58	89.95	90.15	90.18	90.21	90.28	90.28	90.34
1.022	440863	292416	88.16	88.18	88.37	88.50	88.52	88.54	88.61	88.61	88.72
1.023D	440946	292480	88.74	88.74	88.83	88.90	88.91	88.92	88.95	88.95	88.99
1.025D	441013	292538	89.59	89.60	89.96	90.17	90.19	90.22	90.29	90.29	90.34
1.026D	441124	292604	90.01	90.01	90.14	90.29	90.31	90.34	90.42	90.43	90.55
1.026i1	441077	292594	89.65	89.65	89.97	90.17	90.20	90.23	90.29	90.30	90.48
1.023i1	440919	292453	88.40	88.41	88.56	88.66	88.68	88.70	88.75	88.75	88.83
1.023i2	440892	292428	88.21	88.23	88.43	88.55	88.57	88.59	88.65	88.65	88.76

Figure 9: Environment Agency Max Water Level for AEP's (Source: Environment Agency, 2022)

The EA explain within their document that they hold no record of historic flooding in the area and that there are no formal defences owned or operated by the EA protecting the proposed development site. As this is the case the un-defended 1% AEP maximum recorded water level (mAOD) will be analysed for the site.

4.2 Flood Defence/Mitigation Recommendations

As can be seen the 1% AEP / 1 in 100-year return period + climate change shown in Figure 9 will be analysed with a maximum water level recorded at **88.95mAOD**. The proposed finished forecourt level shows elevations ranging between **88.59-89.95mAOD** and are also protected by a minimum kerb height of 88.94m AOD surrounding the forecourt. A levels plan and catchment plan has been made available in Appendix E. Furthermore, the site is at a minimum distance of approximately 150m away from the closest relevant node shown within the product 4 data and therefore any overland flooding is assumed to dissipate over the adjacent land before reaching the site. As discussed in section 1.2, the site is to be used as bio-fuelling station which is not deemed to be harmful to the environment compared to a tradition petroleum fuelling station. Biomethane when it escapes is light enough to be carried through air molecules and therefore, would likely escape into the atmosphere rather than transported through water.

CNG Fuelling stations are also not personnel manned sites. Therefore, they technically can be allowed to flood during extreme rainfall events. As the proposed development is situated over 150m from the brook, our precautionary recommendations are as follows;

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

- All plant and apparatus on site should be either bunded and/or adequately sealed if located below ground (i.e. storage tanks, sampling chambers, ducting). Anything located above ground such as pumps etc should be raised above the flood level, if required and/or possible, on plinths etc.
- Non-return valves and anti-flood mechanisms should be installed on devices such as oil interceptors, treatment devices, flow controls and headwalls. This prevents the potential for pollutant displacement during flood events.
- The site should be designed as to not displace flood water off the site and should be designed as to hold the water until the storm event and flooding subsides.
- The site should be designed so that safe access and egress is still available for emergency vehicles etc. This will need to be analysed following the provision of a topographical survey to ensure safe flood levels are maintained on site for emergency crews to access the site.

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

5 SURFACE WATER DRAINAGE STRATEGY

5.1 Catchment Assessment

A catchment assessment has been completed in AutoCAD to determine the different types of proposed land cover with the results demonstrated in Table 4. The total site area is 0.92ha, however the new proposed slip road for site access hasn't been included in the catchment assessment as it is intended to drain into the existing highway drains. A full catchment plan along with a levels plan of the site has been made available in Appendix E as previously mentioned.

Catchment Assessment	
Type of Land	Associate Area m² (Ha)
Paved Impermeable Area	5084 (0.51)
Garden, landscaped and permeable area	3250 (0.33)
Highway Junction and Site Access	757 (0.08)

Table 4: Catchment Assessment on Proposed Development

5.2 Urban Creep

Urban Creep is not a statutory requirement, however, to account for future increases in impermeable area through the development of extensions and/or alterations to habitable dwellings an increase of 10% is usually applied to associated roof areas. However, as this development is for the construction of a bio-methane fuelling station, no expansion is proposed or expected, nor is there any space in the land ownership to extend the site further. Therefore, urban creep isn't to be applied.

5.3 Climate Change

Climate Change projections indicate that worsening rainfall events are to occur over the next few decades. These effects are becoming more prominent and speeding up in development. To account for the effects of climate change in accordance with guidance outlined by the Environment Agency an uplift allowance of 40% has been added to the 100-year return period to increase the worst-case scenario for the design of the drainage network.

5.4 Proposed Runoff Rates

Runoff calculations have been provided in Appendix F and have been completed using the FEH data via the UK SuDS HR Wallingford online portal. The proposed greenfield runoff rates have been calculated from 0.84 Ha as this is the area within the redline boundary that is currently not being captured by highway gullies into their separate system. Below in Table 5 is a summary of the results.

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

Peak Rate of Runoff (l/s) Assessment		
Return Period	Greenfield	Proposed Rate
Q1	2.7	3.3
Q2	2.9	3.3
QBar	3.3	3.3
Q10	4.9	3.3
Q30	6.5	3.3
Q100	8.4	3.3

Table 5: Surface Water Rate of Runoff Results – Entire Development

As can be seen in Table 5, the proposed rate has been restricted to the Greenfield QBAR runoff rate, with proposed runoff rates being less than greenfield runoff rates for any return period greater than QBAR.

5.5 SuDS Hierarchy

All surface water drainage designs are to follow the SuDS Hierarchy outlined within the SuDS Manual. This hierarchy requires the designer to attempt infiltration methods, prior to proposing disposal to a watercourse. If the above two are not possible then consideration can be made to the disposal of surface water to the public sewer network. However, a connection to a dedicated sewer (i.e. surface water or foul) should always be sought in preference to the connection of a combined sewer.

As previously mentioned in section 2.3, soakaways have been found unviable on this site and therefore, following the SuDS hierarchy, a connection to Sketchley Brook previously mentioned in section 2.2 has been sought.

5.6 Design Parameters

The following design parameters have been utilised within the drainage model;

- Simulations have been set to analyse in 1 in 5 year return period, 1 in 30 and 1 in 100 + 40% climate change.
- Storm durations have been capped at 1440 minutes as the worst case storm scenario was 480 minutes.
- CV values are set at industry standard 0.75 for summer and 0.84 for winter.
- The calculations use the most recent FEH-22 rainfall data for the analysis.
- The restricted discharge rate for the site has been set at QBAR (3.3l/s)

5.7 Surface Water Drainage Proposals

Based on the above assessment the following SuDS techniques are proposed:

- Geocellular Storage Tanks & Restricted Run-Off Discharge (Flow Control Chamber)
- Class 1 Full Retention Separator

The SuDS have been sized to contain a future 1% AEP event of critical duration with future climate change (40%) accounted for. Although much of the areas housing the plant don't need to be positively drained as the granular finish will act similar to that pre-development, it has still been included in the drainage

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

catchment areas for conservative design. The hydraulic calculations and proposed drainage layout are included in Appendix G & H respectively.

It is proposed that the entirety of the sites paved impermeable area runoff is to be drained via rainwater gullies and channel drainage which is then passed through a Full Retention Separator prior to being stored within a geocellular attenuation tank under a parking bay southeast of the fuelling stations forecourt. The geocellular attenuation tank is proposed to consist of a full depth of 1080mm providing a total storage volume of 281.6m³. The water then flows into a flow control chamber housing a pumping water east to a manhole located adjacent to Sketchley Brook before discharging into the Brook.

As the site is currently a greenfield site proposed for development it is a statutory requirement that off-site runoff is restricted so that discharge rates do not exceed pre-development greenfield runoff rates for any storm duration. Due to this, the pump is set to a fixed rate of 3.3 l/s set by the Greenfield QBAR rate as previously mentioned in section 5.4.

5.8 Exceedance Routing

The drainage model has been designed to store a 100-year return period, plus the effects of climate change. In the rare case a storm of greater severity occurs, surface water will exceed via S102 from the gully lid before ponding against the southern kerb of the site until the storm subsides. Surface water will pond on the forecourt until the surface water breaches the adjacent kerb and disperse over the neighbouring fields.

5.9 Treatment Processes

Treatment of the surface water run-off from the development has been completed in accordance with the Simple Index method outlined within the SuDS Manual. As per Section 5.7, the proposed drainage methods have been shown below against the proposed development usage to indicate adequate treatment has been provided.

SuDS Simple Index Method			
Pollution Hazard	TSS	Metals	Hydro-Carbons
Medium	0.7	0.6	0.7
SuDS	TSS	Metals	Hydro-Carbons
Typical Full Retention Separator	0.8	0.6	0.9
Total	0.8	0.6	0.9

Table 6: SuDS Simple Index Method

A copy of our Simple Index Method calculations has been provided in Appendix I. The Full Retention Separator will be specified to mitigate a 'Medium' Pollution hazard level as stated within Table 26.2 of The SuDS Manual (Ciria report C753).

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

6 CONCLUSIONS

- The site is approximately 0.92ha and is located south of the A5 in Hinckley. The site currently comprises of undeveloped greenfield grass land and is generally flat with average elevations of 89.2mAOD and 88.5mAOD.
- The proposed development is classed as a major development and according to the NPPF's PPG as a bio-fuelling station the site is classed as less vulnerable to flood risk. Less vulnerable developments are deemed acceptable in Flood Zone 2.
- The site is at a medium risk to groundwater vulnerability and the site is not in a source protection zone.
- The site is mainly located within Flood Zone 1 and is partially occupied by Flood Zone 2 towards the southeast site boundary. It borders a low to medium risk of flooding from surface water and a medium risk from fluvial flooding.
- Severn Trent sewer records show that there is a combined sewer and water main running parallel to the A5 on both the closest and opposing sides of the carriageway respectively.
- Site investigation testing to BRE365 has concluded that infiltration methods aren't viable on this site and therefore, following the SuDS hierarchy, discharge to the closest watercourse has been initially sought.
- It is proposed that the entirety of the sites hardstanding impermeable area runoff is to be drained via rainwater gullies and channel drainage which is then passed through a Full Retention Separator prior to being stored within a geocellular attenuation tank under a parking bay southeast of the fuelling stations forecourt. The water then continues to a flow control chamber housing a pump before discharging into Sketchley Brook southwest of the site.
- The pump is restricted to a fixed QBAR Greenfield run-off rate of 3.3 l/s for all return periods before discharging the restricted runoff into Sketchley Brook.
- The site has been designed to store surface water on site for storm intensities of 1 in 5 year return period, 1 in 30 and 1 in 100 + 40% climate change. If a storm of greater severity does occur, water will exceed the site via breaching the kerb southwest of the site before dissipating into the neighbouring field.
- All surface water drained from the forecourt gets treated through a Full Retention Separator complying with the simple index method before entering Sketchley Brook further east of the site.

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

7 REFERENCES

- [1] Ministry of Housing, Communities and Local Government, *National Planning Policy Framework*, July 2024.
- [2] Ministry of Housing, Communities and Local Government, *Planning Practice Guidance to the National Planning Policy Framework*, December 2023. (Some parts of the guidance backdate)
- [3] GOV.UK, DEFRA/Environment Agency Portal.
- [4] British Geological Survey (BGS), Superficial Deposits and Bedrock Geology Viewer.
- [5] Land Information System (LANDIS), Soilscales Viewer
- [6] Environment Agency Groundwater Vulnerability Maps, DEFRA Magic Map.
- [7] Environment Agency, Main River Map Viewer.
- [8] Severn Trent Sewer Records.
- [9] BEK, *Site Investigation & Ground Assessment BEK-23005-1, March 2024*
- [10] Thomas Consulting, *Preliminary Risk Assessment TC/PRA/P9299/22/01, March 2024*
- [11] JBA Consulting, *2019s0332 Strategic Flood Risk Assessment for Hinckley and Bosworth Borough Council*, July 2019.
- [12] D.B Boorman, J.M. Hollis & A. Lilly, 1995. *Hydrology of soil types, Report No. 126. (IoH126) Institute of Hydrology*, November 1995.
- [13] UK SuDS Online Tool in accordance with Environment Agency report SC030419, *Rainfall Runoff Management for Developments*, October 2013
- [14] CIRIA, *Designing for Exceedance in Urban Drainage – Good Practice, Report C635*, 2006.
- [15] DEFRA, *Sustainable Drainage Systems – Non-statutory technical standards for sustainable drainage systems*, March 2015.
- [16] LASOO, *Non-statutory SUDS technical standards guidance*, 2016.

APPENDIX A
DEVELOPMENT PROPOSALS



PLANNING ISSUE

REVISIONS:				
REV	DESCRIPTION	DATE	CHK	APP
A	PRE APP PLANNING ISSUE	24-10-22	MS	MS
B	PRE APP PLANNING ISSUE	11-04-23	MS	MS
C	PLANNING ISSUE	05-05-23	MS	MS
D	PLANNING ISSUE	11-05-23	MS	MS
E	PLANNING ISSUE	17-05-23	MS	MS
F	PLANNING ISSUE	19-05-23	MS	MS
G	PLANNING ISSUE	12-09-23	MS	MS
H	PLANNING ISSUE	23-02-24	MS	MS
I	PLANNING ISSUE	28-02-24	MS	MS
J	PLANNING ISSUE	29-02-24	MS	MS
K	PLANNING ISSUE	24-04-24	MS	MS
L	PLANNING ISSUE	11-07-25	MS	MS
M	PLANNING ISSUE	20-01-26	MS	MS

NOTES:
1. TO BE READ IN CONJUNCTION WITH PROPOSED SITE ELEVATION VIEWS. DRG. No. 042-01-CNG-105

KEY

- PROPOSED CNG STATION REDLINE BOUNDARY
- SECURITY PALISADE FENCE 2.4m HIGH
- SITE BOUNDARY FENCE V MESH IN BLACK 2.4m HIGH
- SITE BOUNDARY FENCE CLOSE BOARDED TIMBER 2.4m HIGH
- SURFACE CHANNEL FOR BELOW GROUND PIPE ROUTING.
- CRASH BARRIER
- NEW TREES
- PROPOSED GRASSED LANDSCAPED AREA
- PROPOSED HEDGEROW
- EXISTING LEYLANDII TREES
- EXISTING HEDGEROW
- EXISTING TREE / VEGETATION ROAD SCREENING

CLIENT:

PROJECT:
HINCKLEY CNG STATION
WATLING STREET

TITLE:
PROPOSED CNG STATION
SITE LAYOUT PLAN

SCALE: 1:500 @ A3 DRAWN: KJB
CHECKED: MS CAD: DATE: 11-10-2022
APPROVED: MS SHEET: 1 OF 1

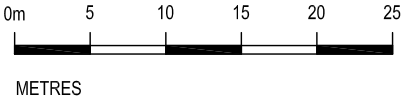
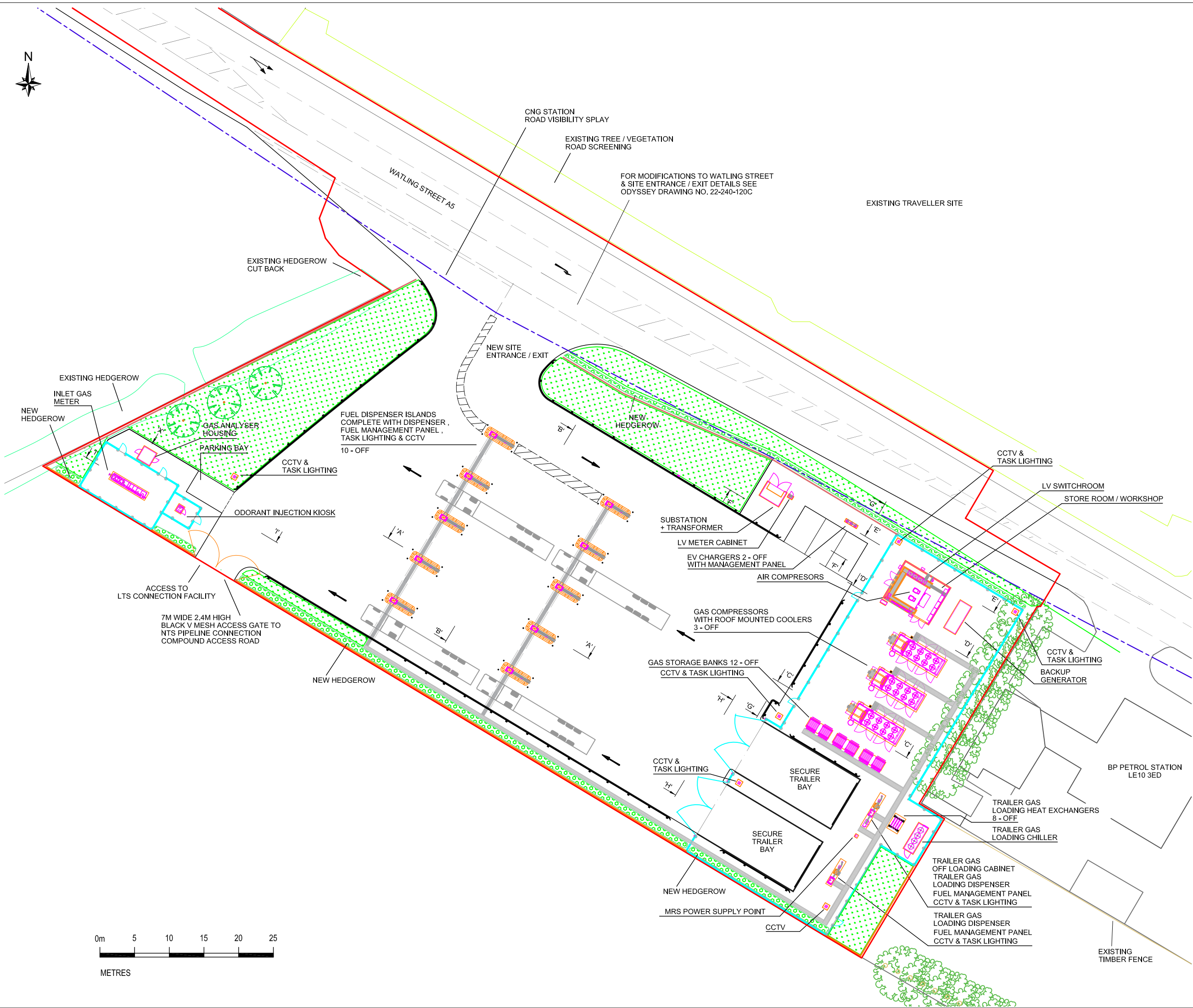
PROJECT No: 042

DRAWING No: 042-01-CNG-104

REVISION: M



THOMAS HOUSE
84 ECCLESTON SQUARE
LONDON
SW1V 1PX
TEL: 0203 961 9925
WEB: www.cngfuels.com



APPENDIX B
TOPOGRAPHICAL SURVEY



LINE
ACRES

WATLING STREET A5

BP PETROL
STATION
LE10 3ED

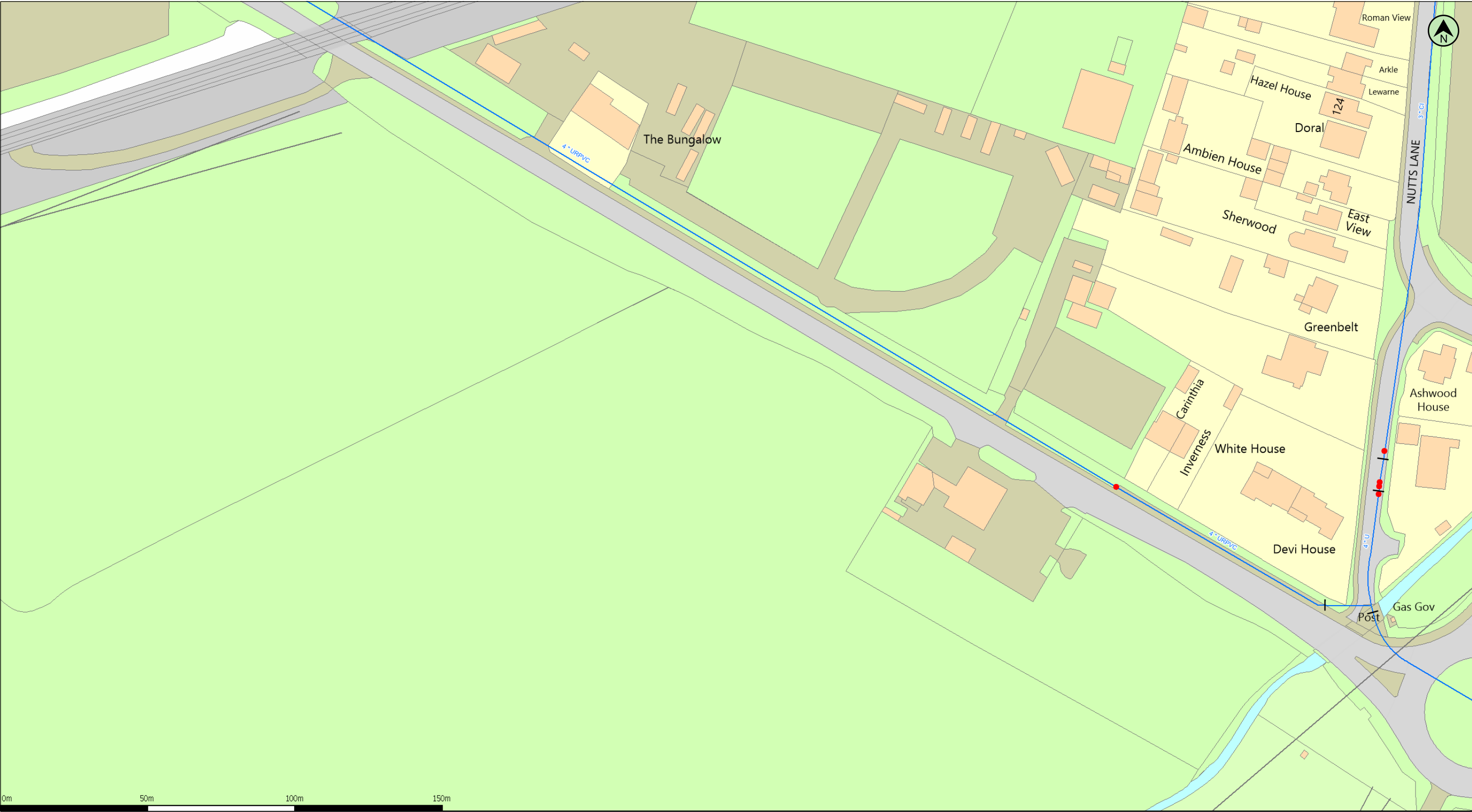
LARGE
LECHLAND



TITLE	WATLING ST TOPO-OS Map
DRAWN BY	D NUTTALL
DRAWING NUMBER	N/A
DATE	28/09/2022

Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

APPENDIX C
SERVERN TRENT CLEAN WATER PLANS



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Date: 11/01/23

Scale: 1:1250

Map Centre: 440751,292567

Data updated: 14/12/22

Our Ref: 1054905 - 2

Clean Water Plan A3

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Hydrant		Valve		Aqueduct	
Washout		Water Main		Duct	
Meter		Abandoned Pipe		Service Pipe/ Private Pipe	

stacey.meades@cngfuels.com

Hinckley, Watling St



GENERAL CONDITIONS AND PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK ADJACENT TO SEVERN TRENT WATER'S APPARATUS

Please ensure that a copy of these conditions is passed to your representative and/or your contractor on site. If any damage is caused to Severn Trent Water Limited (STW) apparatus (defined below), the person, contractor or subcontractor responsible must inform STW immediately on:

0800 783 4444 (24 hours)

- a) These general conditions and precautions apply to the public sewerage, water distribution and cables in ducts including (but not limited to) sewers which are the subject of an Agreement under Section 104 of the Water Industry Act 1991(a legal agreement between a developer and STW, where a developer agrees to build sewers to an agreed standard, which STW will then adopt); mains installed in accordance with an agreement for the self-construction of water mains entered into with STW and the assets described at condition b) of these general conditions and precautions. Such apparatus is referred to as “STW Apparatus” in these general conditions and precautions.
- b) Please be aware that due to The Private Sewers Transfer Regulations June 2011, the number of public sewers has increased, but many of these are not shown on the public sewer record. However, some idea of their positions may be obtained from the position of inspection covers and their existence must be anticipated.
- c) On request, STW will issue a copy of the plan showing the approximate locations of STW Apparatus although in certain instances a charge will be made. The position of private drains, private sewers and water service pipes to properties are not normally shown but their presence must be anticipated. This plan and the information supplied with it is furnished as a general guide only and STW does not guarantee its accuracy.
- d) STW does not update these plans on a regular basis. Therefore the position and depth of STW Apparatus may change and this plan is issued subject to any such change. Before any works are carried out, you should confirm whether any changes to the plan have been made since it was issued.
- e) The plan must not be relied upon in the event of excavations or other works in the vicinity of STW Apparatus. It is your responsibility to ascertain the precise location of any STW Apparatus prior to undertaking any development or other works (including but not limited to excavations).
- f) No person or company shall be relieved from liability for loss and/or damage caused to STW Apparatus by reason of the actual position and/or depths of STW Apparatus being different from those shown on the plan.

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1. All STW Apparatus should be located by hand digging prior to the use of mechanical excavators.
2. All information set out in any plans received from us, or given by our staff at the site of the works, about the position and depth of the mains, is approximate. Every possible precaution should be taken to avoid damage to STW Apparatus. You or your contractor must ensure the safety of STW Apparatus and will be responsible for the cost of repairing any loss and/or damage caused (including without limitation replacement parts).
3. Water mains are normally laid at a depth of 900mm. No records are kept of customer service pipes which are normally laid at a depth of 750mm; but some idea of their positions may be obtained from the position of stop tap covers and their existence must be anticipated.
4. During construction work, where heavy plant will cross the line of STW Apparatus, specific crossing points must be agreed with STW and suitably reinforced where required. These crossing points should be clearly marked and crossing of the line of STW Apparatus at other locations must be prevented.
5. Where it is proposed to carry out piling or boring within 20 metres of any STW Apparatus, STW should be consulted to enable any affected STW Apparatus to be surveyed prior to the works commencing.
6. Where excavation of trenches adjacent to any STW Apparatus affects its support, the STW Apparatus must be supported to the satisfaction of STW. Water mains and some sewers are pressurised and can fail if excavation removes support to thrust blocks to bends and other fittings.
7. Where a trench is excavated crossing or parallel to the line of any STW Apparatus, the backfill should be adequately compacted to prevent any settlement which could subsequently cause damage to the STW Apparatus. In special cases, it may be necessary to provide permanent support to STW Apparatus which has been exposed over a length of the excavation before backfilling and reinstatement is carried out. There should be no concrete backfill in contact with the STW Apparatus.
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9. A minimum radial clearance of 300 millimetres should be allowed between any plant or equipment being installed and existing STW Apparatus. We reserve the right to increase this distance where strategic assets are affected.
10. Where any STW Apparatus coated with a special wrapping is damaged, even to a minor extent, STW must be notified and the trench left open until the damage has been inspected and the necessary repairs have been carried out. In the case of any material damage to any STW Apparatus causing leakage, weakening of the mechanical strength of the pipe or corrosion-protection damage, the necessary remedial work will be recharged to you.
11. It may be necessary to adjust the finished level of any surface boxes which may fall within your proposed construction. Please ensure that these are not damaged, buried or otherwise rendered inaccessible as a result of the works and that all stop taps, valves, hydrants, etc. remain accessible and operable. Minor reduction in existing levels may result in conflict with STW Apparatus such as valve spindles or tops of hydrants housed under the surface boxes. Checks should be made during site investigations to ascertain the level of such STW Apparatus in order to determine any necessary alterations in advance of the works.
12. With regard to any proposed resurfacing works, you are required to contact STW on the number given above to arrange a site inspection to establish the condition of any STW Apparatus in the nature of surface boxes or manhole covers and frames affected by the works. STW will then advise on any measures to be taken, in the event of this a proportionate charge will be made.
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TREE PLANTING RESTRICTIONS

There are many problems with the location of trees adjacent to sewers, water mains and other STW Apparatus and these can lead to the loss of trees and hence amenity to the area which many people may have become used to. It is best if the problem is not created in the first place. Set out below are the recommendations for tree planting in close proximity to public sewers, water mains and other STW Apparatus.

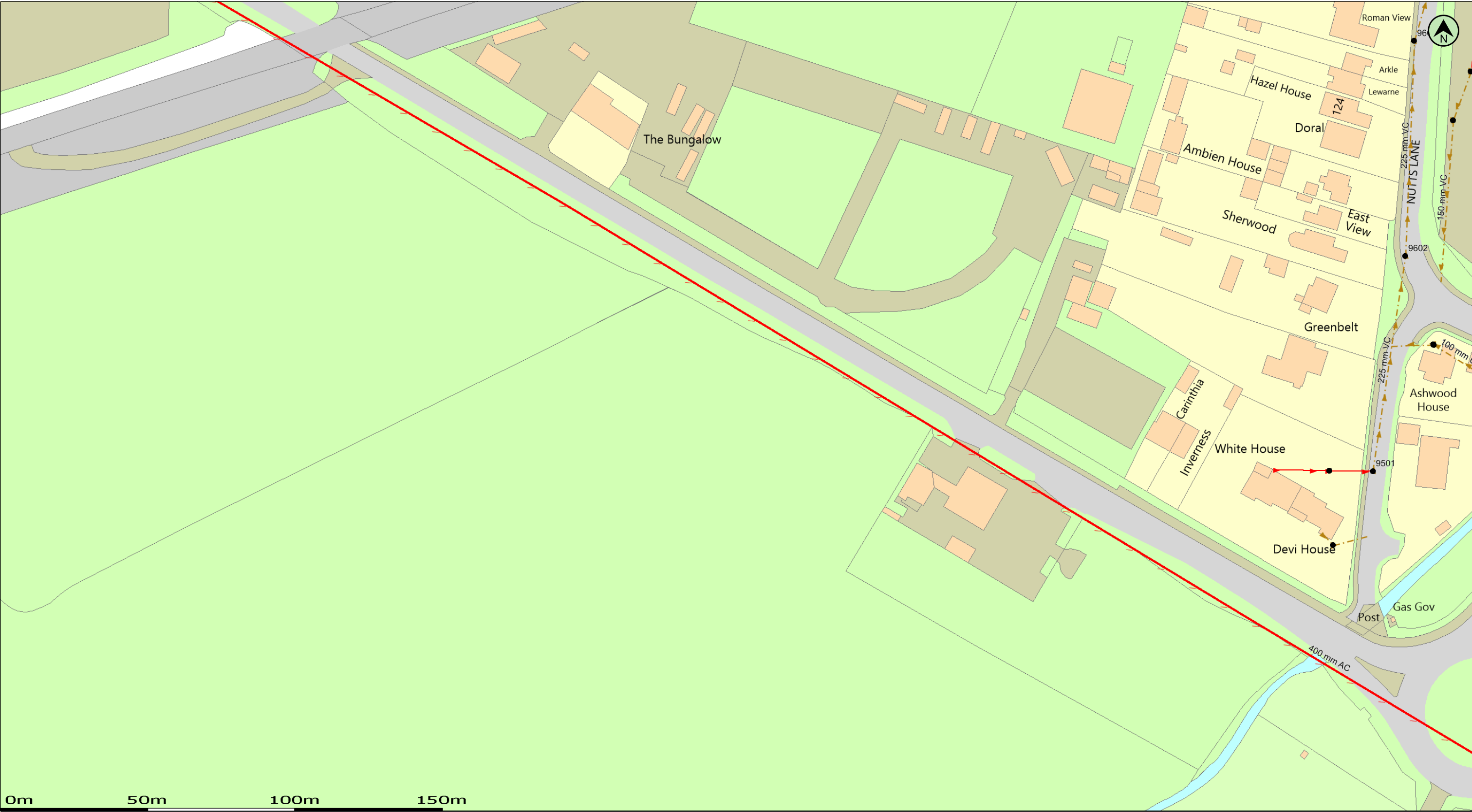
15. Please ensure that, in relation to STW Apparatus, the mature root systems and canopies of any tree planted do not and will not encroach within the recommended distances specified in the notes below.

16. Both Poplar and Willow trees have extensive root systems and should not be planted within 12 metres of a sewer, water main or other STW Apparatus.

17. The following trees and those of similar size, be they deciduous or evergreen, should not be planted within 6 metres of a sewer, water main or other STW Apparatus. E.g. Ash, Beech, Birch, most Conifers, Elm, Horse Chestnut, Lime, Oak, Sycamore, Apple and Pear. Asset Protection Statements Updated May 2014

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Public Foul Gravity/Lateral Drain		Highway Drain		Manhole Foul	
Public Combined Gravity/Lateral Drain		Overflow Pipe		Manhole Surface	
Public Surface Water Gravity/Lateral Drain		Disposal Pipe		Abandoned Pipe	
Pressure Foul		Culverted Water Course		Chamber	
Pressure Combined		Pumping Station		Section 104 sewers are shown in green	
Pressure Surface Water		Fitting		Private sewers are shown in magenta	

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Hinckley, Watling St



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18. STW personnel require a clear path to conduct surveys etc. No shrubs or bushes should be planted within 2 metre of the centre line of a sewer, water main or other STW Apparatus.

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Land South of A5, Watling Street, Hinckley, Leicestershire, LE10 3ED

APPENDIX D
ENVIRONMENT AGENCY PRODUCT 4 DATA

Product 4 (Detailed Flood Risk Data) for Watling Street, Hinckley, LE10 3ED

NGR: SP4075592566

Reference number: 312474

Date of issue: 15 June 2023

Model Information

The following information and attached maps contain a summary of the modelled information relevant to the area of interest. The information provided is based on the best available data as of the date of issue.

Model Name	Release Date
Hinckley SFRM (Harrow and Sketchley Brook)	2013

Flood Map for Planning (Rivers and Sea)

The Flood Map for Planning (Rivers and Sea) 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 in any year for fluvial (river) flooding (Flood Zone 3). It also shows the extent of the Extreme Flood Outlines (Flood Zone 2) 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. The Flood Zones refer to the land at risk of flooding and **do not** refer to individual properties. It is possible for properties to be built at a level above the floodplain but still fall within the risk area.

This Flood Map only indicates the extent and likelihood of flooding from rivers or the sea. It should also be remembered that flooding may occur from other sources such as surface water, sewers, road drainage, etc.

To find out which flood zone a location is in please use: <https://flood-map-for-planning.service.gov.uk/>

Definition of flood zones

- **Zone 1** - The area is within the lowest probability of flooding from rivers and the sea, where the chance of flooding in any one year is less than 0.1% (i.e. a 1000 to 1 chance).

- **Zone 2** - The area which falls between the extent of a flood with an annual probability of 0.1% (i.e. a 1000 to 1 chance) fluvial and tidal, or greatest recorded historic flood, whichever is greater, and the extent of a flood with an annual probability of 1% (i.e. a 100 to 1 chance) fluvial / 0.5% (i.e. a 200 to 1 chance) tidal. (Land shown in light blue on the Flood Map).
- **Zone 3** - The chance of flooding in any one year is greater than or equal to 1% (i.e. a 100 to 1 chance) for river flooding and greater than or equal to 0.5% (i.e. a 200 to 1 chance) for coastal and tidal flooding.

Note: The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding. Reference should therefore also be made to the [Strategic Flood Risk Assessment](#) when considering location and potential future flood risks to developments and land uses.

Reduction in Risk of Flooding from Rivers and Sea due to Defences dataset (Replaces Areas Benefiting from Defences dataset)

The Areas Benefiting from Defences dataset (ABDs) is a dataset created by the Environment Agency to show areas that benefit from formal flood defences. This dataset was removed on 30 November 2022 from the Flood Map for Planning portal. A new dataset called Reduction in Risk of Flooding from Rivers and Sea due to Defences has been created:

<https://environment.data.gov.uk/DefraDataDownload/?mapService=EA/ReductionInRiskOfFloodingFromRiversAndSea&mode=spatial>

Instead upon searching for an address or location, users will be informed if their site is within an area assessed as having a reduction in risk of flooding from rivers and sea due to the presence of defences and it will direct users to seek flood risk assessment data (via a [Product 4](#)), which means Environment Agency staff can provide more detailed information relating to the impact of any flood defences in the area.

Please contact if there any queries: FCRM_risk_assessment@environment-agency.gov.uk

Node Data/ Modelled Levels

The attached map will show a selection of 1D model node points near to your site. The fluvial levels for these node points are shown below.

Fluvial Flood Levels (m AOD)

The modelled levels are given in m AOD (N), m AOD indicates metres Above Ordnance Datum (Newlyn).

The information is taken from the model referenced above and does not include the updated climate change figures.

Node Label	Easting	Northing	Annual Exceedance Probability - Maximum Water Levels (m AOD) undefended											
			50% (1 in 2)	20% (1 in 5)	10% (1 in 10)	5% (1 in 20)	4% (1 in 25)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	1% (1 in 100) inc. 20% Climate Change	0.5% (1 in 200)	0.1% (1 in 1000)	0.1% (1 in 1000) inc. % Climate Change
1.022	440863.4	292416	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.54	0.00	0.00	88.72	0.00
1.021	440780.8	292389.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.33	0.00	0.00	88.50	0.00
1.020	440677.4	292384.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.19	0.00	0.00	88.37	0.00
1.023D	440945.7	292480.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.92	0.00	0.00	88.99	0.00
1.023i1	440919.1	292452.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.70	0.00	0.00	88.83	0.00
1.023i2	440891.6	292427.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.59	0.00	0.00	88.76	0.00
1.022i1	440827.8	292395.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.42	0.00	0.00	88.58	0.00
1.021i1	440730.5	292386.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.26	0.00	0.00	88.43	0.00

			Annual Exceedance Probability - Maximum Water Levels (m AOD) defended											
Node Label	Easting	Northing	50% (1 in 2)	20% (1 in 5)	10% (1 in 10)	5% (1 in 20)	4% (1 in 25)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	1% (1 in 100) inc. 20% Climate Change	0.5% (1 in 200)	0.1% (1 in 1000)	0.1% (1 in 1000) inc. 20% Climate Change
1.022	440863.4	292416	0.00	88.16	88.18	88.37	0.00	88.50	88.52	88.54	88.61	88.61	88.72	0.00
1.021	440780.8	292389.7	0.00	87.96	87.99	88.17	0.00	88.29	88.31	88.33	88.39	88.39	88.50	0.00
1.02	440677.4	292384.5	0.00	87.82	87.85	88.03	0.00	88.15	88.17	88.19	88.25	88.25	88.37	0.00
1.023D	440945.7	292480.4	0.00	88.74	88.74	88.83	0.00	88.90	88.91	88.92	88.95	88.95	88.99	0.00
1.023i1	440919.1	292452.6	0.00	88.40	88.41	88.56	0.00	88.66	88.68	88.70	88.75	88.75	88.83	0.00
1.023i2	440891.6	292427.5	0.00	88.21	88.23	88.43	0.00	88.55	88.57	88.59	88.65	88.65	88.76	0.00
1.022i1	440827.8	292395.1	0.00	88.05	88.07	88.26	0.00	88.37	88.39	88.42	88.47	88.47	88.58	0.00
1.021i1	440730.5	292386.5	0.00	87.89	87.91	88.10	0.00	88.22	88.24	88.26	88.32	88.32	88.43	0.00

Modelled Flood Extents

Available modelled flood outlines produced as part of the detailed modelling have been provided to you in GIS format. These show modelled flood extents, taking into account flood defences. Climate change will increase flood risk due to overtopping of defences.

Climate Change

In February 2016 the 'Flood Risk Assessments: Climate Change Allowances' were published on GOV.UK. In July 2022 the climate change allowances for planning applications were further updated to more accurately represent the local catchments <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>. The data provided in this product does not include the new allowances. You will need to consider this data and factor in the more up to date allowances to demonstrate the development will be safe from flooding. The fluvial climate change factors are now more complex and a single uplift percentage across England cannot be justified.

The Environment Agency will incorporate the new allowances into future modelling studies. For now, it remains the applicant's responsibility to demonstrate through their proposal and flood risk assessments that new developments will be safe in flood risk terms for its lifetime.

Recorded Flood Outlines

Following examination of our records of historical flooding we have no record of flooding in the area. The absence of coverage for an area does not mean that the area has never flooded, only that we do not currently have records of flooding in this area. It is also possible that the pattern of flooding in this area has changed and that this area would now flood or not flood under different circumstances.

You may also wish to contact your Local Authority or Internal Drainage Board, to see if they have other relevant local flood information.

Flood Defences

Flood defences do not completely remove the chance of flooding. They can be overtopped by water levels which exceed the capacity of the defences.

If flood defences are located in your area, you can access this data here:

<https://data.gov.uk/dataset/cc76738e-fc17-49f9-a216-977c61858dda/aims-spatial-flood-defences-inc-standardised-attributes>

<https://data.gov.uk/dataset/76828b72-3c9c-4700-83c7-d7c36047d322/flood-map-for-planning-rivers-and-sea-spatial-flood-defences-without-standardised-attributes>

Planning development/s

If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of Environment Agency Information for Flood Risk Assessments. You can also request pre application advice:

<https://www.gov.uk/planning-applications-assessing-flood-risk>

<https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>

Supporting Information

River modelling: technical standards and assessment guidance

The link below contains standards for the flood risk management industry on how to build and review hydraulic models and provide evidence for flood risk management decisions.

<https://www.gov.uk/government/publications/river-modelling-technical-standards-and-assessment>

Where modelled fluvial flood levels for any watercourse have not been produced/provided by the Environment Agency the Applicant/their Consultants will need to undertake suitable hydraulic calculations or modelling to determine any missing/required flood return periods

e.g. the 3.3 % AEP (1 in 30 Year) Functional Flood event level (and flood plain outline) at the site. Please Note: On 25 August 2022 the definition of the functional flood level changed to the 1 in 30 year return period, for more information see <https://www.gov.uk/guidance/flood-risk-and-coastal-change>

Hydraulic calculations/modelling must be undertaken by a suitable person, and any modelling software chosen should be capable of producing the required output. For any hydraulic modelling carried out as part of a FRA, a technical description of the model should be provided, including the name and version of the software used, referring to published papers/reports where appropriate to provide technical detail and to demonstrate the applicability of the model(s) to the situation in question.

Surface Water

Managing the risk of flooding from surface water is the responsibility of Lead Local Flood Authorities. The 'risk of flooding from surface water' map has been produced by the Environment Agency on behalf of government, using information and input from Lead Local Flood Authorities.

You may wish to contact your Local Authority who may be able to provide further detailed information on surface water.

It is not possible to say for certain what the flood risk is but we use the best information available to provide an indication so that people can make informed choices about living with or managing the risks. The information we supply does not provide an indicator of flood risk at an individual site level. Further information can be found on the Agency's website:

<https://flood-warning-information.service.gov.uk/long-term-flood-risk>

Flood Risk from Reservoirs

The Flood Risk from Reservoirs map can be found on the Long Term Flood Risk Information website:

<https://flood-warning-information.service.gov.uk/long-term-flood-risk/map?map=Reservoirs>

Flood Alert & Flood Warning Area

We issue flood alert/warnings to specific areas when flooding is expected. If you receive a flood warning you should take immediate action.

You can check whether you are in a Flood Alert/Warning Area and register online using the links below:

<https://www.gov.uk/check-flood-risk>

<https://www.gov.uk/sign-up-for-flood-warnings>

If you would prefer to register by telephone, or if you need help during the registration process, please call Floodline on 0345 988 1188.

The associated dataset for flood warning areas is available here:

<https://data.gov.uk/dataset/flood-warning-areas3>

The associated dataset for flood alert areas is available here: <https://data.gov.uk/dataset/flood-alert-areas2>

Flood Risk Activity Permits

We now consider applications for works, which may be Flood Risk Activities, under Environmental Permitting Regulations. This replaces the process of applying for a Flood Defence Consent. You may need an environmental Permit for flood risk activities if you want to do work:

- in, under, over or near a main river (including where the river is in a culvert)
- on or near a flood defence on a main river
- in the flood plain of a main river
- on or near a sea defence

Please go to this website to find out more about how to apply:

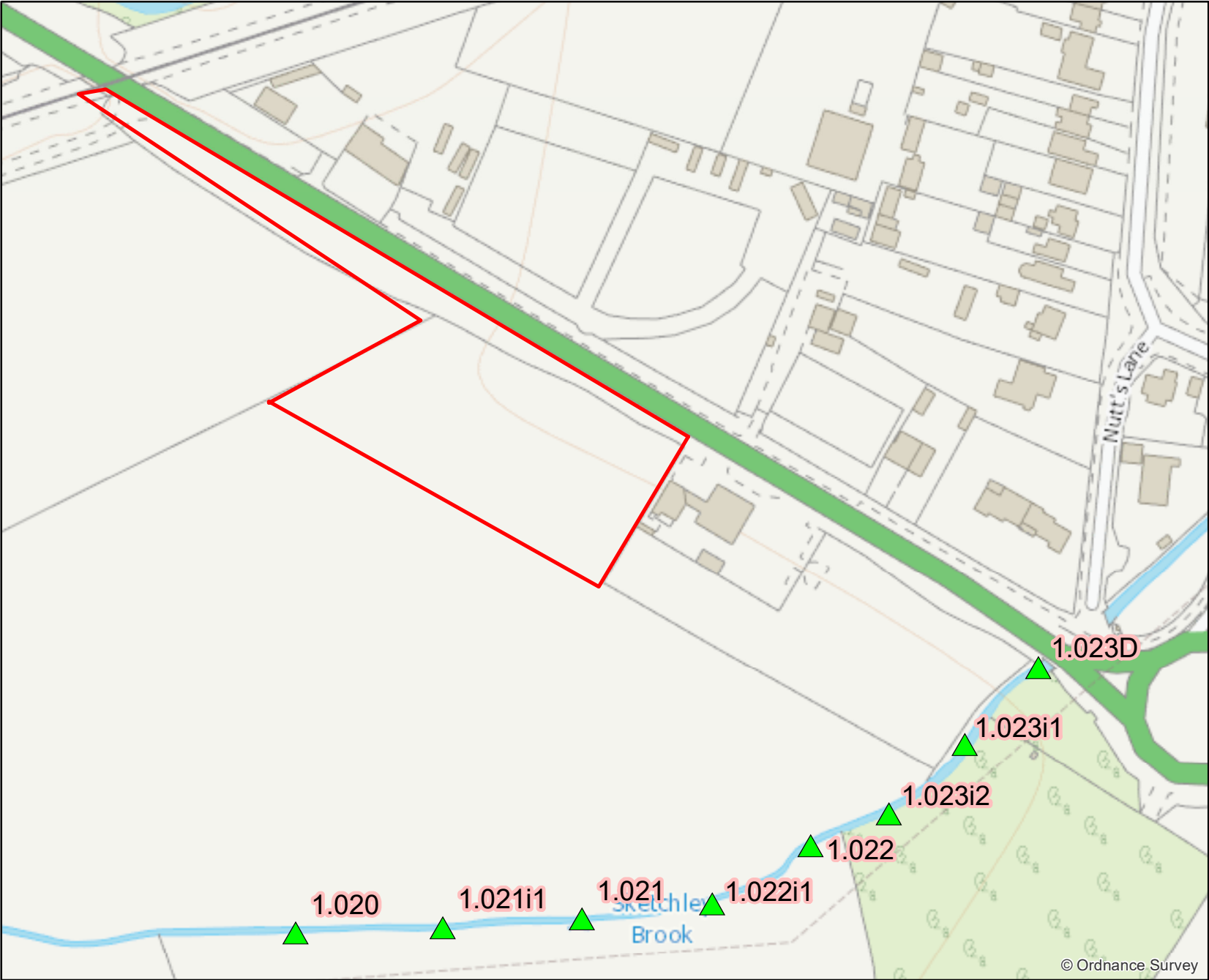
<https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>.

Please be aware that Bespoke and Standard Rules permits can take up to 2 months to determine and will incur a charge.

Further details about the Environment Agency information supplied can be found on the GOV.UK website:

<https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather>

Node Point Location Plan for Ref: 312474

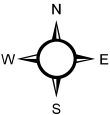


Environment
Agency

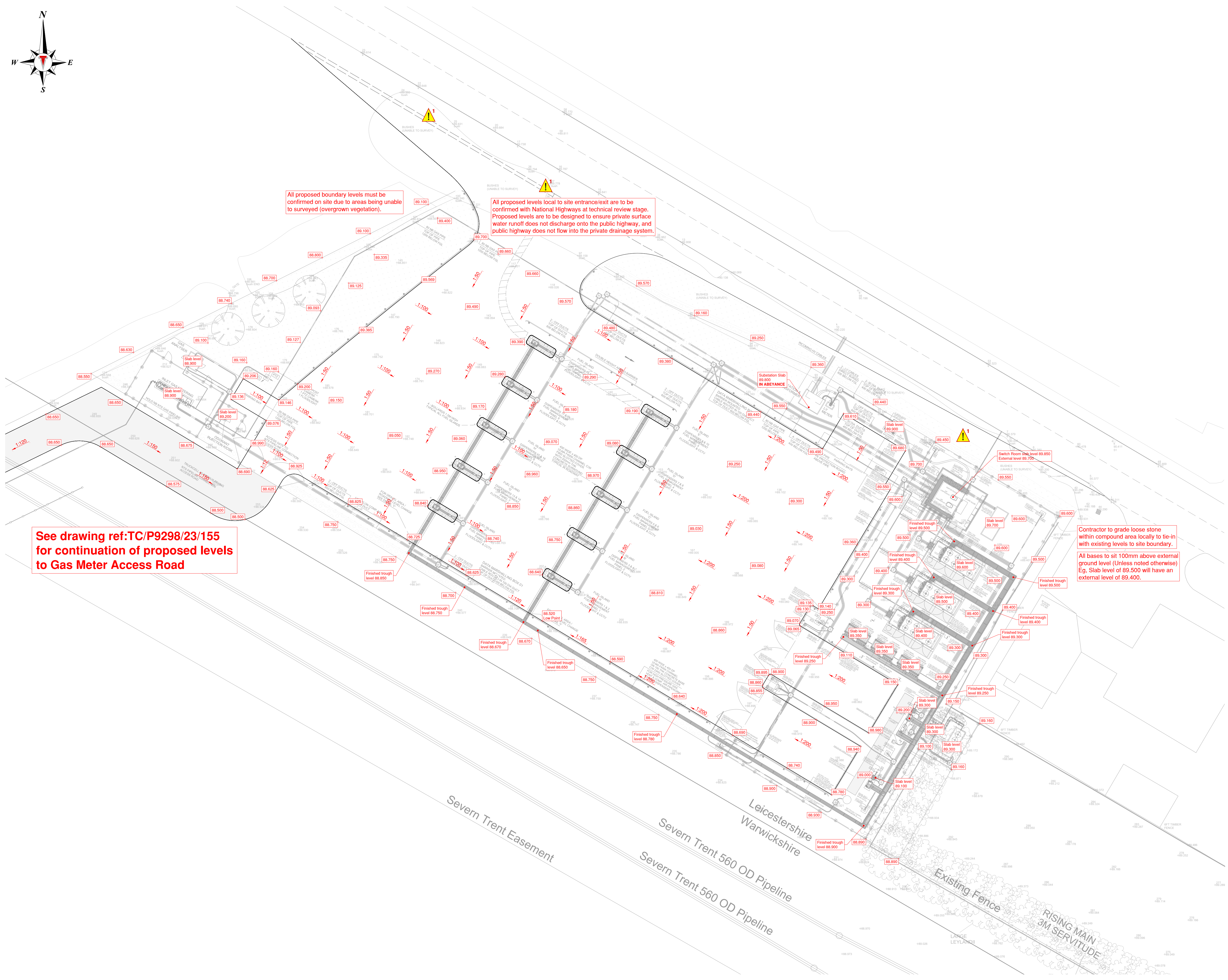
Legend

▲ Modelled Levels

Scale: 1:2,000
Created: 02/06/2023
Eastings: 440,789
Northings: 292,544



APPENDIX E
LEVELS & CATCHMENT PLAN



A1

1. Before construction commences, the setting out Engineer shall ensure that all setting out information is mutually compatible with all the drawings and documents provided by the designers. Where there is any ambiguity, the Engineer shall inform the Principal Designer, Engineer and/or the Architect to be informed immediately. Thomas Consulting will accept no liability for setting out errors where work is constructed to incorrect information.
2. All drawings and documents are to be read in conjunction with all other drawings, are mutually compatible and shall be read as such. Any discrepancy between drawings and documents shall be referred to the contractor before construction commences. In the event of apparent ambiguity or contradiction the engineer and/or architect shall be consulted. The contractor shall not assume any liability in the event of not being so notified and where construction work has commenced.
3. In accordance with CDM regulations 2015 this drawing has been prepared with due attention to identifying any unusual design hazards that may exist. Unusual design hazards are hazards that a reasonably competent contractor, experienced in this type of work, would be expected to identify. The designers have unusually identified the hazards they have adopted the "ERIG" principle and where possible eliminated (E) the hazard at the design stage, if it has not been possible to eliminate the hazard the designers have endeavoured to reduce (R) the hazard. Where it has not been possible to eliminate these hazards, the hazard is noted on the drawing with appropriate information (I) to the effect that the hazard can be controlled (C) during construction. It is the responsibility of the responsible contractor to ensure that the construction drawings before commencing construction and if in doubt about any matter to ask for clarification from the designer.
4. All drawings issued electronically for this scheme are provided for the sole purpose of assisting the design, procurement or construction of the structures for which Thomas Consulting have been appointed. The drawings are not to be used for any other purpose, for any other project, or for any other purpose, for any other purpose, nor may they be amended, copied, redistributed or issued to third parties without the written agreement of Thomas Consulting. All drawings remain under copyright to, and the copyright shall remain the property of, Thomas Consulting. In the event that, project, all drawings are to be deleted from your computer systems and all other electronic copies destroyed. Where electronic copies of final drawings are to be issued, these will be provided in a digital only format and the contractor shall be responsible for maintaining the drawings opening and using this drawing. It is assumed that you agree to abide by these Terms and Conditions.
5. Unless expressly agreed with a director of Thomas Consulting Ltd for the purposes of the CDM regulations 2015 Thomas Consulting are not the Principal Designer. The client has been advised that they are not the Principal Designer. For further information please see the following link: <http://www.hse.gov.uk/>

DRAWING STATUS: **FOR PLANNING**



DRAWING TITLE:

Proposed General Arrangement

DRAWING REF:	REV:
TC / P9298 / 23 / 150	H