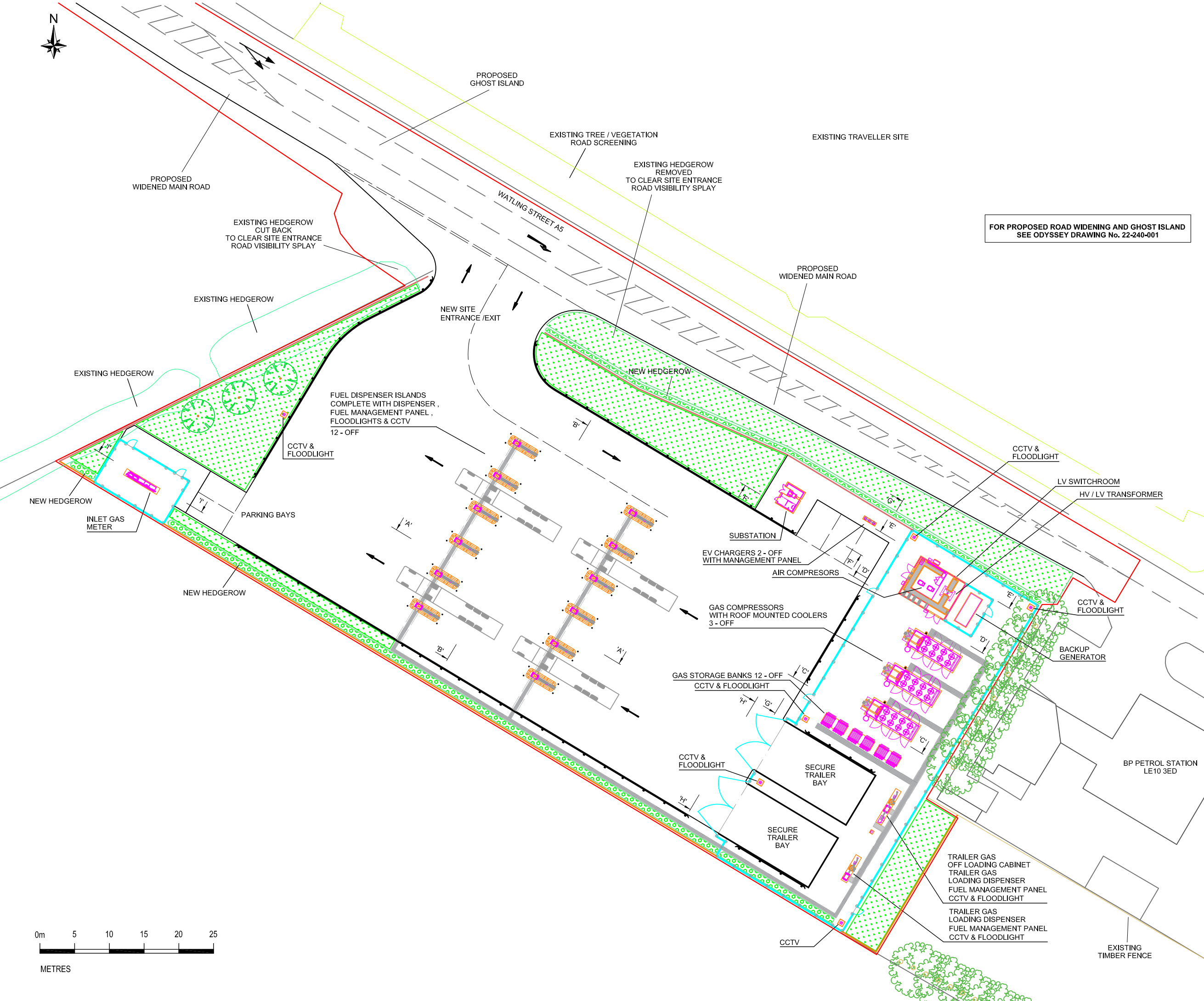
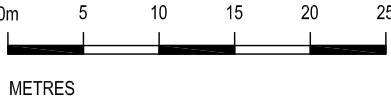




**APPENDIX A**  
**DEVELOPMENT PROPOSALS**



# 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  |  |

**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:** F



16 BERKELEY STREET  
LONDON  
W1J 8DZ

TEL: 02039 073936  
WEB: www.cngfuels.com

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



**APPENDIX B**  
**TOPOGRAPHICAL SURVEY**



LINE  
ACRES

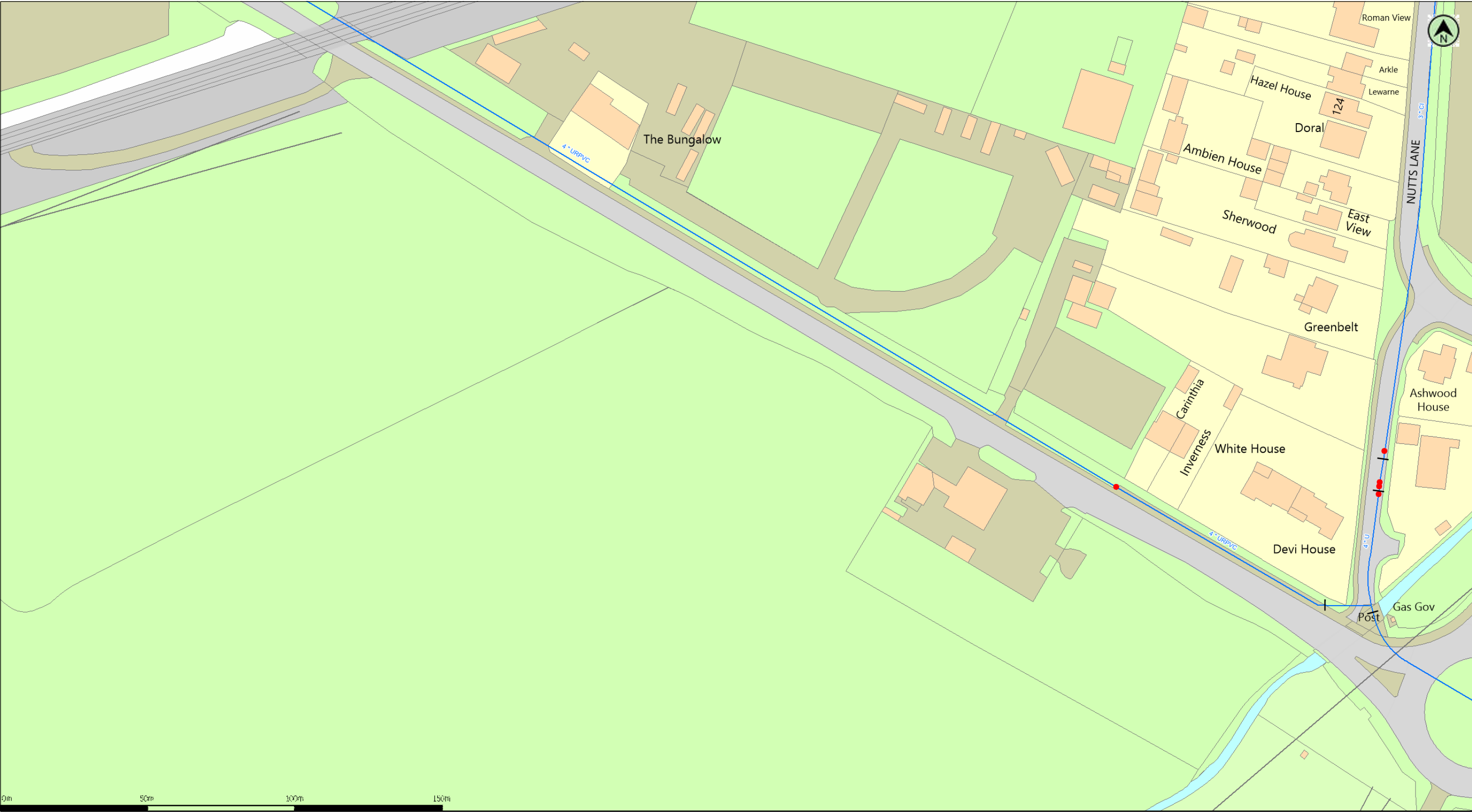


BP PETROL  
STATION  
LE10 3ED

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

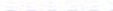


**APPENDIX C**  
**SERVERN TRENT SEWER PLANS**



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|         |                                                                                       |                |                                                                                       |                               |                                                                                       |
|---------|---------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|
| Hydrant |  | Valve          |  | Aqueduct                      |  |
| Washout |  | Water Main     |  | Duct                          |  |
| Meter   |  | Abandoned Pipe |  | Service Pipe/<br>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.

In order to achieve safe working conditions adjacent to any STW Apparatus the following should be observed:

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.
8. No other apparatus should be laid along the line of STW Apparatus irrespective of clearance. Above ground apparatus must not be located within a minimum of 3 metres either side of the centre line of STW Apparatus for smaller sized pipes and 6 metres either side for larger sized pipes without prior approval. No manhole or chamber shall be built over or around any STW Apparatus.
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.

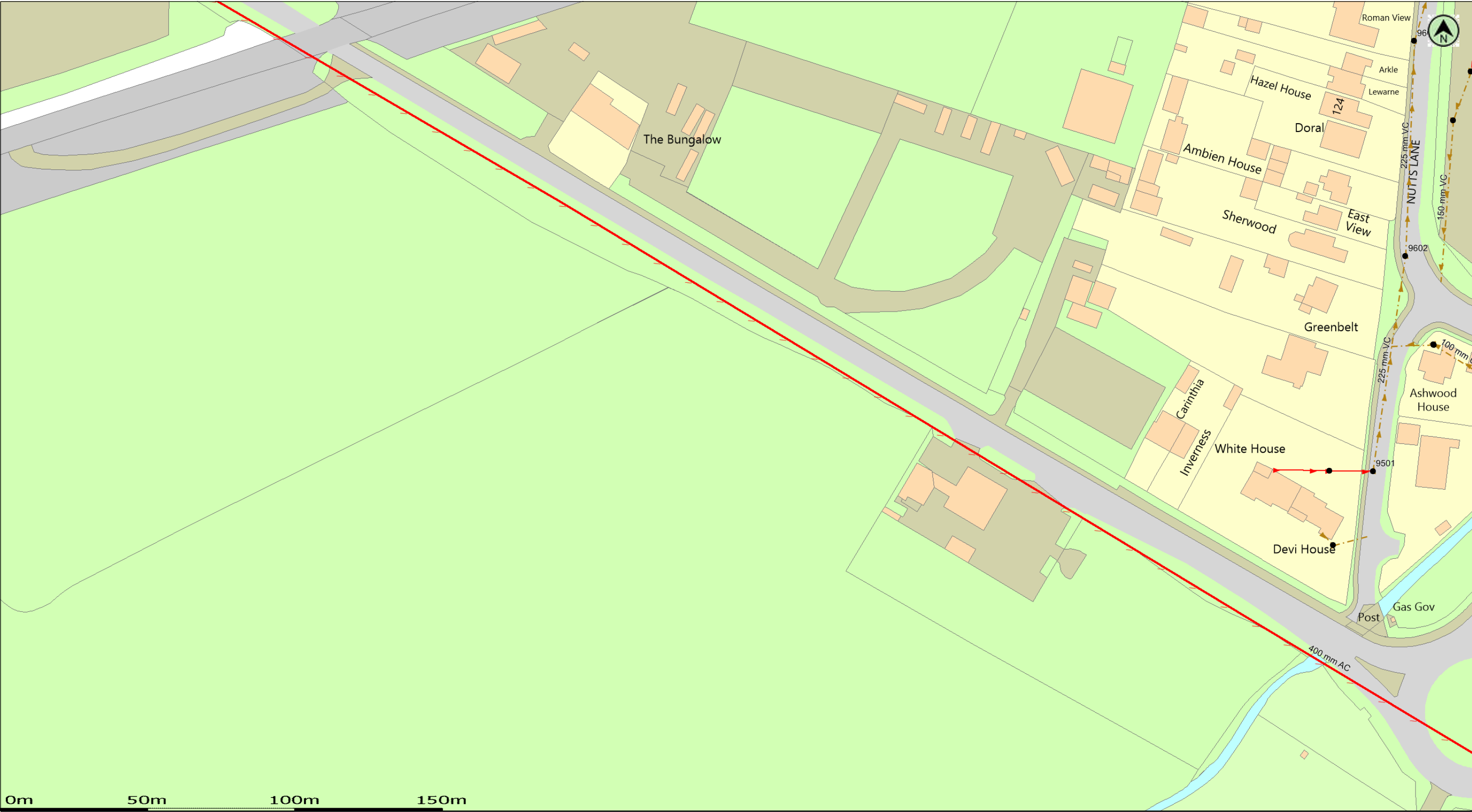
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16. Both Poplar and Willow trees have extensive root systems and should not be planted within 12 metres of a sewer, water main or other STW Apparatus.

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

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.

19. In certain circumstances, both STW and landowners may wish to plant shrubs/bushes in close proximity to a sewer, water main or other STW Apparatus for screening purposes. The following are shallow rooting and are suitable for this purpose: Blackthorn, Broom, Cotoneaster, Elder, Hazel, Laurel, Privet, Quickthorn, Snowberry, and most ornamental flowering shrubs.



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



**APPENDIX D**  
**ENVIRONMENT AGENCY PRODUCT 4 DATA**

## Product 4 (Detailed Flood Risk Data) for Land off Hydes Lane, Hinkley

Reference number: 253382

Date of issue: 14 March 2022

### 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 |
|----------------------------------|--------------|
| Stour and Hinckley Flood Mapping | 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.

## Node Data

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.

| 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            |

| Annual Exceedance Probability - Maximum Water Levels (mAOD) DEFENDED |         |          |                 |                  |                 |                 |                    |                  |                      |                    |                     |
|----------------------------------------------------------------------|---------|----------|-----------------|------------------|-----------------|-----------------|--------------------|------------------|----------------------|--------------------|---------------------|
| Node Label                                                           | EASTING | NORTHING | 20%<br>(1 in 5) | 10%<br>(1 in 10) | 5%<br>(1 in 20) | 2%<br>(1 in 50) | 1.33%<br>(1 in 75) | 1%<br>(1 in 100) | 1% (Climate Change)* | 0.5%<br>(1 in 200) | 0.1%<br>(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               |

\*Climate change percentage increase not specified

## Climate Change

In February 2016 the '[Flood Risk Assessments: Climate Change Allowances](#)' were published on GOV.UK. This is in replacement of previous climate change allowances for planning applications. The data provided in this product does not include the new allowances. You will need to consider this data and factor in the new 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

There are no formal raised flood defences owned or operated by the Environment Agency protecting this site. You may wish to contact the Local Authority to obtain further information regarding localised flooding from drains, culverts and small watercourses, and regarding existing or planned flood defence measures.

## 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>

### **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>

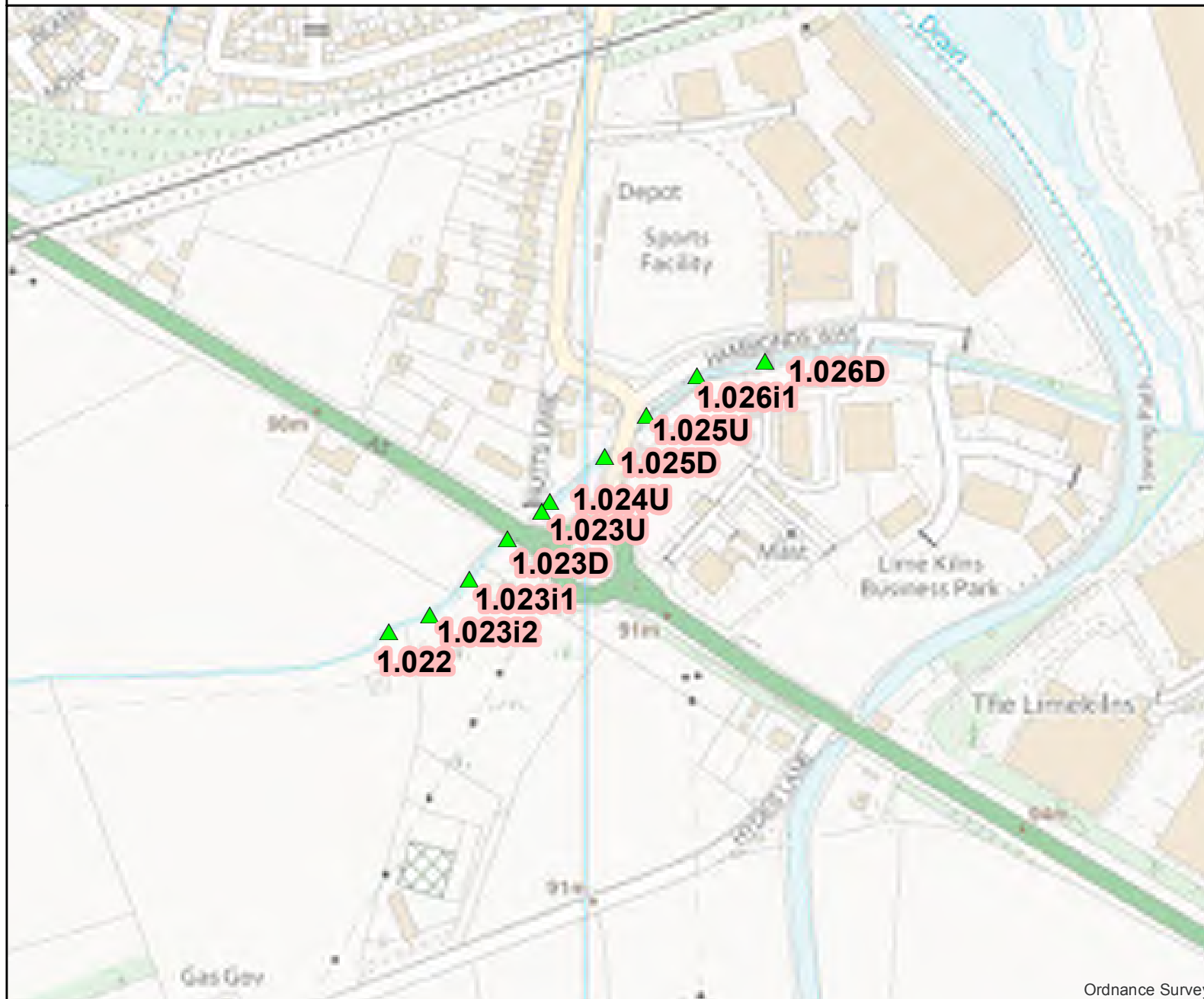
# Node Point Location Plan for Land off Hydes Lane, Hinkley

Ref. 253382



## Legend

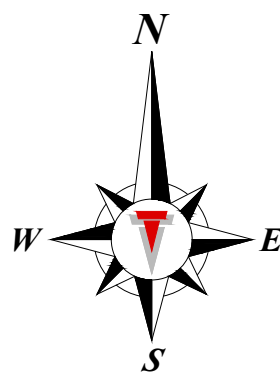
▲ Modelled Levels



Scale: 1:4,000  
Created: 14/03/2022  
Eastings: 441,019  
Northings: 292,504



**APPENDIX E**  
**LEVELS & CATCHMENT PLAN**



Contour Key  
(Vertical Height)

0.05m

0.2m

DO NOT SCALE THIS DRAWING

A1

GENERAL NOTES:

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 information is apparently contradictory or ambiguous, the design Engineer and/or the Architect is 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 one another, are mutually compatible and shall be read as such. All documents shall be checked to ensure that they are compatible by the contractor before construction commences. In the event of apparent ambiguity or contradiction the engineer and/or architect shall be notified immediately. Thomas Consulting accept no 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 may not be expected to identify. In dealing with unusual design hazards we have adopted the "ERIC" principle and where possible eliminated (E) the hazard at design stage, if it has not been possible to eliminate the hazard we have endeavoured to reduce (R) it. Where it has not been possible to eliminate these hazards, the hazard is noted on the drawing with appropriate information (I) in order that the hazard can be controlled (C) during construction. It is the contractor's responsibility to fully acquaint themselves with all construction drawings before commencing construction and if in doubt about any matter to ask for clarification from the designer.
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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 required to appoint a Principal Designer. For further information see <http://www.hse.gov.uk/>.

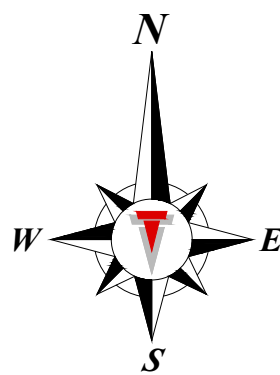
IN ADDITION TO THE HAZARDS/RISKS ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS:

|                                                                                                                                       |                                      |                     |             |             |
|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------|-------------|-------------|
| ITEM                                                                                                                                  | HAZARD IDENTIFICATION                |                     |             |             |
| <div><div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div>1</div></div></div> | CHECK IF THERE ARE<br>RESIDUAL RISKS |                     |             |             |
| REVISIONS                                                                                                                             |                                      |                     |             |             |
| REV                                                                                                                                   | DATE                                 | DESCRIPTION         | DRAWN<br>BY | CHECK<br>BY |
| A                                                                                                                                     | 26.04.23                             | Site Layout updated | CS          | JP          |
| B                                                                                                                                     | 22.05.23                             | Site Layout updated | CS          | JP          |
|                                                                                                                                       |                                      |                     |             |             |

DRAWING STATUS: FOR PLANNING

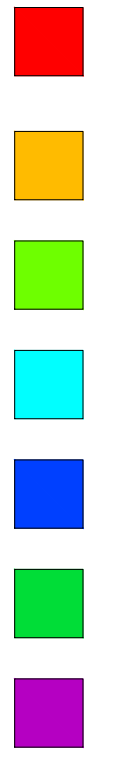
**THOMAS CONSULTING**  
STRUCTURAL & CIVIL DESIGN ENGINEERS  
*Offices in* **Charley, Lancaster & Shrewsbury**  
Tel: 01524 846022  
e-mail: [info@thomasconsulting.co.uk](mailto:info@thomasconsulting.co.uk)

|                           |                         |                 |                   |                   |
|---------------------------|-------------------------|-----------------|-------------------|-------------------|
| CLIENT:                   | CNG FUELS               |                 |                   |                   |
| PROJECT:                  | HINCKLEY 2              |                 |                   |                   |
| DRAWING TITLE:            | LEVELS PLAN             |                 |                   |                   |
| DATE CREATED:<br>06.12.22 | DRAWING SCALE:<br>1:250 | DRAWN BY:<br>CS | CHECKED BY:<br>JP | QA CATEGORY:<br>1 |
| DRAWING REF:              | TC / P9298 / 23 / 100   |                 |                   | REV:<br>B         |



## Catchments Node Key

- SW01
- SW02
- SW03
- SW09
- SW10
- IC01
- IC03



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A1

### GENERAL NOTES:

- 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 information is apparently contradictory or ambiguous, the design Engineer and/or the Architect is to be informed immediately. Thomas Consulting will accept no liability for setting out errors where work is constructed to incorrect information.
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IN ADDITION TO THE HAZARDS/RISKS ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS:

| ITEM | HAZARD IDENTIFICATION                        |
|------|----------------------------------------------|
|      | <b>CHECK IF THERE ARE<br/>RESIDUAL RISKS</b> |

| REVISIONS |          |                         |          |            |
|-----------|----------|-------------------------|----------|------------|
| REV       | DATE     | DESCRIPTION             | DRAWN BY | CHECKED BY |
| A         | 03.03.23 | Updated Drainage Layout | CS       | JP         |
| B         | 26.04.23 | Site Layout updated     | CS       | JP         |
| C         | 22.05.23 | Site Layout updated     | CS       | JP         |

DRAWING STATUS: **FOR PLANNING**

 **THOMAS CONSULTING**  
STRUCTURAL & CIVIL DESIGN ENGINEERS  
*Offices in* **Charley, Lancaster & Shrewsbury**  
Tel: 01524 846022  
e-mail: [info@thomasconsulting.co.uk](mailto:info@thomasconsulting.co.uk)

CLIENT: **CNG FUELS**

PROJECT: **HINCKLEY 2**

DRAWING TITLE: **CATCHMENT PLAN**

DATE CREATED: 06.12.22 DRAWING SCALE: 1:250 DRAWN BY: CS CHECKED BY: JP QA CATEGORY: 1

DRAWING REF: REV:

TC / P9298 / 23 / 101 C



**APPENDIX F**  
**GREENFIELD RUNOFF CALCULATIONS**

[Print](#)[Close Report](#)

# Greenfield runoff rate estimation for sites

[www.uksuds.com](http://www.uksuds.com) | Greenfield runoff tool

Calculated by: Cameron Shearman

Site name: CNG Hinckley 2

Site location: Hinckley

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

## Site Details

Latitude: 52.52938° N

Longitude: 1.40038° W

Reference: 1752281132

Date: Dec 07 2022 16:09

Runoff estimation approach: IH124

## Site characteristics

Total site area (ha): 0.74

## Methodology

$Q_{BAR}$  estimation method: Calculate from SPR and SAAR

SPR estimation method: Calculate from SOIL type

## Soil characteristics

|              | Default | Edited |
|--------------|---------|--------|
| SOIL type:   | 4       | 4      |
| HOST class:  | N/A     | N/A    |
| SPR/SPRHOST: | 0.47    | 0.47   |

## Hydrological characteristics

|                                | Default | Edited |
|--------------------------------|---------|--------|
| SAAR (mm):                     | 644     | 644    |
| Hydrological region:           | 4       | 4      |
| Growth curve factor 1 year:    | 0.83    | 0.83   |
| Growth curve factor 30 years:  | 2       | 2      |
| Growth curve factor 100 years: | 2.57    | 2.57   |
| Growth curve factor 200 years: | 3.04    | 3.04   |

## Notes

### (1) Is $Q_{BAR} < 2.0$ l/s/ha?

When  $Q_{BAR}$  is  $< 2.0$  l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

### (2) Are flow rates $< 5.0$ l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

### (3) Is $SPR/SPRHOST \leq 0.3$ ?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

## Greenfield runoff rates

|                       | Default | Edited |
|-----------------------|---------|--------|
| $Q_{BAR}$ (l/s):      | 3.24    | 3.24   |
| 1 in 1 year (l/s):    | 2.69    | 2.69   |
| 1 in 30 years (l/s):  | 6.48    | 6.48   |
| 1 in 100 year (l/s):  | 8.33    | 8.33   |
| 1 in 200 years (l/s): | 9.85    | 9.85   |

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at [www.uksuds.com](http://www.uksuds.com). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at [www.uksuds.com/terms-and-conditions.htm](http://www.uksuds.com/terms-and-conditions.htm). The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.



**APPENDIX G**  
**SURFACE WATER CALCULATIONS**

### Design Settings

|                                      |        |                                    |               |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology                 | FEH-13 | Minimum Velocity (m/s)             | 1.00          |
| Return Period (years)                | 5      | Connection Type                    | Level Soffits |
| Additional Flow (%)                  | 0      | Minimum Backdrop Height (m)        | 0.200         |
| CV                                   | 0.750  | Preferred Cover Depth (m)          | 1.200         |
| Time of Entry (mins)                 | 5.00   | Include Intermediate Ground        | ✓             |
| Maximum Time of Concentration (mins) | 30.00  | Enforce best practice design rules | ✓             |
| Maximum Rainfall (mm/hr)             | 50.0   |                                    |               |

### Nodes

| Name    | Area<br>(ha) | T of E<br>(mins) | Cover<br>Level<br>(m) | Diameter<br>(mm) | Width<br>(mm) | Easting<br>(m) | Northing<br>(m) | Depth<br>(m) |
|---------|--------------|------------------|-----------------------|------------------|---------------|----------------|-----------------|--------------|
| SW01    | 0.028        | 5.00             | 89.115                | 1200             |               | 440717.586     | 292574.311      | 1.300        |
| SW02    | 0.107        | 5.00             | 89.015                | 1200             |               | 440731.986     | 292565.658      | 1.608        |
| SW03    | 0.107        | 5.00             | 88.915                | 1200             |               | 440745.064     | 292557.800      | 1.598        |
| SW04    | 0.000        | 5.00             | 88.715                | 1500             |               | 440756.158     | 292551.134      | 1.550        |
| Int In  |              |                  | 88.715                |                  |               | 440758.869     | 292549.507      | 1.563        |
| Int out |              |                  | 88.900                |                  |               | 440770.598     | 292542.459      | 1.848        |
| SW05    |              |                  | 89.075                | 1500             |               | 440773.310     | 292540.839      | 2.036        |
| Tank    |              |                  | 89.125                |                  |               | 440783.260     | 292534.783      | 2.155        |
| SW06    |              |                  | 89.225                | 1800             |               | 440791.076     | 292530.034      | 2.459        |
| SW07    |              |                  | 89.225                | 1500             |               | 440789.225     | 292526.865      | 2.471        |
| SW08    |              | 5.00             | 89.600                | 600              |               | 440899.988     | 292441.963      | 1.100        |
| SW09    | 0.113        | 5.00             | 88.840                | 520              | 520           | 440758.427     | 292554.910      | 1.425        |
| SW10    | 0.080        | 5.00             | 88.590                | 670              | 580           | 440753.766     | 292547.206      | 1.290        |
| IC01    | 0.066        | 5.00             | 89.300                | 600              |               | 440792.445     | 292559.788      | 1.425        |
| IC02    |              |                  | 89.075                | 600              |               | 440781.546     | 292541.649      | 1.425        |
| IC03    | 0.031        | 5.00             | 89.140                | 600              |               | 440793.630     | 292534.350      | 1.574        |
| Outfall |              |                  | 89.140                |                  |               | 440904.595     | 292439.740      | 0.691        |

### Links

| Name        | US<br>Node | DS<br>Node | Length<br>(m) | ks (mm) /<br>n | US IL<br>(m) | DS IL<br>(m) | Fall<br>(m) | Slope<br>(1:X) | Dia<br>(mm) |
|-------------|------------|------------|---------------|----------------|--------------|--------------|-------------|----------------|-------------|
| S1.000      | SW01       | SW02       | 16.800        | 0.600          | 87.815       | 87.532       | 0.283       | 59.4           | 100         |
| S1.001      | SW02       | SW03       | 15.257        | 0.600          | 87.407       | 87.317       | 0.090       | 169.5          | 225         |
| S1.002      | SW03       | SW04       | 12.943        | 0.600          | 87.317       | 87.240       | 0.077       | 168.1          | 225         |
| S1.003      | SW04       | Int In     | 3.162         | 0.600          | 87.165       | 87.152       | 0.013       | 243.2          | 300         |
| Interceptor | Int In     | Int out    | 13.684        | 0.600          | 87.152       | 87.052       | 0.100       | 136.8          | 300         |
| S1.004      | Int out    | SW05       | 3.159         | 0.600          | 87.052       | 87.039       | 0.013       | 243.0          | 300         |
| S1.005      | SW05       | Tank       | 11.648        | 0.600          | 87.039       | 86.970       | 0.069       | 168.8          | 225         |

| Name        | Vel<br>(m/s) | Cap<br>(l/s) | Flow<br>(l/s) | US<br>Depth<br>(m) | DS<br>Depth<br>(m) | Σ Area<br>(ha) | Σ Add<br>Inflow<br>(l/s) | Pro<br>Depth<br>(mm) | Pro<br>Velocity<br>(m/s) |
|-------------|--------------|--------------|---------------|--------------------|--------------------|----------------|--------------------------|----------------------|--------------------------|
| S1.000      | 1.001        | 7.9          | 3.8           | 1.200              | 1.383              | 0.028          | 0.0                      | 49                   | 0.991                    |
| S1.001      | 1.001        | 39.8         | 18.3          | 1.383              | 1.373              | 0.135          | 0.0                      | 107                  | 0.979                    |
| S1.002      | 1.005        | 40.0         | 32.8          | 1.373              | 1.250              | 0.242          | 0.0                      | 155                  | 1.118                    |
| S1.003      | 1.003        | 70.9         | 59.0          | 1.250              | 1.263              | 0.435          | 0.0                      | 209                  | 1.118                    |
| Interceptor | 1.342        | 94.9         | 59.0          | 1.263              | 1.548              | 0.435          | 0.0                      | 171                  | 1.411                    |
| S1.004      | 1.004        | 71.0         | 59.0          | 1.548              | 1.736              | 0.435          | 0.0                      | 209                  | 1.118                    |
| S1.005      | 1.003        | 79.8         | 59.0          | 1.811              | 1.930              | 0.435          | 0.0                      | 145                  | 1.096                    |

### Links

| Name   | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) |
|--------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|
| S1.006 | Tank    | SW06    | 9.146      | 0.600       | 86.970    | 86.916    | 0.054    | 169.4       | 225      |
| S1.007 | SW06    | SW07    | 3.670      | 0.600       | 86.766    | 86.754    | 0.012    | 305.8       | 375      |
| S1.008 | SW08    | Outfall | 5.115      | 0.600       | 88.500    | 88.449    | 0.051    | 100.0       | 225      |
| S2.000 | SW09    | SW04    | 4.405      | 0.600       | 87.415    | 87.240    | 0.175    | 25.2        | 225      |
| S3.000 | SW10    | SW04    | 4.599      | 0.600       | 87.300    | 87.240    | 0.060    | 76.7        | 225      |
| S4.000 | IC01    | IC02    | 21.162     | 0.600       | 87.875    | 87.650    | 0.225    | 94.1        | 225      |
| S4.001 | IC02    | IC03    | 14.117     | 0.600       | 87.650    | 87.566    | 0.084    | 168.1       | 225      |
| S4.002 | IC03    | SW06    | 5.015      | 0.600       | 87.566    | 87.536    | 0.030    | 167.2       | 225      |

| Name   | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|--------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| S1.006 | 1.002     | 79.6      | 59.0       | 1.930        | 2.084        | 0.435       | 0.0                | 145            | 1.094              |
| S1.007 | 1.031     | 113.8     | 72.1       | 2.084        | 2.096        | 0.532       | 0.0                | 217            | 1.089              |
| S1.008 | 1.307     | 52.0      | 0.0        | 0.875        | 0.466        | 0.000       | 0.0                | 0              | 0.000              |
| S2.000 | 2.618     | 104.1     | 15.3       | 1.200        | 1.250        | 0.113       | 0.0                | 58             | 1.893              |
| S3.000 | 1.495     | 59.4      | 10.8       | 1.065        | 1.250        | 0.080       | 0.0                | 65             | 1.141              |
| S4.000 | 1.348     | 53.6      | 8.9        | 1.200        | 1.200        | 0.066       | 0.0                | 62             | 1.006              |
| S4.001 | 1.005     | 40.0      | 8.9        | 1.200        | 1.349        | 0.066       | 0.0                | 73             | 0.816              |
| S4.002 | 1.008     | 40.1      | 13.1       | 1.349        | 1.464        | 0.097       | 0.0                | 88             | 0.904              |

### Pipeline Schedule

| Link        | Length (m) | Slope (1:X) | Dia (mm) | Link Type     | US CL (m) | US IL (m) | US Depth (m) | DS CL (m) | DS IL (m) | DS Depth (m) |
|-------------|------------|-------------|----------|---------------|-----------|-----------|--------------|-----------|-----------|--------------|
| S1.000      | 16.800     | 59.4        | 100      | Circular      | 89.115    | 87.815    | 1.200        | 89.015    | 87.532    | 1.383        |
| S1.001      | 15.257     | 169.5       | 225      | Circular      | 89.015    | 87.407    | 1.383        | 88.915    | 87.317    | 1.373        |
| S1.002      | 12.943     | 168.1       | 225      | Circular      | 88.915    | 87.317    | 1.373        | 88.715    | 87.240    | 1.250        |
| S1.003      | 3.162      | 243.2       | 300      | Circular      | 88.715    | 87.165    | 1.250        | 88.715    | 87.152    | 1.263        |
| Interceptor | 13.684     | 136.8       | 300      | Circular      | 88.715    | 87.152    | 1.263        | 88.900    | 87.052    | 1.548        |
| S1.004      | 3.159      | 243.0       | 300      | Circular      | 88.900    | 87.052    | 1.548        | 89.075    | 87.039    | 1.736        |
| S1.005      | 11.648     | 168.8       | 225      | Dual Manifold | 89.075    | 87.039    | 1.811        | 89.125    | 86.970    | 1.930        |
| S1.006      | 9.146      | 169.4       | 225      | Dual Manifold | 89.125    | 86.970    | 1.930        | 89.225    | 86.916    | 2.084        |
| S1.007      | 3.670      | 305.8       | 375      | Circular      | 89.225    | 86.766    | 2.084        | 89.225    | 86.754    | 2.096        |

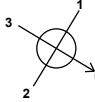
| Link        | US Node | Dia (mm) | Width (mm) | Node Type | MH Type   | DS Node | Dia (mm) | Node Type | MH Type   |
|-------------|---------|----------|------------|-----------|-----------|---------|----------|-----------|-----------|
| S1.000      | SW01    | 1200     |            | Manhole   | Adoptable | SW02    | 1200     | Manhole   | Adoptable |
| S1.001      | SW02    | 1200     |            | Manhole   | Adoptable | SW03    | 1200     | Manhole   | Adoptable |
| S1.002      | SW03    | 1200     |            | Manhole   | Adoptable | SW04    | 1500     | Manhole   | Adoptable |
| S1.003      | SW04    | 1500     |            | Manhole   | Adoptable | Int In  |          | Junction  |           |
| Interceptor | Int In  |          |            | Junction  |           | Int out |          | Junction  |           |
| S1.004      | Int out |          |            | Junction  |           | SW05    | 1500     | Manhole   | Adoptable |
| S1.005      | SW05    | 1500     |            | Manhole   | Adoptable | Tank    |          | Junction  |           |
| S1.006      | Tank    |          |            | Junction  |           | SW06    | 1800     | Manhole   | Adoptable |
| S1.007      | SW06    | 1800     |            | Manhole   | Adoptable | SW07    | 1500     | Manhole   | Adoptable |

### Pipeline Schedule

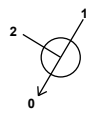
| Link   | Length<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | Link<br>Type | US CL<br>(m) | US IL<br>(m) | US Depth<br>(m) | DS CL<br>(m) | DS IL<br>(m) | DS Depth<br>(m) |
|--------|---------------|----------------|-------------|--------------|--------------|--------------|-----------------|--------------|--------------|-----------------|
| S1.008 | 5.115         | 100.0          | 225         | Circular     | 89.600       | 88.500       | 0.875           | 89.140       | 88.449       | 0.466           |
| S2.000 | 4.405         | 25.2           | 225         | Circular     | 88.840       | 87.415       | 1.200           | 88.715       | 87.240       | 1.250           |
| S3.000 | 4.599         | 76.7           | 225         | Circular     | 88.590       | 87.300       | 1.065           | 88.715       | 87.240       | 1.250           |
| S4.000 | 21.162        | 94.1           | 225         | Circular     | 89.300       | 87.875       | 1.200           | 89.075       | 87.650       | 1.200           |
| S4.001 | 14.117        | 168.1          | 225         | Circular     | 89.075       | 87.650       | 1.200           | 89.140       | 87.566       | 1.349           |
| S4.002 | 5.015         | 167.2          | 225         | Circular     | 89.140       | 87.566       | 1.349           | 89.225       | 87.536       | 1.464           |

| Link   | US<br>Node | Dia<br>(mm) | Width<br>(mm) | Node<br>Type | MH<br>Type | DS<br>Node | Dia<br>(mm) | Node<br>Type | MH<br>Type |
|--------|------------|-------------|---------------|--------------|------------|------------|-------------|--------------|------------|
| S1.008 | SW08       | 600         |               | Manhole      | Adoptable  | Outfall    |             | Junction     |            |
| S2.000 | SW09       | 520         | 520           | Manhole      | Adoptable  | SW04       | 1500        | Manhole      | Adoptable  |
| S3.000 | SW10       | 670         | 580           | Manhole      | Adoptable  | SW04       | 1500        | Manhole      | Adoptable  |
| S4.000 | IC01       | 600         |               | Manhole      | Adoptable  | IC02       | 600         | Manhole      | Adoptable  |
| S4.001 | IC02       | 600         |               | Manhole      | Adoptable  | IC03       | 600         | Manhole      | Adoptable  |
| S4.002 | IC03       | 600         |               | Manhole      | Adoptable  | SW06       | 1800        | Manhole      | Adoptable  |

### Manhole Schedule

| Node    | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Width<br>(mm) | Connections                                                                          | Link        | IL<br>(m)   | Dia<br>(mm) |     |
|---------|----------------|-----------------|-----------|--------------|-------------|---------------|--------------------------------------------------------------------------------------|-------------|-------------|-------------|-----|
| SW01    | 440717.586     | 292574.311      | 89.115    | 1.300        | 1200        |               |  |             |             |             |     |
|         |                |                 |           |              |             |               | 0                                                                                    | S1.000      | 87.815      | 100         |     |
| SW02    | 440731.986     | 292565.658      | 89.015    | 1.608        | 1200        |               |  | 1           | S1.000      | 87.532      | 100 |
|         |                |                 |           |              |             |               | 0                                                                                    | S1.001      | 87.407      | 225         |     |
| SW03    | 440745.064     | 292557.800      | 88.915    | 1.598        | 1200        |               |  | 1           | S1.001      | 87.317      | 225 |
|         |                |                 |           |              |             |               | 0                                                                                    | S1.002      | 87.317      | 225         |     |
| SW04    | 440756.158     | 292551.134      | 88.715    | 1.550        | 1500        |               |  | 1           | S2.000      | 87.240      | 225 |
|         |                |                 |           |              |             |               | 2                                                                                    | S3.000      | 87.240      | 225         |     |
|         |                |                 |           |              |             |               | 3                                                                                    | S1.002      | 87.240      | 225         |     |
|         |                |                 |           |              |             |               | 0                                                                                    | S1.003      | 87.165      | 300         |     |
| Int In  | 440758.869     | 292549.507      | 88.715    | 1.563        |             |               |  | 1           | S1.003      | 87.152      | 300 |
|         |                |                 |           |              |             |               | 0                                                                                    | Interceptor | 87.152      | 300         |     |
| Int out | 440770.598     | 292542.459      | 88.900    | 1.848        |             |               |  | 1           | Interceptor | 87.052      | 300 |
|         |                |                 |           |              |             |               | 0                                                                                    | S1.004      | 87.052      | 300         |     |

### Manhole Schedule

| Node    | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Width<br>(mm) | Connections                                                                           | Link | IL<br>(m) | Dia<br>(mm) |     |
|---------|----------------|-----------------|-----------|--------------|-------------|---------------|---------------------------------------------------------------------------------------|------|-----------|-------------|-----|
| SW05    | 440773.310     | 292540.839      | 89.075    | 2.036        | 1500        |               |     | 1    | S1.004    | 87.039      | 300 |
|         |                |                 |           |              |             |               |                                                                                       | 0    | S1.005    | 87.039      | 225 |
| Tank    | 440783.260     | 292534.783      | 89.125    | 2.155        |             |               |     | 1    | S1.005    | 86.970      | 225 |
|         |                |                 |           |              |             |               |                                                                                       | 0    | S1.006    | 86.970      | 225 |
| SW06    | 440791.076     | 292530.034      | 89.225    | 2.459        | 1800        |               |     | 1    | S4.002    | 87.536      | 225 |
|         |                |                 |           |              |             |               |                                                                                       | 2    | S1.006    | 86.916      | 225 |
|         |                |                 |           |              |             |               |                                                                                       | 0    | S1.007    | 86.766      | 375 |
| SW07    | 440789.225     | 292526.865      | 89.225    | 2.471        | 1500        |               |    | 1    | S1.007    | 86.754      | 375 |
| SW08    | 440899.988     | 292441.963      | 89.600    | 1.100        | 600         |               |    |      |           |             |     |
|         |                |                 |           |              |             |               |                                                                                       | 0    | S1.008    | 88.500      | 225 |
| SW09    | 440758.427     | 292554.910      | 88.840    | 1.425        | 520         | 520           |  |      |           |             |     |
|         |                |                 |           |              |             |               |                                                                                       | 0    | S2.000    | 87.415      | 225 |
| SW10    | 440753.766     | 292547.206      | 88.590    | 1.290        | 670         | 580           |  |      |           |             |     |
|         |                |                 |           |              |             |               |                                                                                       | 0    | S3.000    | 87.300      | 225 |
| IC01    | 440792.445     | 292559.788      | 89.300    | 1.425        | 600         |               |  |      |           |             |     |
|         |                |                 |           |              |             |               |                                                                                       | 0    | S4.000    | 87.875      | 225 |
| IC02    | 440781.546     | 292541.649      | 89.075    | 1.425        | 600         |               |  | 1    | S4.000    | 87.650      | 225 |
|         |                |                 |           |              |             |               |                                                                                       | 0    | S4.001    | 87.650      | 225 |
| IC03    | 440793.630     | 292534.350      | 89.140    | 1.574        | 600         |               |   | 1    | S4.001    | 87.566      | 225 |
|         |                |                 |           |              |             |               |                                                                                       | 0    | S4.002    | 87.566      | 225 |
| Outfall | 440904.595     | 292439.740      | 89.140    | 0.691        |             |               |   | 1    | S1.008    | 88.449      | 225 |

### Simulation Settings

|                      |        |                        |          |                            |      |
|----------------------|--------|------------------------|----------|----------------------------|------|
| Rainfall Methodology | FEH-13 | Analysis Speed         | Detailed | Additional Storage (m³/ha) | 20.0 |
| Summer CV            | 0.750  | Skip Steady State      | ✓        | Check Discharge Rate(s)    | x    |
| Winter CV            | 0.840  | Drain Down Time (mins) | 240      | Check Discharge Volume     | x    |

### Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

| Return Period<br>(years) | Climate Change<br>(CC %) | Additional Area<br>(A %) | Additional Flow<br>(Q %) |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 2                        | 0                        | 0                        | 0                        |
| 5                        | 0                        | 0                        | 0                        |
| 30                       | 0                        | 0                        | 0                        |
| 100                      | 40                       | 0                        | 0                        |

#### Node SW07 Offline Pump Control

|                  |        |                     |       |                      |       |
|------------------|--------|---------------------|-------|----------------------|-------|
| Flap Valve       | x      | Design Depth (m)    | 1.032 | Switch off depth (m) | 0.000 |
| Loop to Node     | SW08   | Design Flow (l/s)   | 3.2   |                      |       |
| Invert Level (m) | 86.754 | Switch on depth (m) | 0.001 |                      |       |

| Depth<br>(m) | Flow<br>(l/s) |
|--------------|---------------|
| 0.001        | 3.200         |

#### Node Tank Depth/Area Storage Structure

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 86.970 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 0.95 | Time to half empty (mins) |        |

| Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) |
|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|
| 0.000        | 279.0                     | 0.0                           | 0.800        | 279.0                     | 0.0                           | 0.801        | 0.0                       | 0.0                           |

**Results for 2 year Critical Storm Duration. Lowest mass balance: 98.36%**

| Node Event        | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 15 minute winter  | SW01       | 10             | 87.864       | 0.049        | 3.7             | 0.0765           | 0.0000        | OK         |
| 15 minute winter  | SW02       | 10             | 87.517       | 0.110        | 17.7            | 0.2708           | 0.0000        | OK         |
| 15 minute winter  | SW03       | 11             | 87.479       | 0.162        | 31.4            | 0.4005           | 0.0000        | OK         |
| 15 minute winter  | SW04       | 10             | 87.355       | 0.190        | 55.6            | 0.3352           | 0.0000        | OK         |
| 15 minute winter  | Int In     | 11             | 87.322       | 0.170        | 55.3            | 0.0000           | 0.0000        | OK         |
| 15 minute winter  | Int out    | 11             | 87.242       | 0.190        | 55.6            | 0.0000           | 0.0000        | OK         |
| 15 minute winter  | SW05       | 11             | 87.176       | 0.137        | 54.7            | 0.2424           | 0.0000        | OK         |
| 240 minute winter | Tank       | 204            | 87.176       | 0.206        | 13.9            | 54.6063          | 0.0000        | OK         |
| 240 minute winter | SW06       | 204            | 87.176       | 0.410        | 7.0             | 1.0435           | 0.0000        | SURCHARGED |
| 240 minute winter | SW07       | 204            | 87.176       | 0.422        | 18.6            | 0.7456           | 0.0000        | OK         |
| 15 minute winter  | SW08       | 8              | 88.539       | 0.039        | 3.2             | 0.0110           | 0.0000        | OK         |
| 15 minute winter  | SW09       | 10             | 87.478       | 0.063        | 14.9            | 0.1171           | 0.0000        | OK         |
| 15 minute winter  | SW10       | 10             | 87.374       | 0.074        | 10.5            | 0.1212           | 0.0000        | OK         |
| 15 minute winter  | IC01       | 10             | 87.936       | 0.061        | 8.7             | 0.0743           | 0.0000        | OK         |
| 15 minute winter  | IC02       | 10             | 87.721       | 0.071        | 8.6             | 0.0202           | 0.0000        | OK         |
| 15 minute winter  | IC03       | 11             | 87.660       | 0.094        | 12.5            | 0.0638           | 0.0000        | OK         |
| 15 minute winter  | Outfall    | 8              | 88.487       | 0.038        | 3.2             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Outflow) | US<br>Node | Link        | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|-------------------------|------------|-------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute winter        | SW01       | S1.000      | SW02       | 3.6              | 0.964             | 0.458    | 0.0628           |                       |
| 15 minute winter        | SW02       | S1.001      | SW03       | 17.3             | 0.694             | 0.435    | 0.3788           |                       |
| 15 minute winter        | SW03       | S1.002      | SW04       | 31.0             | 1.066             | 0.775    | 0.3758           |                       |
| 15 minute winter        | SW04       | S1.003      | Int In     | 55.3             | 1.255             | 0.780    | 0.1393           |                       |
| 15 minute winter        | Int In     | Interceptor | Int out    | 55.6             | 1.261             | 0.586    | 0.6028           |                       |
| 15 minute summer        | Int out    | S1.004      | SW05       | 55.0             | 1.453             | 0.775    | 0.1194           |                       |
| 15 minute winter        | SW05       | S1.005      | Tank       | 55.9             | 2.090             | 0.701    | 0.3841           |                       |
| 30 minute winter        | Tank       | S1.006      | SW06       | 10.5             | 0.423             | 0.131    | 0.5188           |                       |
| 600 minute winter       | SW06       | S1.007      | SW07       | 23.6             | 1.161             | 0.207    | 0.4048           |                       |
| 15 minute summer        | SW07       | Pump        | SW08       | 3.2              |                   |          |                  | 26.1                  |
| 15 minute winter        | SW08       | S1.008      | Outfall    | 3.2              | 0.717             | 0.062    | 0.0229           | 29.9                  |
| 15 minute winter        | SW09       | S2.000      | SW04       | 14.8             | 1.323             | 0.142    | 0.0648           |                       |
| 15 minute winter        | SW10       | S3.000      | SW04       | 10.4             | 0.826             | 0.175    | 0.0731           |                       |
| 15 minute winter        | IC01       | S4.000      | IC02       | 8.6              | 0.881             | 0.160    | 0.2069           |                       |
| 15 minute winter        | IC02       | S4.001      | IC03       | 8.5              | 0.642             | 0.212    | 0.1872           |                       |
| 15 minute winter        | IC03       | S4.002      | SW06       | 12.4             | 0.843             | 0.310    | 0.0740           |                       |

**Results for 5 year Critical Storm Duration. Lowest mass balance: 98.36%**

| Node Event        | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 15 minute winter  | SW01       | 10             | 87.879       | 0.064        | 5.6             | 0.0999           | 0.0000        | OK         |
| 15 minute winter  | SW02       | 11             | 87.604       | 0.197        | 27.0            | 0.4844           | 0.0000        | OK         |
| 15 minute winter  | SW03       | 11             | 87.563       | 0.246        | 45.9            | 0.6072           | 0.0000        | SURCHARGED |
| 15 minute winter  | SW04       | 11             | 87.419       | 0.254        | 82.9            | 0.4493           | 0.0000        | OK         |
| 15 minute winter  | Int In     | 11             | 87.375       | 0.223        | 83.2            | 0.0000           | 0.0000        | OK         |
| 15 minute winter  | Int out    | 11             | 87.287       | 0.235        | 83.3            | 0.0000           | 0.0000        | OK         |
| 240 minute winter | SW05       | 232            | 87.285       | 0.246        | 18.1            | 0.4339           | 0.0000        | SURCHARGED |
| 240 minute winter | Tank       | 232            | 87.284       | 0.314        | 18.1            | 83.3502          | 0.0000        | SURCHARGED |
| 240 minute winter | SW06       | 232            | 87.284       | 0.518        | 6.6             | 1.3193           | 0.0000        | SURCHARGED |
| 240 minute winter | SW07       | 232            | 87.284       | 0.530        | 6.3             | 0.9372           | 0.0000        | OK         |
| 15 minute winter  | SW08       | 7              | 88.539       | 0.039        | 3.2             | 0.0110           | 0.0000        | OK         |
| 15 minute winter  | SW09       | 10             | 87.497       | 0.082        | 22.7            | 0.1530           | 0.0000        | OK         |
| 15 minute winter  | SW10       | 11             | 87.421       | 0.121        | 16.1            | 0.1973           | 0.0000        | OK         |
| 15 minute winter  | IC01       | 10             | 87.952       | 0.077        | 13.3            | 0.0935           | 0.0000        | OK         |
| 15 minute winter  | IC02       | 10             | 87.742       | 0.092        | 13.2            | 0.0260           | 0.0000        | OK         |
| 15 minute winter  | IC03       | 11             | 87.687       | 0.121        | 19.1            | 0.0819           | 0.0000        | OK         |
| 15 minute winter  | Outfall    | 7              | 88.487       | 0.038        | 3.2             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Outflow) | US<br>Node | Link        | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|-------------------------|------------|-------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute winter        | SW01       | S1.000      | SW02       | 5.5              | 1.058             | 0.694    | 0.0934           |                       |
| 15 minute winter        | SW02       | S1.001      | SW03       | 25.7             | 0.710             | 0.647    | 0.5844           |                       |
| 15 minute winter        | SW03       | S1.002      | SW04       | 46.0             | 1.184             | 1.151    | 0.4770           |                       |
| 15 minute winter        | SW04       | S1.003      | Int In     | 83.2             | 1.386             | 1.173    | 0.1893           |                       |
| 15 minute winter        | Int In     | Interceptor | Int out    | 83.3             | 1.443             | 0.878    | 0.7894           |                       |
| 15 minute summer        | Int out    | S1.004      | SW05       | 84.8             | 1.685             | 1.195    | 0.1579           |                       |
| 15 minute winter        | SW05       | S1.005      | Tank       | 85.9             | 2.161             | 1.077    | 0.5897           |                       |
| 15 minute winter        | Tank       | S1.006      | SW06       | -15.1            | 0.423             | -0.189   | 0.6330           |                       |
| 60 minute summer        | SW06       | S1.007      | SW07       | 31.4             | 1.351             | 0.276    | 0.4048           |                       |
| 15 minute summer        | SW07       | Pump        | SW08       | 3.2              |                   |          |                  | 41.4                  |
| 15 minute winter        | SW08       | S1.008      | Outfall    | 3.2              | 0.717             | 0.062    | 0.0229           | 44.8                  |
| 15 minute winter        | SW09       | S2.000      | SW04       | 22.7             | 1.333             | 0.218    | 0.1026           |                       |
| 15 minute winter        | SW10       | S3.000      | SW04       | 15.7             | 0.818             | 0.264    | 0.1281           |                       |
| 15 minute winter        | IC01       | S4.000      | IC02       | 13.2             | 0.965             | 0.245    | 0.2888           |                       |
| 15 minute winter        | IC02       | S4.001      | IC03       | 12.9             | 0.702             | 0.324    | 0.2605           |                       |
| 15 minute winter        | IC03       | S4.002      | SW06       | 19.0             | 0.939             | 0.475    | 0.1017           |                       |

**Results for 30 year Critical Storm Duration. Lowest mass balance: 98.36%**

| Node Event        | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 15 minute winter  | SW01       | 12             | 88.306       | 0.491        | 9.2             | 0.7665           | 0.0000        | SURCHARGED |
| 15 minute winter  | SW02       | 11             | 88.057       | 0.650        | 40.4            | 1.5999           | 0.0000        | SURCHARGED |
| 15 minute winter  | SW03       | 11             | 87.957       | 0.640        | 70.2            | 1.5809           | 0.0000        | SURCHARGED |
| 15 minute winter  | SW04       | 11             | 87.658       | 0.493        | 124.5           | 0.8709           | 0.0000        | SURCHARGED |
| 15 minute winter  | Int In     | 12             | 87.578       | 0.426        | 123.2           | 0.0000           | 0.0000        | SURCHARGED |
| 360 minute winter | Int out    | 344            | 87.520       | 0.468        | 20.6            | 0.0000           | 0.0000        | SURCHARGED |
| 360 minute winter | SW05       | 344            | 87.520       | 0.481        | 20.4            | 0.8490           | 0.0000        | SURCHARGED |
| 360 minute winter | Tank       | 352            | 87.519       | 0.549        | 21.1            | 145.6204         | 0.0000        | SURCHARGED |
| 360 minute winter | SW06       | 352            | 87.519       | 0.753        | 8.0             | 1.9172           | 0.0000        | SURCHARGED |
| 360 minute winter | SW07       | 352            | 87.519       | 0.765        | 4.7             | 1.3523           | 0.0000        | OK         |
| 30 minute winter  | SW08       | 8              | 88.539       | 0.039        | 3.2             | 0.0110           | 0.0000        | OK         |
| 15 minute winter  | SW09       | 11             | 87.696       | 0.281        | 37.3            | 0.5208           | 0.0000        | SURCHARGED |
| 15 minute winter  | SW10       | 11             | 87.677       | 0.377        | 26.4            | 0.6141           | 0.0000        | SURCHARGED |
| 15 minute winter  | IC01       | 10             | 87.978       | 0.103        | 21.8            | 0.1249           | 0.0000        | OK         |
| 15 minute winter  | IC02       | 11             | 87.779       | 0.129        | 21.6            | 0.0366           | 0.0000        | OK         |
| 15 minute winter  | IC03       | 11             | 87.736       | 0.170        | 31.2            | 0.1151           | 0.0000        | OK         |
| 15 minute winter  | Outfall    | 6              | 88.487       | 0.038        | 3.2             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Outflow) | US<br>Node | Link        | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|-------------------------|------------|-------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute summer        | SW01       | S1.000      | SW02       | 8.5              | 1.093             | 1.087    | 0.1314           |                       |
| 15 minute winter        | SW02       | S1.001      | SW03       | 37.0             | 0.931             | 0.930    | 0.6068           |                       |
| 15 minute winter        | SW03       | S1.002      | SW04       | 67.1             | 1.688             | 1.679    | 0.5148           |                       |
| 15 minute winter        | SW04       | S1.003      | Int In     | 123.2            | 1.749             | 1.736    | 0.2227           |                       |
| 15 minute winter        | Int In     | Interceptor | Int out    | 122.5            | 1.740             | 1.292    | 0.9636           |                       |
| 15 minute winter        | Int out    | S1.004      | SW05       | 122.1            | 1.889             | 1.720    | 0.2222           |                       |
| 15 minute winter        | SW05       | S1.005      | Tank       | 121.1            | 2.310             | 1.518    | 0.9265           |                       |
| 15 minute winter        | Tank       | S1.006      | SW06       | -26.0            | -0.518            | -0.326   | 0.7275           |                       |
| 30 minute winter        | SW06       | S1.007      | SW07       | 28.8             | 1.078             | 0.253    | 0.4048           |                       |
| 15 minute summer        | SW07       | Pump        | SW08       | 3.2              |                   |          |                  | 48.0                  |
| 15 minute winter        | SW08       | S1.008      | Outfall    | 3.2              | 0.717             | 0.062    | 0.0229           | 48.0                  |
| 15 minute winter        | SW09       | S2.000      | SW04       | 33.7             | 1.357             | 0.324    | 0.1752           |                       |
| 15 minute winter        | SW10       | S3.000      | SW04       | 24.6             | 0.822             | 0.414    | 0.1829           |                       |
| 15 minute winter        | IC01       | S4.000      | IC02       | 21.6             | 1.049             | 0.402    | 0.4368           |                       |
| 15 minute winter        | IC02       | S4.001      | IC03       | 21.2             | 0.756             | 0.530    | 0.3935           |                       |
| 15 minute winter        | IC03       | S4.002      | SW06       | 31.1             | 1.040             | 0.776    | 0.1496           |                       |

**Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.36%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter  | SW01    | 10          | 89.115    | 1.300     | 17.0         | 2.0306        | 2.3273     | FLOOD      |
| 15 minute winter  | SW02    | 10          | 89.015    | 1.608     | 69.1         | 3.9589        | 4.5832     | FLOOD      |
| 15 minute winter  | SW03    | 10          | 88.915    | 1.598     | 105.0        | 3.9471        | 1.4987     | FLOOD      |
| 240 minute winter | SW04    | 156         | 88.624    | 1.459     | 50.3         | 2.5787        | 0.0000     | FLOOD RISK |
| 240 minute winter | Int In  | 156         | 88.626    | 1.474     | 49.9         | 0.0000        | 0.0000     | FLOOD RISK |
| 240 minute winter | Int out | 156         | 88.629    | 1.577     | 49.7         | 0.0000        | 0.0000     | FLOOD RISK |
| 240 minute winter | SW05    | 156         | 88.630    | 1.591     | 49.5         | 2.8116        | 0.0000     | SURCHARGED |
| 180 minute winter | Tank    | 124         | 88.632    | 1.662     | 69.9         | 212.1725      | 0.0000     | SURCHARGED |
| 240 minute winter | SW06    | 156         | 88.634    | 1.868     | 11.6         | 4.7533        | 0.0000     | SURCHARGED |
| 240 minute winter | SW07    | 156         | 88.634    | 1.880     | 7.6          | 3.3215        | 0.0000     | OK         |
| 15 minute summer  | SW08    | 5           | 88.539    | 0.039     | 3.2          | 0.0110        | 0.0000     | OK         |
| 240 minute winter | SW09    | 156         | 88.627    | 1.212     | 13.6         | 2.2494        | 0.0000     | FLOOD RISK |
| 600 minute winter | SW10    | 360         | 88.590    | 1.290     | 20.8         | 2.1014        | 104.2419   | FLOOD      |
| 180 minute winter | IC01    | 124         | 88.653    | 0.778     | 9.7          | 0.9401        | 0.0000     | SURCHARGED |
| 180 minute winter | IC02    | 124         | 88.647    | 0.997     | 9.7          | 0.2820        | 0.0000     | SURCHARGED |
| 180 minute winter | IC03    | 124         | 88.638    | 1.072     | 14.2         | 0.7261        | 0.0000     | SURCHARGED |
| 15 minute summer  | Outfall | 5           | 88.487    | 0.038     | 3.2          | 0.0000        | 0.0000     | OK         |

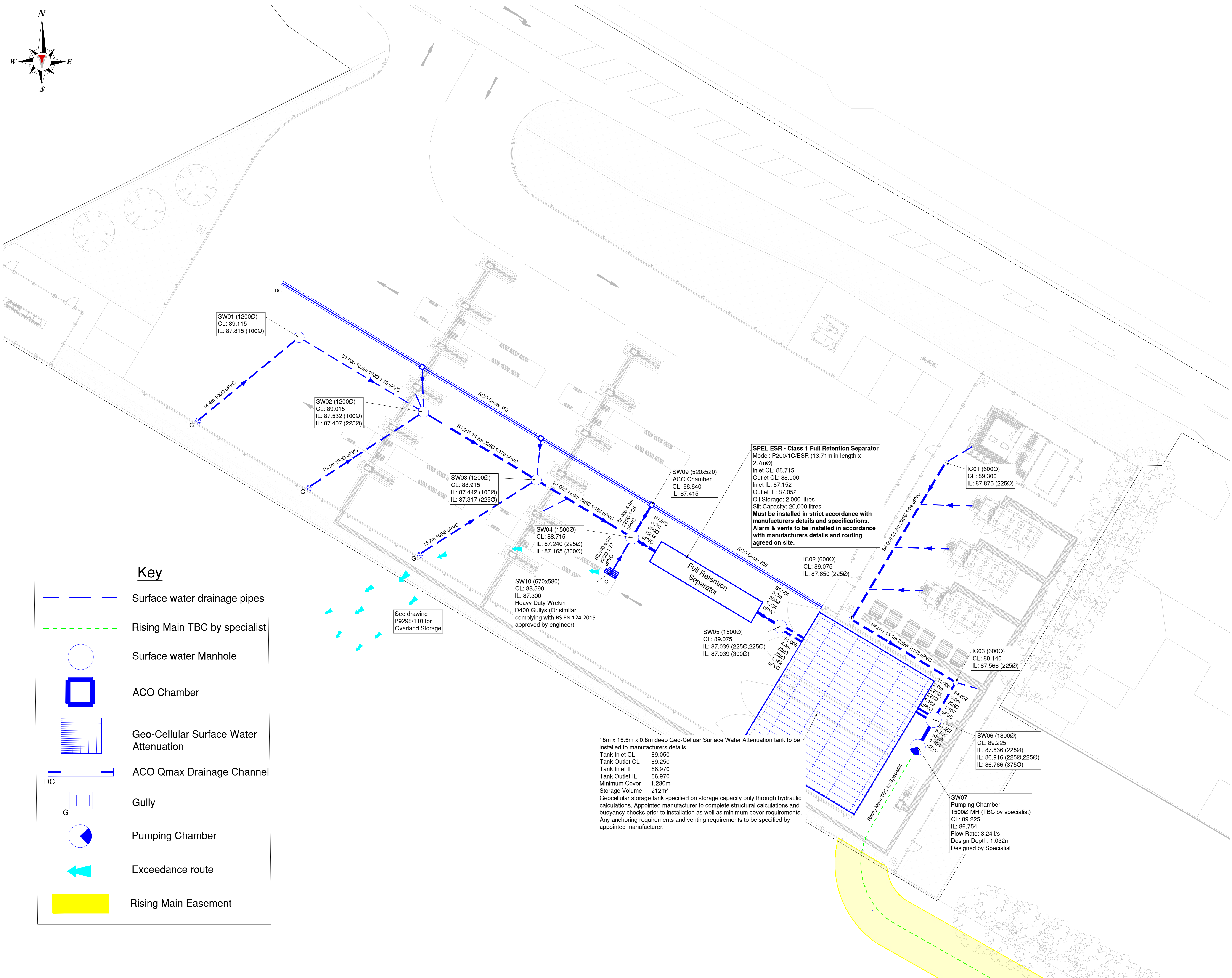
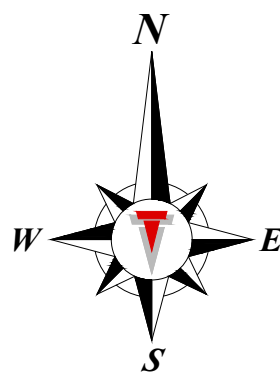
  

| Link Event (Outflow) | US Node | Link        | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|----------------------|---------|-------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute summer     | SW01    | S1.000      | SW02    | 11.1          | 1.417          | 1.409    | 0.1314        |                    |
| 30 minute summer     | SW02    | S1.001      | SW03    | 48.1          | 1.209          | 1.208    | 0.6068        |                    |
| 15 minute winter     | SW03    | S1.002      | SW04    | 95.1          | 2.392          | 2.379    | 0.5148        |                    |
| 15 minute winter     | SW04    | S1.003      | Int In  | 191.1         | 2.714          | 2.694    | 0.2227        |                    |
| 15 minute winter     | Int In  | Interceptor | Int out | 190.3         | 2.703          | 2.007    | 0.9636        |                    |
| 15 minute winter     | Int out | S1.004      | SW05    | 189.6         | 2.693          | 2.672    | 0.2225        |                    |
| 15 minute winter     | SW05    | S1.005      | Tank    | 188.4         | 2.401          | 2.361    | 0.9265        |                    |
| 15 minute winter     | Tank    | S1.006      | SW06    | -49.2         | -0.652         | -0.618   | 0.7275        |                    |
| 30 minute winter     | SW06    | S1.007      | SW07    | 40.1          | 1.576          | 0.353    | 0.4048        |                    |
| 15 minute summer     | SW07    | Pump        | SW08    | 3.2           |                |          |               | 48.2               |
| 15 minute summer     | SW08    | S1.008      | Outfall | 3.2           | 0.717          | 0.062    | 0.0230        | 48.2               |
| 15 minute winter     | SW09    | S2.000      | SW04    | 63.4          | 1.594          | 0.609    | 0.1752        |                    |
| 15 minute winter     | SW10    | S3.000      | SW04    | 44.6          | 1.123          | 0.751    | 0.1829        |                    |
| 15 minute winter     | IC01    | S4.000      | IC02    | 38.1          | 1.103          | 0.711    | 0.8140        |                    |
| 15 minute winter     | IC02    | S4.001      | IC03    | 38.2          | 0.959          | 0.954    | 0.5614        |                    |
| 15 minute winter     | IC03    | S4.002      | SW06    | 55.9          | 1.412          | 1.395    | 0.1914        |                    |

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



**APPENDIX H**  
**DRAINAGE LAYOUT PLAN**



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A1

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| ITEM | HAZARD IDENTIFICATION             |
|------|-----------------------------------|
| 1    | CHECK IF THERE ARE RESIDUAL RISKS |

REVISIONS

| REV | DATE     | DESCRIPTION                                  | DRAWN BY | CHECKED BY |
|-----|----------|----------------------------------------------|----------|------------|
| A   | 28.02.23 | Replaced swale with piped outfall            | CS       | JP         |
| B   | 26.04.23 | Updated Tree Constraint Plan and site layout | CS       | JP         |
| C   | 22.05.23 | Updated Site Layout                          | CS       | JP         |

DRAWING STATUS: FOR PLANNING

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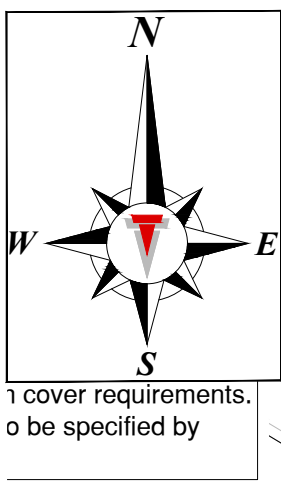
CLIENT: CNG FUELS

PROJECT: HINCKLEY 2

DRAWING TITLE: DRAINAGE LAYOUT PLAN 1 of 2

| DATE CREATED: 06.12.22             | DRAWING SCALE: 1:200 | DRAWN BY: CS | CHECKED BY: JP | QA CATEGORY: 1 |
|------------------------------------|----------------------|--------------|----------------|----------------|
| DRAWING REF: TC / P9298 / 23 / 102 | REV: C               |              |                |                |

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SW06 (18000)  
CL: 89.225  
IL: 87.536 (2250)  
IL: 86.916 (2250,2250)  
IL: 86.766 (3750)

SW07  
Pumping Chamber  
15000 MH (TBC by specialist)  
CL: 89.225  
IL: 86.754  
Flow Rate: 3.24 l/s  
Design Depth: 1.032m  
Designed by Specialist

LARGE  
LEYLAND

### Key

- Surface water drainage pipes
- Rising Main TBC by specialist
- Surface water Manhole
- Existing Tree Constraint Area
- Rising Main Easement

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A1

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- 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 information is apparently contradictory or ambiguous, the design Engineer and/or the Architect is to be informed immediately. Thomas Consulting will accept no liability for setting out errors where work is constructed to incorrect information.
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|---------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------|-------------|---------------|
| <div>1</div> | CHECK IF THERE ARE<br>RESIDUAL RISKS |                                                 |             |               |
| REVISIONS                                                                                         |                                      |                                                 |             |               |
| REV                                                                                               | DATE                                 | DESCRIPTION                                     | DRAWN<br>BY | CHECKED<br>BY |
| A                                                                                                 | 26/04/23                             | Updated Tree Constraint Plan<br>and site layout | CS          | JP            |
|                                                                                                   |                                      |                                                 |             |               |

DRAWING STATUS: **FOR PLANNING**

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CLIENT: **CNG FUELS**

PROJECT: **HINCKLEY 2**

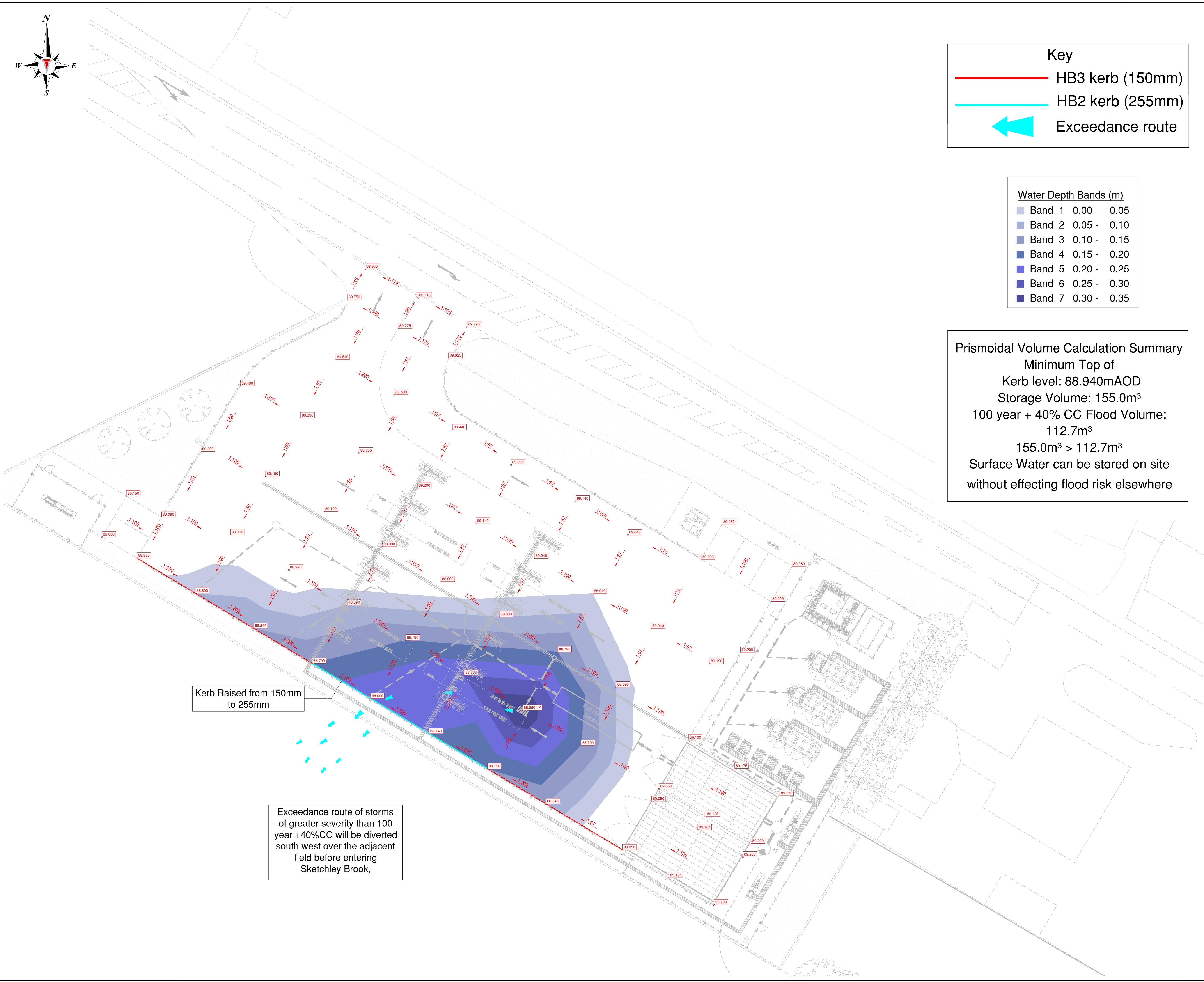
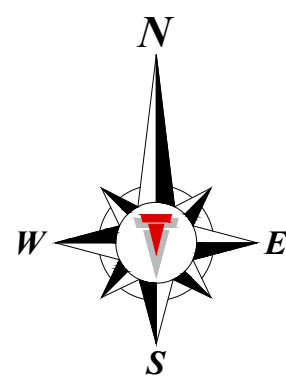
DRAWING TITLE: **DRAINAGE LAYOUT PLAN 2 of 2**

DATE CREATED: 02.03.23 DRAWING SCALE: 1:200 DRAWN BY: CS CHECKED BY: JP QA CATEGORY: 1

DRAWING REF: TC / P9298 / 23 / 103 REV: A

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

**APPENDIX I**  
**OVERLAND STORAGE**



Key

HB3 kerb (150mm)

HB2 kerb (255mm)

Exceedance route

Water Depth Bands (m)

- Band 1 0.00 - 0.05
- Band 2 0.05 - 0.10
- Band 3 0.10 - 0.15
- Band 4 0.15 - 0.20
- Band 5 0.20 - 0.25
- Band 6 0.25 - 0.30
- Band 7 0.30 - 0.35

Prismoidal Volume Calculation Summary

Minimum Top of Kerb level: 88.940m AOD

Storage Volume: 155.0m<sup>3</sup>

100 year + 40% CC Flood Volume: 112.7m<sup>3</sup>

155.0m<sup>3</sup> > 112.7m<sup>3</sup>

Surface Water can be stored on site without effecting flood risk elsewhere

- GENERAL NOTES:
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|---------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------|----------|------------|
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| REVISIONS                                                                                         |                                      |                                     |          |            |
| REV                                                                                               | DATE                                 | DESCRIPTION                         | DRAWN BY | CHECKED BY |
| A                                                                                                 | 03.03.23                             | Updated Flow route and flood volume | CS       | JP         |
| B                                                                                                 | 26.04.23                             | Site Layout updated                 | CS       | JP         |
| C                                                                                                 | 22.05.23                             | Updated to site layout match calcs  | CS       | JP         |
|                                                                                                   |                                      |                                     |          |            |

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CLIENT: CNG FUELS

PROJECT: HINCKLEY 2

DRAWING TITLE: OVERLAND STORAGE

|                                    |                      |              |                |                |
|------------------------------------|----------------------|--------------|----------------|----------------|
| DATE CREATED: 09.12.22             | DRAWING SCALE: 1:250 | DRAWN BY: CS | CHECKED BY: JP | QA CATEGORY: 1 |
| DRAWING REF: TC / P9298 / 23 / 110 | REV: C               |              |                |                |

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

**APPENDIX J**  
**SIMPLE INDEX METHOD**

### Simple Index method

Job Name: CNG Hinckley 2

Contract Number: P9298

Date: 03/03/2023

Engineer: CS

Checker: JP

### Calculation Brief

This spreadsheet has been developed to assist in calculating the proposed treatment method for SuDS. The calculation utilises the Simple Index Method outlined in CIRIA Report C753 - The SuDS Manual, V6 - 2015. The calculation considers the Pollution Methods, Total Suspended Solids (TSS), Metals, Hydro-Carbons and balances them again Mitigation Indices for proposed SuDS devices.

### Information Source

This spreadhseet has been created using information obtained from CIRIA Report C753 - The SuDS Manual, V6 - 2015. Chapter 26 provides guidance on Water Quality Management and Section 26.7.1 provides guidance on the Simple Index Method. We have also gathered propriatory treatment information information from SPEL's SuDS Handbook.

### Pollution Hazard

Select the correlating number to the land use you are looking at. If there is more than one for example roofs and car parking then you can select more than one below. If you only have one hazard/land use then input 0 for the other selections. The total polution hazard is displayed.

**TABLE 26.2 Pollution hazard indices for different land use classifications**

| Land use                                                                                                                                                                                                                                                                                                               | Pollution hazard level | Total suspended solids (TSS) | Metals                                                                     | Hydro-carbons    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------|----------------------------------------------------------------------------|------------------|
| Residential roofs                                                                                                                                                                                                                                                                                                      | Very low               | 0.2                          | 0.2                                                                        | 0.05             |
| Other roofs (typically commercial/ industrial roofs)                                                                                                                                                                                                                                                                   | Low                    | 0.3                          | 0.2 (up to 0.3 where there is potential for metals to leach from the roof) | 0.05             |
| Individual property driveways, residential car parks, low traffic roads (eg out de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) or < 300 traffic movements/day                                                                               | Low                    | 0.5                          | 0.4                                                                        | 0.4              |
| Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways <sup>1</sup>                                                                                                                                 | Medium                 | 0.7                          | 0.6                                                                        | 0.7              |
| Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured, industrial sites, trunk roads and motorways <sup>1</sup> | High                   | 0.8 <sup>2</sup>             | 0.8 <sup>2</sup>                                                           | 0.9 <sup>2</sup> |

#### Notes

- Motorways and trunk roads should follow the guidance and risk assessment process set out in Highways Agency (2006).
- These should only be used if considered appropriate as part of a detailed risk assessment - required for all these land use types (Table 4.3). When dealing with high hazard sites, the environmental regulator should first be consulted for pre-permitting advice. This will help determine the most appropriate approach to the development of a design solution.

| Pollution Hazard Reference | Pollution Hazard | TSS  | Metal | Hydro-Carbons |
|----------------------------|------------------|------|-------|---------------|
| 4                          | Medium           | 0.70 | 0.60  | 0.70          |
| 0                          | N/A              | 0.00 | 0.00  | 0.00          |
| 0                          | N/A              | 0.00 | 0.00  | 0.00          |
| Total Pollution Hazard     |                  | 0.70 | 0.60  | 0.70          |

|                                                                                   |                            |                  |  |
|-----------------------------------------------------------------------------------|----------------------------|------------------|--|
|  | <b>Simple Index Method</b> |                  |  |
|                                                                                   | Job Name: CNG Hinckley 2   |                  |  |
|                                                                                   | Contract Number: P9298     | Date: 03/03/2023 |  |
|                                                                                   | Engineer: CS               | Checker: JP      |  |

|                                                                                                                                                           |                        |            |            |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|------------|---------------|
| <b>Mitigation</b>                                                                                                                                         |                        |            |            |               |
| Where the mitigation index of an individual component is insufficient, two components (or more) in series will be required where;                         |                        |            |            |               |
| <b>Total SuDS mitigation index = mitigation index, + 0.5*mitigation index</b>                                                                             |                        |            |            |               |
| A factor of 0.5 is used to account for the reduced performance of secondary or tertiary components associated with already reduced inflow concentrations. |                        |            |            |               |
| Component                                                                                                                                                 | Type of SuDS component | TSS        | Metal      | Hydro-Carbons |
| Primary                                                                                                                                                   | SPEL ESR Purceptor     | 0.8        | 0.6        | 0.99          |
| Secondary                                                                                                                                                 | None                   | 0          | 0          | 0             |
| Tertiary                                                                                                                                                  | None                   | 0          | 0          | 0             |
| Total Mitigation Index                                                                                                                                    |                        | <b>0.8</b> | <b>0.6</b> | <b>0.99</b>   |

|                         |  |      |       |               |
|-------------------------|--|------|-------|---------------|
| <b>Summary</b>          |  |      |       |               |
|                         |  | TSS  | Metal | Hydro-Carbons |
| Total Pollution Hazard  |  | 0.70 | 0.60  | 0.70          |
| Total Mitigation Hazard |  | 0.8  | 0.6   | 0.99          |
| Check                   |  | PASS | PASS  | PASS          |

|                                                      |  |  |  |  |
|------------------------------------------------------|--|--|--|--|
| <b>Refences</b>                                      |  |  |  |  |
| - CIRIA Report 753, The SuDS Manual, Version 6, 2015 |  |  |  |  |
| - SPEL SuDS Handbook, 2022                           |  |  |  |  |

|              |  |  |  |  |
|--------------|--|--|--|--|
| <b>Notes</b> |  |  |  |  |
|              |  |  |  |  |