Extra MSA Group

Warrington Motorway Service Area, J11 M62

Environmental Statement

Part 2 – Climate Change Technical Paper 13

Revision F August 2019

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1. Introduction

1.1. This Technical Paper from the ES has been produced by Wardell Armstrong to assess the likely significant effects of the Proposed Development in terms of climate change in the context of the Site and surrounding area, and the wider environment, recognizing that climate change is a global issue.

1.2. Three aspects of climate change assessment will be presented within this chapter:

- **Assessment of Impacts**: A conventional impact assessment that will focus on the potential effects of the Proposed Development (i.e. greenhouse gas (GHG) emissions on the climate);
- **Mitigation of Climate Change**: An overview of how the Proposed Development aids in the mitigation of climate change; and
- **Vulnerability and Risk Assessment**: A qualitative discussion of the vulnerability of the Proposed Development to climate change effects that will highlight the potential risk of major accidents occurring as a result of a changing global climate.

1.3. This Technical Paper is not intended to be read as a standalone assessment and reference should be made to Appendices 13.1-13.4, ES Part 1 and other technical papers within ES Part 2.

2. Documents Consulted

Legislation

Climate Change Act 2008

2.1. The Climate Change Act 2008 establishes the framework for the UK to set and deliver greenhouse gas emission reduction targets; mainly through the establishment of the Committee on Climate Change which ensures targets are evidence based and independently assessed. The Act commits the UK government to reduce greenhouse gas emissions to a minimum of 80% below 1990 baseline levels by 2050. In addition to this, the Government is also required to regularly report on emission target progress, assess the risks and opportunities to the UK associated with climate change, and develop preparation and adaptive plans for these.

2.2. The UK Climate Change Risk Assessment[1] is required to be produced every five years under the Climate Change Act 2008, in order to look at the risks and opportunities arising for the UK from climate change. The 2017 series of reports, alongside other documents from the European Commission[2] and National House Building Council Foundation[3] are used in this chapter to assess potential vulnerabilities and adaptive potential of the Proposed Development and site regarding climate change impacts.

Town and Country Planning EIA Regulations 2017[4]

2.3. On the 16th May 2017, the European Commission Environmental Impact Assessment Directive (2014/52/EU) was incorporated into English law under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. This legislation requires the consideration of climate change within an EIA. The key text in relation to climate change is provided below.

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[1] HM Government (2017). UK Climate Change Risk Assessment 2017. HMSO, London.
[2] European Commission, 2013. Staff Working Document (2013) 137 final 'Adapting infrastructure to climate change'. EC, Brussels.
[3] National House Building Council Foundation (2007). Climate change and innovation in house building: designing out risk (NF3). NHBC Foundation, Buckinghamshire.
[4] Statutory Instrument 2017 No. 571 (2017). Town and Country Planning (Environmental Impact Assessment) Regulations 2017. HMSO, London.

Schedule 3: Regulation 5(4)

1(f): "The characteristics of development must be considered with particular regard to the risk of major accidents and/or disasters relevant to the development concerned, including those caused by climate change, in accordance with scientific knowledge."

Schedule 4: Regulation 18(3) INFORMATION FOR INCLUSION IN ENVIRONMENTAL STATEMENTS

"A description of the likely significant effects of the development on the environmental resulting from, inter alia:" …

4: "A description of the factors specified in regulation 4(2) likely to be significantly affected by the development…climate (for example greenhouse gas emissions, impacts relevant to adaptation)

5(f): "the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the Proposed Development to climate change"

Building Regulations[5]

2.4. Part L of the Building Regulations sets out the fabric energy efficiency standards and CO_2 emission limits for dwellings and non-residential buildings. Compliance with these regulations is assessed against certain criteria, using the methodologies detailed in Pat L, before a development to can be validated by building control. These regulations are the government's key mechanism for reducing CO_2 emissions in buildings.

2.5. Calculations are undertaken using a prescribed methodology - the Simplified Building Energy Model (SBEM). Whilst these assessments are typically undertaken post planning when specification and information regarding mechanical and electrical systems have been produced, the regulations are significant to this assessment because it legally binds new buildings to be constructed to a minimum standard, which can be utilized as a baseline.

[5] Ministry of Housing, Communities and Local Government (2018). Approved Document L1A: conservation of fuel and power in new dwellings, 2013 edition with 2016 amendments.

National Planning Policy Framework (2019)[6]

2.6. The policies within the NPPF 2019 relevant to climate change can be found in chapter 14 'Meeting the challenge of climate change, flooding and coastal change'. Those most specific to this assessment are detailed below:

2.7. Paragraph 148: *"The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure."*

2.8. *Paragraph 149: "Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure."*

2.9. Paragraph 150: *"New development should be planned for in ways that: a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards."*

2.10. Paragraph 151: "To help increase the use and supply of renewable and low carbon energy and heat, plans should: a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts); b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and c) identify opportunities for

[6] Ministry of Housing, Communities and Local Government (2019). National Planning Policy Framework 2019. HMSO, London.

development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers."

2.11. Paragraph 153: "In determining planning applications, local planning authorities should expect new development to: a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption."

2.12. Paragraph 157: "All plans should apply a sequential, risk-based approach to the location of development – taking into account the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by: a) applying the sequential test and then, if necessary, the exception test as set out below; b) safeguarding land from development that is required, or likely to be required, for current or future flood management; c) using opportunities provided by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques); and d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.

2.13. Supplementary planning guidance[7] on climate change was issued in 2014 with the aim to advise *"how to identify suitable mitigation and adaptation measures in the planning process to address the impacts of climate change."* This provides guidance to authorities for the implementation of climate change considerations into Local Plans but is helpful in outlining the topic areas for review and suggestions of general mitigation and adaptation methods.

Local Planning Policy

2.14. The site falls within the administrative boundary of Warrington Borough Council of which the Local Planning Framework is underpinned by the overarching Local Plan Core Strategy.

[7] Ministry of Housing, Communities and Local Government (2014). Guidance: Climate Change. Available at: https://www.gov.uk/guidance/climate-change

Local Plan Core Strategy (Adopted 2014)

2.15. A full account of the Local Plan is provided in Appendix 13.1. The text within key policies associated with the climate change assessment are included below.

2.16. Policy CS1: Overall Spatial Strategy – Delivering Sustainable Development

"Throughout the borough, development proposals that are sustainable will be welcomed and approved without delay.

To be sustainable, development must accord with national and local planning policy frameworks, taking into account other material considerations, and must, in no particular order, have regard to:

…

- *The need to address the causes of and be resilient to the effects of climate change*
- *The delivery of high standards of design and construction, that have regard to local distinctiveness and energy efficiency*

2.17. Policy QE1: Securing a High Quality Environment – Decentralized Energy Networks and Low Carbon Development

2.18. *"The Council will encourage proposals that seek to maximise opportunities for the use of decentralised renewable and low carbon energy. Specific opportunities exist at the strategic locations, proposals and opportunities identified in the Overall Spatial Strategy and on the Key Diagram. In these areas development will be required to;*

- *Seek to meet a proportion of their energy needs from renewable or low carbon sources based on an assessment of the feasibility and viability of such sources. Initially this proportion will continue the former RSS target of 10% but the Council is committed over the plan period to increase this figure subject to appropriate evidence to justify such an increase.*
- *Establish, or connect to an existing decentralized energy network where appropriate and available; or*
- *Make provisions to enable future connectivity in terms of site layout, heating design and site-wide infrastructure design.*

Development proposals in all locations should seek to minimize carbon dioxide emissions and the impacts of climate change on the environment, economy and quality of life by adhering to the following hierarchy:

1. Reducing the need for energy consumption;

2. Using energy as efficiently as possible;

3. Using renewable and low carbon energy where possible;

4. Using fossil fuels and / or nuclear power.

2.19. Policy QE3: Securing a High Quality Environment – Green Infrastructure

"The Council will work with partners to develop and adopt an integrated approach to the provision, care and management of the Borough's Green Infrastructure. Joint working and the assessment of applications will be focussed on:

…

- *Increasing the functionality of existing and planned provision especially where this helps to mitigate the causes of and addresses the impacts of climate change*

2.20. Policy QE4: Securing a High Quality Environment – Flood Risk

"The Council will only support development proposals where the risk of flooding has been fully assessed and justified by an agreed Flood Risk Assessment.

…

Where the sequential and exception tests are satisfied, the Council will require development proposals to:

…

- *Ensure that developers have considered the impacts of climate change to ensure that the future users of the development are not put at additional danger of flooding, which may be exacerbated by climate change over the lifetime of the development.*

2.21. Policy QE7: Securing a High Quality Environment – Ensuring a High Quality Place

"The Council will look positively upon proposals that are designed to;

- *Be sustainable, durable, adaptable and energy efficient;*

…

The Council will promote design excellence in new housing developments and will use accepted environmental standards such as Building for Life and the Code for Sustainable Homes to evaluate the design quality of all proposals for major residential development within the borough.

Additional guidance to support the implementation of this policy is provided in the Design and Construction Supplementary Planning Document."

2.22. Policy MP10: Making the Place Work – Infrastructure

"The Council and its partners will ensure that Warrington's future growth is supported and enhanced…by;

- *Supporting the delivery of carbon reduction priorities set out in the Council's Carbon Management Plan and Climate Change Strategy through allowable solutions.*

Local Plan Review 'Preferred Development Option' 2017

2.23. Warrington Borough Council are currently undertaking a review of the Local Plan. A 'Preferred Development Option' Consultation report was published in July 2017. The report notes that the Council proposes to carry forward current adopted policies which are consistent with the new objectives.

2.24. Due to the high volume of responses to this report the publication of the Draft Local Plan was delayed. The draft Local Plan was approved for consultation by Full Council on 25 March 2019. Consultation on this draft Local Plan will run for a 9 week period from 15 April 2019 to 17 June 2019. No further action has occurred at this time.

Planning Obligations Supplementary Planning Document (2017)

2.25. The aim of this document is to provide supplementary guidance to the Local Plan Core Strategy policies. The relevant guidance has been summarised below, where it provides additional information to that stated above. Full details are in Appendix 3 of the Sustainability Report.

Energy

2.26. *Planning obligations relating to energy efficiency will be sought for:*

- *Commercial developments with a gross floorspace of 1,000 sqm (gross internal area) or more (or a site area of 1 hectare or more) in all locations.*
- *Major commercial and residential development on sites in the strategic locations, proposals and opportunities identified in the Overall Spatial Strategy and shown on the Key Diagram.*

The Council will require an Energy Statement to be submitted with all types of major commercial development proposals that demonstrates how the scheme will seek to minimise carbon dioxide

emissions and the impacts of climate change by adhering to the energy hierarchy. Development proposals are required to demonstrate what efficiency measures and low-carbon technologies have been considered and the reductions that can be achieved. These will be measured against the current building regulations at the time that the application is submitted, with an expectation that the carbon reductions will exceed the requirements of the current regulations.

Sustainable Design and Construction

Location

2.27. *Regard will be paid to the flood risk to and from new development. This will include consideration of whether the site is at risk from flooding and the flood mitigation measures proposed; the impact of site development on flood defences and the floodplain; and the likelihood of development increasing flood risk (such as the affect on watercourses, surface water run-off etc).*

Design and Layout

2.28. *Buildings that are flexible in their design can be adapted to changing needs and uses over time, prolonging the lifetime of the building. They should be designed to allow for adaptations and subdivisions at minimal cost. Creating a layout that allows for future extensions will minimise the need for rebuilding in the future.*

Developments should be designed to be constructed with materials that have a low environmental impact. This could include certified sustainable timber, recycled materials or materials that are biodegradable and non-polluting in their manufacture and use

Energy Efficiency in Use

2.29. *The orientation of buildings can be used to increase solar gain, as direct sunlight into buildings helps reduce the need for lighting. This can be enhanced by larger windows on south-facing elevations and by the avoidance of deep-plan buildings. The provision of shading in sunny weather needs to be considered as part of this arrangement. The spatial relationship of buildings needs to be considered to minimise overshadowing.*

High insulation levels will reduce energy requirements and conserve heat. As well as insulation of roofs, walls and windows this should also include insulation of pipes, ducts, boilers and hot water tanks. Building design can also improve insulation, such as enclosed central atriums rather than exposed courtyards in the centre of office blocks.

The choice of heating and ventilation equipment will also affect energy use. Natural ventilation is preferable to mechanical ventilation. Localised rather than centralised controls will allow for bespoke temperature controls.

The fitting out of buildings also will impact on energy use such as the use of energy-efficient lightbulbs, sensor lighting, "A" rated appliances and the type of heating system used (such as combined heat and power plants).

The source of energy used is also important. Renewable energy from sources such as solar electricity generation systems (photovoltaic panels) and ground source heat pumps produce minimum carbon emissions. Where renewable energy technologies are to be used, they should be conceived as part of the overall design concept of a building and integrated into the architectural language of the building rather than added as an after thought where possible.

Other Relevant Policy, Standards and Guidance

2.30. Due to the relatively recent incorporation of climate change within EIA regulations, there is currently no prescribed methodologies to use in the assessment of effects. As a result, several guidance publications have been produced containing suggested methods for establishing a baseline and limited advice on techniques for applying significance thresholds. These are by no means regulated standards, but in the absence of such, it is currently industry best practise to implement a method from one of the following guidance documents.;

- The Institute of Environmental Management and Assessment (IEMA), 'Environmental impact assessment guide to assessing greenhouse gas emissions and evaluating their significance' (2017)[8];
- IEMA and European Commission, 'Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment' (2013)[9][10]; and,
- European Investment Bank (EIB) (2018)[11]
- BSI - PAS 2080:2016 'Carbon Management in Infrastructure[12]

[8] The Institute of Environmental Management & Assessment (IEMA) (2017). 'Environmental impact assessment guide to assessing greenhouse gas emissions and evaluating their significance'. IEMA, Lincoln.
[9] The Institute of Environmental Management & Assessment (IEMA) (2013). 'Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment'.
[10] European Commission (2013). 'Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment'.
[11] European Investment Bank (2018). EIB Project Carbon Footprint Methodologies. "Methodologies for the Assessment of Project GHG Emissions and Emission Variations'.
[12] British Standards Institute (2016). Publicly Available Specification (PAS) 2080:2016 'Carbon Management in Infrastructure'.

3. Consultations

3.1. Warrington Borough Council were contacted before the undertaking of these assessments. This was due to the uncertainty surrounding the desired content of the energy statement, required by Policy L26 and in the Energy Planning Obligations SPD. No further consultation was undertaken for the climate change assessment or sustainability statement.

3.2. Policy L26 states that "*the revised Design and Construction SPD will incorporate guidance to spell out what information should be provided in an energy statement and in what circumstances they would be required. In the interim period before the SPD is updated guidance can be sought from the Urban Policy and Programmes Team.*"

3.3. Following a detailed search of the WBC website it was noted that a revised SPD has not yet been developed. As such, WVBC were contacted to establish the required content of the Energy Statement. The consultation undertaken is summarized in Table 3.1.

Theme / Issue	Date	Consultee	Method	Summary of Discussion	Outcome / Output
Energy Statement	11.03.2019	Warrington Borough Council	Telephone enquiry – no response. Followed by email correspondence .	Enquiry into the required content of the Energy Statement as guidance stated in Policy L26 information was not available.	The energy statement should detail how the Proposed Development would adhere to the hierarchy set out in Policy QE1.

Table 3.1: Summary of Consultations and Discussions

3.4. The response from Alison Gough (Development Management) was as follows:

"*Unfortunately the Design and Construction SPD hasn't been updated as had been expected when the validation checklist was published and therefore the energy statement should detail how the Proposed Development would adhere to the hierarchy set out in Policy QE1.*"

4. Methodology and Approach

Baseline Scenario

4.1. The IEMA guidance does not provide a definitive best practice methodology but rather a review of topics the climate change paper should consider, and example methodologies adopted in similar fields.

4.2. The baseline scenario for this assessment was originally outlined in scoping to be a 'typical' development, delivering the same outputs as the Proposed Development, built to standard building regulations in a notional location. This method is put forward by the European Investment Bank and the approach is recommended by the European Commission in its guidance document; Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (2013).

4.3. Due to the nature of this particular type of project, the assumption of an alternative development in a different location is not appropriate. The EIB guidance states that *"the baseline scenario must propose the likely alternative to the proposed project with (i) in technical terms can meet required output; and (ii) is credible in terms of economic and regulatory requirements."* An alternative MSA development in a different location would fail to meet this criterion. This is due to the strategic 'need' case of the development which is *"Primarily, it is based upon a defined Policy gap in MSA provision on the Motorway Network in the area, where the gapping between existing MSAs is greater than 28 miles and 30 minutes travelling time"* and "*based on its extensive research and specialist MSA knowledge, Extra MSA Group has concluded that the optimal location for satisfying this significant unmet need is at Junction 11 of the M62 Motorway in Warrington."*. The full needs case is detailed in ES Part I Appendix 19.

4.4. A "do nothing" baseline is often standard procedure for an Environmental Impact Assessment. In this assessment it is deemed appropriate from a climate change perspective that the alternative scenario would be no development at all. This is supported by a technical note produced by the European Bank Reconstruction and Development[13] that outlines three

[13] European Bank for Reconstruction and Development, 2019. Methodology for the economic assessment of EBRD projects with a high greenhouse gas emissions.

different potential baseline scenarios and the IEMAguidance[8] that acknowledges it may not always be possible to report on current baseline emissions.

Absolute Scenario

4.5. In terms of CO_2e emissions, the project is assessed for its "relative emissions (Re)" or net emissions which is expressed as the difference between absolute emissions generated by the Proposed Development and the baseline emissions.

Relative Emissions (Re) = Absolute Emissions (Ab) - Baseline Emissions (Be)

4.6. The assessment does not formally assess the carbon equivalent emissions associated with construction or decommissioning, the use of vehicles, nor those emissions produced during the production of building materials. This is due to these emissions being largely tied to actions beyond the applicants reasonable control. Scope 1 and 2 emissions, which are reasonably quantified and within the applicants reasonable control, will be assessed and these are associated with the combustion of fossil fuels, such as natural gas in building heating systems and the generation of electricity for lighting and ventilation.

4.7. The calculation of absolute emissions for the Proposed Development was undertaken as part of the Energy Statement and the full detailed method, assumptions and limitations can be found within the method section in Appendix 13.2. This technical paper has utilized the figures from those calculations to undertake the impact assessment and therefore the full method will not be repeated here.

4.8. It should be reiterated that the emission calculations take into account the following parameters:

- Operational: Energy demand from the amenities building, hotel, petrol station building, external lighting and electric vehicle charging as outlined in section 3 of the Energy Statement.
- Fuel use has been modelled as conventional at this stage (grid electricity and natural gas). This may change at the detailed design stage if the Applicant opts to implement renewable energy.

4.9. The paper will also consider long term scenarios for climate change in the region and use these, alongside other assessments such as flood risk (Appendix 9.1 of Technical Paper 3 'Water Resources'), to determine if any particular risks may occur, as a result of climate change, over the projected life of the project. This will include a qualitative discussion of the

developments potential vulnerability to climate change and where necessary make recommendations to increase resilience to projected climate change effects.

Receptors

4.10. Unlike other ES papers, individual receptors are not applicable to a climate change impact assessment. It is understood that certain regions, populations, and species are more sensitive to climate change than others. It would not be reasonable to provide an assessment of the Proposed Development's potential impact on these receptors as any single development would have an infinitesimal impact on climate change overall. However, it is still important to undertake the assessment to ensure the Proposed Development does not emit unacceptable levels of emissions in an effort to reduce future climate change impacts.

Environmental Impacts

4.11. The environmental impact assessed in this technical paper is the release of greenhouse gas emissions as a result of the use of fuel and electricity.

Significance of Effects

4.12. Paragraph 4.1-4.4 has discussed the necessary change to the baseline scenario from that detailed at scoping. Similarly, the scoped significance criteria are no longer suitable because you cannot have a percentage reduction over 0.

4.13. Alternative IEMA guidance[8] states that the significance of impact is binary i.e. any greenhouse gas emissions or reductions are considered to be significant, however, this approach has limitations. Without a scale of magnitude, it is not possible to understand the extent of the significance nor acknowledge where an Applicant has implemented measures to reduce the impact of a development.

4.14. Additionally, the IEMA guidance is limited in that when developing a greenfield site, any development is going to have a significant adverse effect in respect of climate change. The approach outlined below and in Table 4.1 will allow the implementation of emission reducing measures to be recognized and reduce the magnitude of significance of a development, where the Applicant has made effort to do so.

4.15. As such, this assessment will be based on the IEMA principle that all emissions should be considered significant, but within a criterion that has an established scale of magnitude. This has been achieved by using TM46 energy benchmarks to quantify percentage reductions in terms of absolute emissions. The original scoped criteria identified a 25% increase as a substantial impact. The new significance criteria have assigned the substantial negative impact by taking the potential 'worst case' emissions from the operational phase of development and increasing this by 25%. The other levels of magnitude have then been scaled down in equal increments where neutral is equal to the baseline (i.e. net carbon zero is achieved). Under the IEMA guidance that all emissions are significant, it is appropriate to assign any improvement over the baseline (net carbon positive) as a substantial positive benefit. Only a neutral or substantial positive impact can be assessed as non-significant.

4.16. The significance criteria is provided in Table 4.1.

Magnitude	Environmental Impact
Substantial	**Negative:** Absolute Emissions greater than+1,384tCO_2e/year compared to the baseline scenario. **Positive:** Absolute Emissions are less than the baseline scenario (net carbon positive).
High	**Negative:** Absolute Emissions are greater than +1,038tCO_2e/year compared to the baseline scenario.
Moderate	**Negative:** Absolute Emissions are greater than +692tCO_2e/year compared to the baseline scenario.
Minor	**Negative:** Absolute Emissions are greater than +346tCO_2e/year compared to the baseline scenario.
Negligible	**Negative:** Absolute Emissions are equal to or no greater than +346tCO_2e/year compared to the baseline scenario.
Neutral	Absolute Emissions are equal to the baseline scenario (net carbon zero).

Table 4.1: Significance criteria for environmental impact.

4.17. It should be noted that the significance criteria do not take directly into consideration local policy requirements for installation of renewable energy to meet a specified proportion of site energy demand. This will be accounted for in any emission reductions that occur through implemented mitigation and therefore indirectly reflected in the residual significance assessment. A discussion in relation to planning policy compliance will be included in this section.

4.18. Additionally, the environmental impact assessment and allocation of significance is only applicable to the climate change assessment. The production of the energy and sustainability

statements are to support and inform the climate change chapter but are not themselves impact assessments. These technical papers are produced through the discussion of modelling outputs and information review and it is not possible to assign a magnitude nor significance criteria to the results.

Impact Prediction Confidence

4.19. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 4.2: Confidence Levels

5. Baseline Information

5.1. It was considered unfeasible to calculate quantified baseline emissions for the current location at this outline planning stage due to the lack of appropriate data to inform a full carbon balance. The location of the site next to a motorway, previous landfill and on arable land makes for a complex calculation.

5.2. One of the largest impacts on the current carbon balance of site is the presence of 45, 300 m^3 of deep peat resource to various depths across the southern and eastern parts of the site as illustrated in Drawing SH11739/034: Peat Depth and Site Layout (see Appendix 10.5, Agricultural Land and Soils Technical Paper No.10, ES Part 2). These peat deposits were once lowland raised bog but have been modified from their original condition by drainage and reclamation for agriculture. The deeper peats are consequently overlain by an organic-rich agricultural topsoil rather than an active living layer of peat (i.e. an acrotelm colonised with peat species – essential for a healthy, active peatland).

5.3. Sampled data of the deeper peat resources indicates a high organic carbon content, however due to current anaerobic conditions the carbon is currently locked up in the organic matter.

5.4. Taking these factors into consideration, this assessment will assume a baseline scenario of 0 tonnes CO_2e/yr for the site location.

5.5. This is also considered appropriate in terms of the likely evolution of the environment without implementation of the development. It is assumed that the land will remain within the green belt and the continued use will be for arable agricultural purposes that do not cause the disturbance of deep peat resources. As such, from a climate change perspective, the carbon balance and emissions of the site location are anticipated to remain mostly stable (within a defined range associated with the agricultural seasonal cycle) in the future without the implementation of the Proposed Development. Further detail can be found in Agricultural Land and Soils Technical Paper No.10, ES Part 2.

6. Alternatives Considered

Construction: Peat Management

6.1. Since the scoping stage it has been established that there is the presence of peat resource in underlying soil that is due to be extracted as part of the Proposed Development.

6.2. The incorrect management of peat during construction could result in damage through the impairment of their function, quality and resilience. This could be caused *in situ* or through peat removal, handling, storage and subsequent reinstatement. The potential adverse effect, in relation to climate change, would be the drying of peat leading to excess erosion, oxidation and loss of carbon.

6.3. The management of peat in a construction site is considered by means of a hierarchy:

- Avoidance of (disturbance to) the peat resource.
- Re-use onsite (peatland type habitat creation, site reinstatement).
- Re-use off-site (habitat creation / peatland restoration, erosion control).
- Recycling (horticultural medium, agricultural land improvement, blending with other materials to form a soil substitute or used in other relevant works).
- Disposal (only to be considered after all other options have been explored and discounted).

6.4. The design of the scheme has focused on adhering to this hierarchy and there has been several variations in peat management during site design evolution. This is covered in detail within section 7 of the Agricultural Land and Soils Technical Paper No.10, ES Part 2.

6.5. .

Operation: Renewable Energy

6.6. The Energy Statement (Appendix 13.2) reviewed a variety of renewable energy technologies to assess suitability for the site. After an initial scoping exercise, the following technologies were not deemed to be appropriate for the site at this stage:

- Hydroelectric generation – no suitable watercourses
- Roof mounted wind turbines – expensive and poor yields
- Biomass CHP – non sufficient heat loads and air quality impacts
- Gas CHP – less effective due to grid decarbonisation and air quality impacts
- Anaerobic Digestion – insufficient plant and storage space on site

6.7. Potentially viable technologies were identified as solar PV for electricity generation, solar thermal for hot water and ground/air source heat pumps for the provision of space heating and hot water.

6.8. It was found that the site is a feasible location to install a ground source heat pump system, either loop array or vertical borehole depending on geology and ground installation capacity. The carbon savings could also be improved by utilizing the west and north west roof space for solar PV to generate the additional electrical demand from pump operation. This integrated renewable approach could create a low carbon system on site.

7. Potential Environmental Effects

Construction Phase

7.1. The potential environmental impact of the construction phase of the Proposed Development, associated with climate change, energy and sustainability, is the release of greenhouse gas emissions into the environment.

7.2. These would include the emissions associated with on-site machinery, plant equipment and welfare facilities typically being the emissions associated with diesel fuel combustion. Carbon emissions associated with production of building materials, are largely tied to actions beyond the applicants reasonable control, and there is insufficient information at the outline planning stage to quantify emissions from construction or decommissioning.

7.3. It would therefore not be possible to accurately quantify greenhouse gas emissions associated with these activities. These emissions are expected to be for a temporary period when compared with the Proposed Development's operational life time emissions. Emissions associated with construction machinery, equipment and welfare facilities were therefore scoped out of the assessment.

7.4. As detailed in the Agricultural Land and Soils Technical Paper No.10, there are 45,300 m^3 of deeper Peat resources within the site. The site layout has been carefully designed such that 22,700 m^3 (50.1%) of the Peat will be avoided / remain in situ, whilst the remaining 22,600 m^3 (49.9 %) which occurs within the development area will be directly transferred into a specially prepared area within the site (Peat Habitat Zone).

7.5. The specialised design of the Peat Habitat Zone along with the direct transfer of peat from the development area minimises the potential for peat damage, drying or carbon loss and ensures that the Peat Habitat Zone will remain in a wettened state.

7.6. Further details of the design of the Peat Habitat Zone can be found in ES Part I, Section 2: Project Description. Furthermore, the handling and placement of Peat will be carried out in accordance with a site-specific Management Plan (or similar) to be produced by a qualified soil scientist prior to construction, which will further minimise potential damage, loss or drying of the peat resource. It has been anticipated that there will be zero to negligible carbon loss from the peat disturbance during construction and reuse in peatland type habitat.

7.7. The impact assessment associated with loss and/or damage to peat resource and associated carbon loss, is undertaken in the Agricultural Land and Soils Technical Paper. As the carbon loss is anticipated to be zero or negligible, it has not been deemed appropriate, nor necessary, to reassess the peat in this section.

7.8. Therefore, as detailed in scoping, the construction phase has remained scoped out of the climate change assessment.

Operational Phase

7.9. The projected total energy use and CO_2e emissions were calculated as part of the Energy Statement (Appendix 13.2) and this impact assessment has utilized the figures. These are summarized in Table 7.1.

Building	Electricity Demand (kWh/yr)	Electricity Emissions (tCO_2e/yr)	Fossil Fuel Demand (kWh/yr)	Fossil Fuel Emissions (tCO_2e/yr)
Amenities Building – Ground Floor	338,476	96	1,202,039	221
Amenities Building – First Floor	147,250	42	186,000	34
Hotel	446,250	126	1,402,500	258
Petrol Station Building	82,500	23	0	0
External Lighting	75,774	21	0	0
EV Charging	1,008,000	285	0	0
TOTAL	**2,098,250**	**594**	**2,790,539**	**513**

Table 7.1: Summary of energy demand and associated emissions - Operation Phase

7.10. The total energy demand for the Proposed Development has been estimated as 4,888,789 kWh/yr which equates to 1,107 tonnes of CO_2e per annum.

7.11. The relative emissions, compared to the baseline, are therefore 1,107 tonnes CO_2e greater per annum than the baseline scenario.

7.12. An assessment of impact of the release of greenhouse gases can now be undertaken using the significance criteria. Note the significance criteria, has been established on the change in emissions produced at the Site, comparing the development to a "do nothing" scenario. Therefore, the criteria is only relevant on a local scale.

7.13. As stated in paragraph 4.10,, the assessment of climate change does not typically isolate singular receptors within the biosphere as climate change, being a global issue, has the potential to impact everything on Earth. Therefore, emissions must be allocated the receptor 'international' to reflect this, as well as considering the contribution to local emissions. The magnitude of the environmental impact on an international scale can only be negligible, due to scale of the project compared to total global emissions. None the less, it is important to include as this is still considered a significant impact and the global commitment to reducing emissions is the motivation behind including climate change assessments in the context of planning.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
The release of greenhouse gas emissions associated with the use of fuel and electricity, that will contribute to the effects of climate change.	International	Negligible	Negligible	High
The release of greenhouse gas emissions associated with the use of fuel and electricity, that will contribute to the effects of climate change.	Local	High Negative	Minor Adverse	High

Table 7.2: Significance of Effect - Operation Phase

8. Proposed Mitigation

Operational Phase

8.1. PAS2080:2016 'Carbon Management in Infrastructure' is a framework for the carbon management process that focuses on the four key parts of the chain (Asset Owners/Managers, Designers, Constructors and Product/Material Suppliers). It is based around the concept that as delivery of a development progresses the people involved in managing carbon changes and the earliest stages offer the greatest opportunities to reduce carbon and cost. Following the design freeze and the beginning of the procurement the ability to influence carbon decreases from 80 to 50%, dropping further to 20% once construction begins. This highlights the importance of carbon management early in the design stages.

8.2. The Energy Statement (Appendix 13.2) has suggested recommendations for the Applicant to take into consideration at the detailed design stage to ensure that the Proposed Development adheres to the energy hierarchy. This covers aspects of building design to reduce demand, energy efficiency measures to reduce consumption and an assessment of potential viable renewable technologies that could be integrated into the building design. A summary of these recommendations are provided below. It should be noted that these are recommendations and do not represent the Applicant's commitment at this stage.

Reducing Energy Demand

8.3. The following building design and layout recommendations have been made:

- Shape: The shape of the building will ensure a maximum volume with a minimal building envelope.
- Orientation: The orientation of a building should maximise the benefits of sunlight by allowing for passive heating through solar gains. The key to good design is ensuring that the coupled risk of overheating during summer is minimised through appropriate solar control measures.
- Solar shading: External shading measures such as brise soleil or solar control glass to reduce overheating risk.
- Ventilation: The use of site climatic conditions and topography to aid natural ventilation and air circulation of the building, reducing the requirement for mechanical ventilation such as air-conditioning.

- Thermal mass[14]: The effective use of thermal mass in building design will even out daily temperature fluctuations and help maintain a 'thermal comfort environment' for building users, with minimum requirement for artificial heating/cooling.
- Fabric efficiency: Building elements will meet, if not exceed, Building Regulation standards.
- Monitoring and reporting: The Applicant will consider the monitoring of energy levels for the purpose of evaluating economic opportunities for reducing consumption during different periods of the year.

Energy Efficiency

8.4. The following energy efficiency measures have been suggested:

- Environment Control: Any mechanical heating, ventilation and air conditioning (HVAC) systems required will have flexible zoning, multi climate capabilities.
- Lighting: During daylight hours natural light will maximised to its full potential through effective window and glazed roofing placement. In all buildings areas where further lighting is required due to zone use e.g. toilet and shower rooms where large windows would be inappropriate, motion sensors will be installed to minimise lighting use, particularly at night when visitor frequency can be expected to decrease. All lighting will be low energy LED and external lighting will only be used during dusk to dawn hours.

Low Carbon and Renewable Technology

8.5. After an initial scoping exercise, the following technologies were not deemed to be appropriate for the site:

- Hydroelectric generation
- Roof mounted wind turbines
- Biomass CHP
- Gas CHP
- Anaerobic Digestion

8.6. Potentially viable technologies were identified as solar PV for electricity generation, solar thermal for hot water and ground/air source heat pumps for the provision of space heating and hot water.

8.7. In summary, it was found that the size and proposed use of the site make it a feasible location to install a ground source heat pump system, either loop array or vertical borehole depending

[14] The thermal mass relates to a building's ability to absorb and store heat and is critical in controlling temperature. Materials with a high thermal mass are dense, heavy, have a dark and/or textured surface and are a reasonably good heat conductor e.g. concrete. Exposure of thermal mass to solar gains can be used to heat or cool a building depending on the time of year.

on geology and ground installation capacity, which has the potential to meet up to 48% of the site energy demand and offset 24.7% of site emissions. The carbon savings could also be improved by utilizing the west and north west roof space for solar PV to generate the additional electrical demand from pump operation. This integrated renewable approach could create a low carbon system on site.

9. Potential Residual Effects

9.1. At this outline planning stage it is difficult to be absolute in the potential residual effects, as this will be highly dependent upon the energy reduction, efficiency and renewable technology choices made by the Applicant at the detailed design stage. The following sections are based on the following assumptions:

- Operational: The Applicant will consider installing a ground source heat pump to meet approximately half the site energy demand, operated on grid electricity.

9.2. It should reiterated that the Applicant will take the use of renewable energy into consideration at the detailed design stage and this recommendation does not represent a formal commitment. The significance of effect will be reassessed in the full planning application based on the design choices and commitments made by the Applicant at final design.

Potential Residual Effects – Operational Phase

9.3. The Applicant can reduce the environmental impact on climate change by reducing the emissions associated with the operational phase of the development. Action is best taken during the design stage to utilize building design and fabric efficiency to reduce minimize energy demand and to implement renewables to meet a proportion of that demand with clean energy.

9.4. The following residual effect assessment is based on the assumption that the Applicant will consider installing a ground source heat pump to meet approximately half the site energy demand, but that the system will be operated on grid electricity. The overall impact of the proposal in terms of climate change issues during the operational phase is highlighted in the table below:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
The release of greenhouse gas emissions associated with the use of fuel and electricity, that will contribute to the effects of climate change.	International	Negligible	Negligible	High	Ground source heat pump operating on grid electricity	Negligible

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
The release of greenhouse gas emissions associated with the use of fuel and electricity, that will contribute to the effects of climate change.	Local	High Negative	Minor Adverse	High	Ground source heat pump operating on grid electricity	Minor Adverse (Moderate Negative Impact)

Table 9.1: Residual Significance of Effect - Operation Phase

9.5. The IEMA guidance clearly states that all greenhouse gas emissions should be considered significant. Therefore, even after installing a ground source heat pump to supply up to 50% of site energy demand, the overall emissions associated with the site would still be considered a significant negative environmental impact.

9.6. This assessment has demonstrated that through renewable technology considerations at the detailed design stage, the Applicant has the potential to reduce the environmental impact of this development from **high negative** to **moderate negative.** Other commitments at detailed design stage such as sustainable design and energy efficiency standards could also reduce this impact further,

9.7. Under the IEMA principles used for this assessment the site would be required to be carbon neutral to be non-significant, or carbon positive to be significantly positive. The Applicant would need to consider the use of further renewable energy technologies to meet 100% of the sites demand or consider offsetting the remaining emissions in an accredited carbon offset scheme.

10. Additive Impacts (Cumulative Impacts and their Effects)

10.1. For the purposes of this ES we define the additive cumulative effects as:

> ***'Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself***

10.2. The assessment of cumulative effects presents a challenge from a climate change standpoint. All carbon emissions contribute to climate change and therefore it could be argued that all sources of these emissions result in cumulative effects. It is unreasonable for the purposes of a planning application to quantify all sources of emissions from other developments for the following reasons:

- The emissions from other developments fall under Scope 3, which do not form part of the assessment under the methodology outlined.
- Large technical data requirements from other developments which are not accessible;
- A huge interlinking scope of assessment that would exceed that expected of planning application for any one development;
- Not feasible to undertake a high level chemical assessment to analyse likely synergistic impacts between different emissions from varying developments;
- Complicated, unpredictable chemical reactions driven by atmospheric, climatic and behavioural factors beyond the applicant's control.

10.3. The second type of cumulative effect is that of the combination of the various types of impacts from the Proposed Development. These are hereafter referred to as synergistic effects. Technical chapters that can be associated directly include traffic and transport, as well as the indirect impacts of climate change such as air quality, flood risk and ecology.

10.4. The assessment of synergistic effects is undertaken by reviewing the technical papers and considering how climate change directly or indirectly exacerbates, or is caused by, associated impacts. The mitigation of synergistic effects is possible through thoughtful and informed design that will act to minimise the Proposed Development or surrounding receptors vulnerability to effects. These are largely covered in the risk assessment below and within appropriate technical chapters but are summarised in Table 10.1.

	Impact of Climate Change	Contribution to Climate Change
Ecology	Climatic changes significantly impact upon both flora and fauna by potentially inhibiting internal biological processes and through indirect consequences such as habitat loss, food resource depletion and water scarcity/flooding. Most species survive within a defined ecosystem and are put at risk when changes occur faster than evolution or behaviour can adapt. This can result in increased displacement, maladaptation, disease and/or mortality.	Reduce the urban heat island effect which can include planting deciduous trees and increasing the availability of green and blue spaces. The use of water features and vegetation to improve landscaping can provide a cooling effect as well as providing insects, invertebrates, small mammals and humans shading from the elements. Additionally, the increase of green infrastructure contributes to the sequestration potential of the Proposed Development, where features will actively absorb a small portion of carbon emissions produced on site.
	Mitigation/Adaptation: The Silver Lane Brook flows within a very flat (in places almost static) channel with the proposal to divert to instead follow the southern, eastern and northern boundaries prior to re-joining the existing channel beyond the eastern corner of the application site. The re-design of the channel profile will provide a greater diversity of aquatic habitats including shallow berms, marginal planting, alder and willow tree plantings. The Framework Habitat Management Plan includes the reversion of existing arable land into biodiverse habitats. This will be a combination of water features and green infrastructure to form marshy grassland, shallows pools/ponds, trees and woodland, and flower rich grasslands. Planting will need to take into consideration the future climatic changes to the currently high water table. The proposed SuDS strategy and purposed landscaping should ensure the site is resistant to droughting conditions and ecological habitats are likely to continuing thriving.	
Flooding	There is projected increased precipitation rates over the construction and operational period of the Proposed Development as a result of climate change, which could present an increased risk of flooding.	Flooding itself does not directly exacerbate or contribute to climate change, especially in short-term events. However, the detrimental effects of prolonged, sustained and/or heavy flash flooding on ecosystems could be considered an indirect impact. This could include the loss of vegetation due to storm damage, root saturation/ hypoxia or the formation of water logged soils resulting in a change of carbon sequestration potential. On a localised level large bodies of wadies of water can impact albedo, evaporation and the urban island effect.
	Mitigation/Adaptation: The Flood Risk Assessment has shown the site is at low risk of fluvial, pluvial and groundwater flooding and is not within proximity of the tidal reach of any watercourse. Nearby drainage systems on the restored Risley Landfill site were designed for a 1 in 100 year event with a 10% allowance for climate change. Biffa are assessing improvements to the surface water management of this neighbouring site to provide a 40% climate change allowance. The surface water storage design for the proposed development has utilized a 20% climate change allowance on peak rainfall intensity as per Environment Agency guidance. It is considered that there is an overall reduction in on and off-site flood risk achieved by reducing existing surface water discharge and providing surface water storage.	
Air Quality	Dust and particles are constantly interacting with water vapour and other gases in the atmosphere, often driven and influenced by heat and UV radiation. The relationship between air quality and climate change is highly complex, but due to the direct risk to human health, an important consideration. For example, when atmospheric pressure increases pollutants are concentrated to the ground, resulting in increased respiratory health issues. Climate variations across regions will affect air quality differently. Increased precipitation aids the clearing of pollutants from air, whilst warmer, drier conditions stalls air that is saturated in pollutants e.g. smog.	Many air pollutants are volatile in the atmosphere and can act as precursors to greenhouse gas formation, and/or be a greenhouse gas themselves. For example, emissions of NOx contribute to ozone formation (O3) in reactions with UV radiation. Whilst exposure to O3 at ground level can cause significant respiratory difficulties, O3 is also a short-term greenhouse gas, contributing to the warming effect. Particulate matter in the atmosphere can scatter or absorb incoming radiation as well as indirectly effect climate change due its role as condensation nuclei in cloud formation, and therefore impact radiative forcing.

	Mitigation/Adaptation The Applicant is committed to reducing the emissions of pollutants from the development and will seek to develop and implement a site-wide strategy for pollution reduction, dust and air quality control and safe storage/disposal of contaminants. Where appropriate measures will include: • Developing and implementing a best practice Dust Mitigation Plan (DMP); • Providing designated areas for re-fuelling on bunded hard standing; • Re-vegetate earthworks and exposed soil stockpiles to stabilise surfaces; • Ensure sand and aggregates are stored in bunded areas and not allowed to dry out; • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems; • Use water assisted dust sweepers on the access and local roads to remove, as necessary, any material tracked out of site; • Ensure vehicles entering and leaving the sites are covered to prevent escape of materials during transport; • Appropriate storage and disposal of Municipal Solid Wastes; • Regular maintenance of heating systems to avoid CO release; and • Ensure radon provisions are in place where appropriate.

Table 10.1: Cumulative Impacts: synergistic effects

11. Mitigation of Climate Change

11.1. It is well documented that human activities have, and continue to, cause changes in the Earth's surface and atmospheric composition. Radiative forcing[15] from greenhouse gas emissions has been scientifically demonstrated to be a main driver of climate change, most notably the anthropogenic emissions since the Industrial Era that have resulted in an increase in greenhouse has concentrations.

11.2. There is scientific agreement that carbon emissions must be reduced to mitigate the risks associated with the more severe long-term impacts of climate change. To achieve targets of limiting global warming to 1.5°C, renewables are projected to need to supply 70-85% of electricity in 2050 with average annual investment in low carbon energy technology and energy efficiency upscaled by a factor of five by 2050, compared to 2015. The potential risks associated with climate change will increase if these technologies are not implemented and the national grid decarbonised, as far as possible.

11.3. A recent evidence-based report produced by Vivid Economics on behalf of WWF[16] has indicated that in order to reach net zero emissions by 2050 the building sector will need to reduce carbon emissions by a minimum of 4MtCO_2.

11.4. The Proposed Development, if built to modelled assumptions, will produce 1,107 tCO_2e per annum. However, the local policy is encouraging the implementation of a portion renewable technology. Suggestions have been put forward for energy efficiency methods and renewable energy technologies to help limit emission contribution. Enactment of these recommendations will ensure the Proposed Development will be minimising its impact on climate change, whilst meeting the strategic need for the development.

[15] Radiative forcing is the change in the net, downward minus upward, radiative flux (expressed in W m–2) at the tropopause or top of atmosphere due to a change in an external driver of climate change, such as, for example, a change in the concentration of carbon dioxide (IPCC, 2014. Fifth Assessment Report: Glossary).

[16] Word Wildlife Fund (2018). Keeping it cool: how the UK can end its contribution to climate change. Available at: https://www.wwf.org.uk/sites/default/files/2018-11/NetZeroReportART.pdf

12. Vulnerability and Risk Assessment

12.1. The update to EIA regulations not only require an assessment of the potential impacts of a Proposed Development on climate change but also its vulnerability to climate change itself. In the context of the Proposed Development, the spirit of the regulations is to ensure that the risk to climate change effects are identified and mitigated if required.

Global Climate Change Projections

12.2. Table 12.1 highlights the main projected global climate change issues.

Climate Change issue	Projected global impacts
Solar Radiation	Long term projected changes in surface solar radiation, as a result of global warming, would suggest a decrease in available solar power due to a decrease in downwelling shortwave radiation, likely linked to the increase of water vapour[17]. This is considered to be anthropogenic strengthening of "natural" decadal variability in irradiance, known as global dimming and brightening, which is influenced by synoptic weather patterns, cloud variations and atmospheric aerosols[18].
Heat Waves	The IPCC[19] predict that temperature extremes will increase more rapidly than global mean surface temperature, with the number of hot days projected to increase in most land regions. In the 1.5°C warming scenario heat waves in mid latitudes could warm by up to 3°C.
Extreme Rainfall and Flooding	IPCC and Met Office[20] both suggest a general uncertainty in the projection of changes in heavy precipitation for the UK due to position in the transition zone between north and south Europe's contrasting projected changes. It is generally agreed the northern parts of the UK will experience overall increases of up to 10%, whilst southern areas may experiences decreases of up to 5%. Overall, the UK is expected to see a general increase in precipitation trends up to 2100.

[17] Bartok et al. (2016). Projected changes in surface solar radiation in CMIP5 global climate models and in EURO-CORDEX regional climate models for Europe. Climate Dynamics
[18] Parding et al. (2016). Influence of Synoptic Weather Patterns on Solar Irradiance Variability in Northern Europe. American Meteorological Society 29.
[19] IPCC (2018). Special Report on Global Warming of 1.5°C (SR15). Summary for Policy Makers.
[20] Met Office (Undated). UK Climate: Observations, projections and Impacts. Met Office, Exeter

Rising Sea Levels	The most recent modelling indicates global sea level rise of 0.26-0.77m by 2100, under a 1.5°C warming scenario[xxiii]. Risk is amplified on small islands and in low lying coastal areas and deltas.
Storms and Winds	Atmospheric circulations have large variability across interannual through to decadal time scales, which makes forming projections with any reasonable confidence very difficult. There is more robust evidence in the Northern Hemisphere that since the 1970s there has been a general poleward shift of storm tracks and jet streams and near-surface terrestrial wind speeds have been declining by approximately 0.1-0.14 m s-1 per decade across land[21]. Despite anemometers being used for decades to measure near surface wind speed, the data has rarely been used to analyse trends and lacks important instrumentation meta data. In general, confidence is low in wind speed projections due to large uncertainties across global data sets.
Cold Spells and Snow	It has been observed the spring snow cover has been continuing to decrease in extent in the Northern Hemisphere and that cold temperature extremes are projected to decrease along with the number of frost days[22].

Table 12.1: Projected global impacts of climate change

Regional Climate Change Projections

12.3. The UKCP18 dataset[23] provides future climate projections for land and marine regions as well as observed climate data for the UK. Analysing time series plume data from UKCP18 provides an indication of climate projections for the regional 25km grid that encompasses the Warrington area. This is important to consider in order to identify what particular stresses the infrastructure may face during the life of the development.

[21] Vautard et al. (2010). Northern Hemisphere atmospheric stilling partly attributed to an increase in surface roughness. Nat. Geosci., 3 and McVicar et al. 2012. Global review and synthesis of trends in observed terrestrial near-surface wind speed: Implications for evaporation, J. Hydrol. (within IPCC, 2014. Fifth Assessment Report: Chapter 2.)

[22] Intergovernmental Panel on Climate Change (IPCC) (2014). Fifth Assessment Report: The Physical Science Basis.

[23] Department for Environmental and Rural Affairs (DEFRA), Department for Business, Energy and Industrial Strategy (DBEIS), Met Office and Environment Agency (2018). UK Climate Projections. Available at: https://ukclimateprojections-ui.metoffice.gov.uk/ui/home

12.4. Figure 12.1 and 12.2 show the temperature and precipitation projections from the four Representative Concentration Pathways (RCP)[24] up to 2100, which are summarised below.

Temperature

12.5. There is an overall increase in average temperature across the region in all four RCP scenarios compared to the 1981-2000 baseline, within the lifetime of the Proposed Development. The projected trend for the two middle emission scenarios (RCP4.5 and 6.0) is closely synched up to 2072. Over the following 28 years the RCP4.5 scenario projects increase of 0.9°C whilst the RCP6.0 scenario projects a higher1.5°C increase.

12.6. Low emission scenario RCP2.6 projects a mild increase in temperature change over the next 80-year period (0.8°C increase over the baseline) with long periods of stagnation in 30s, 40s, 50s and 80s. Similarly, high emission scenario RCP8.5 follows a similar increasing trend as RCP 2.6 up to 2038. RCP8.5 then projects a stepped but rapid increase in temperature change with 2099 estimated at 4.5°C above the 1981-2000 baseline.

Precipitation

12.7. The overall precipitation rate projections show an overall increase in precipitation during the winter and a decrease during the summer. The precipitation rate during summer is projected to decrease overall by 24-38% by 2099, compared to the 1981-2000 baseline, with an anticipated temporary increasing trend of up to 3% between 2066 and 2073.

12.8. The winter projections initially indicate an increase of 3% up to 2021 before a decadal dip of up to 11% rising back to 2021 levels by 2036. There is then a second, smaller decadal dip of 4% with levels rising back up by 2052. Over the next 20 years there is a steady increase with projected changes reaching up to 16% over the baseline. In the remaining time up there is a further decadal dip before increasing again up to 2100. The projected change in precipitation rate reaches between a 9 and 21% increase over the 1981-2000 baseline.

[24] The RCPs are used to analyse how different emission scenarios could effect climate projections. These range from RCP2.6 where atmospheric emission concentrations are strongly reduced through to the worse case scenario, RCP8.5, where emission concentrations continue to rise, unmitigated. Further information regarding RCPs can be found at: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-guidance---representative-concentration-pathways.pdf

Figure 12.1: Projected changes in annual mean air temperature across four RCP scenarios, from 2019-2100 compared to the 1981-2000 baseline, using the probabilistic projections.

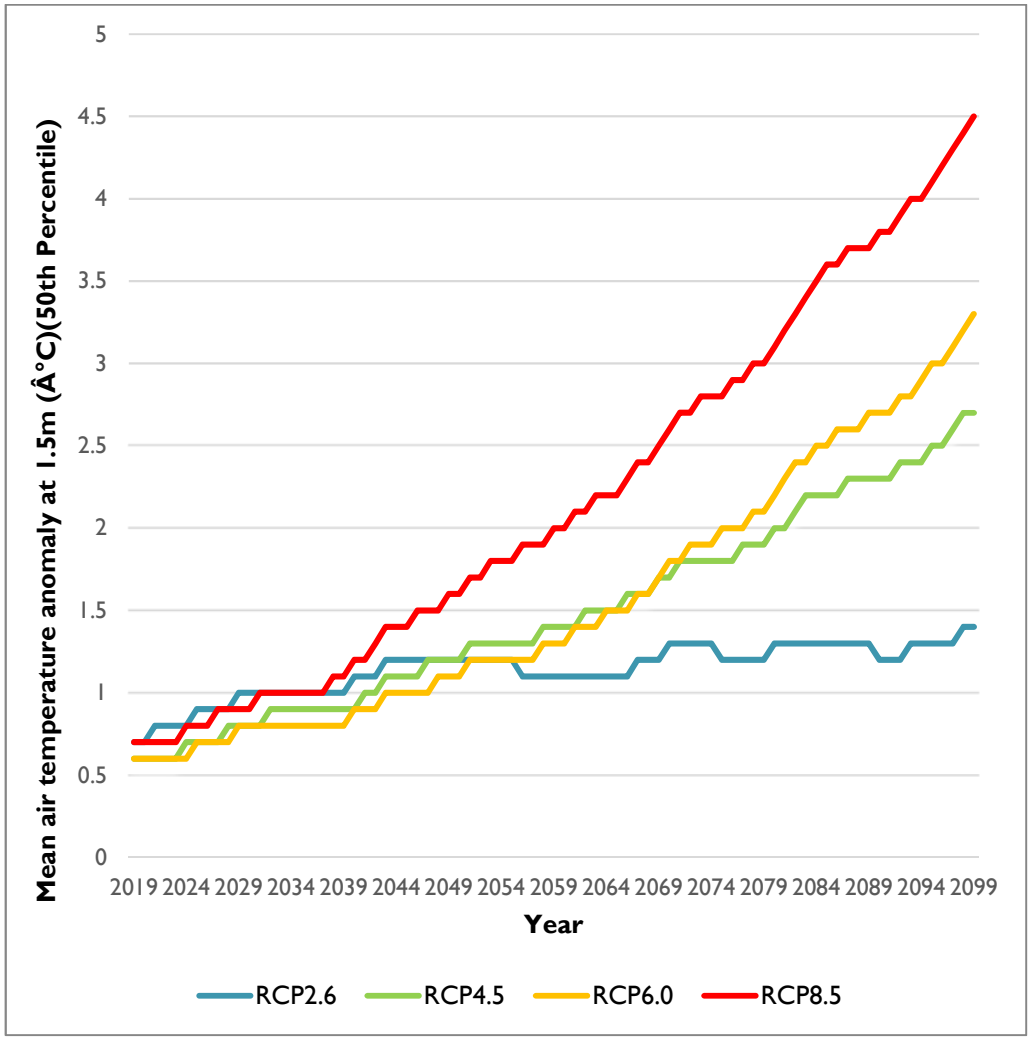
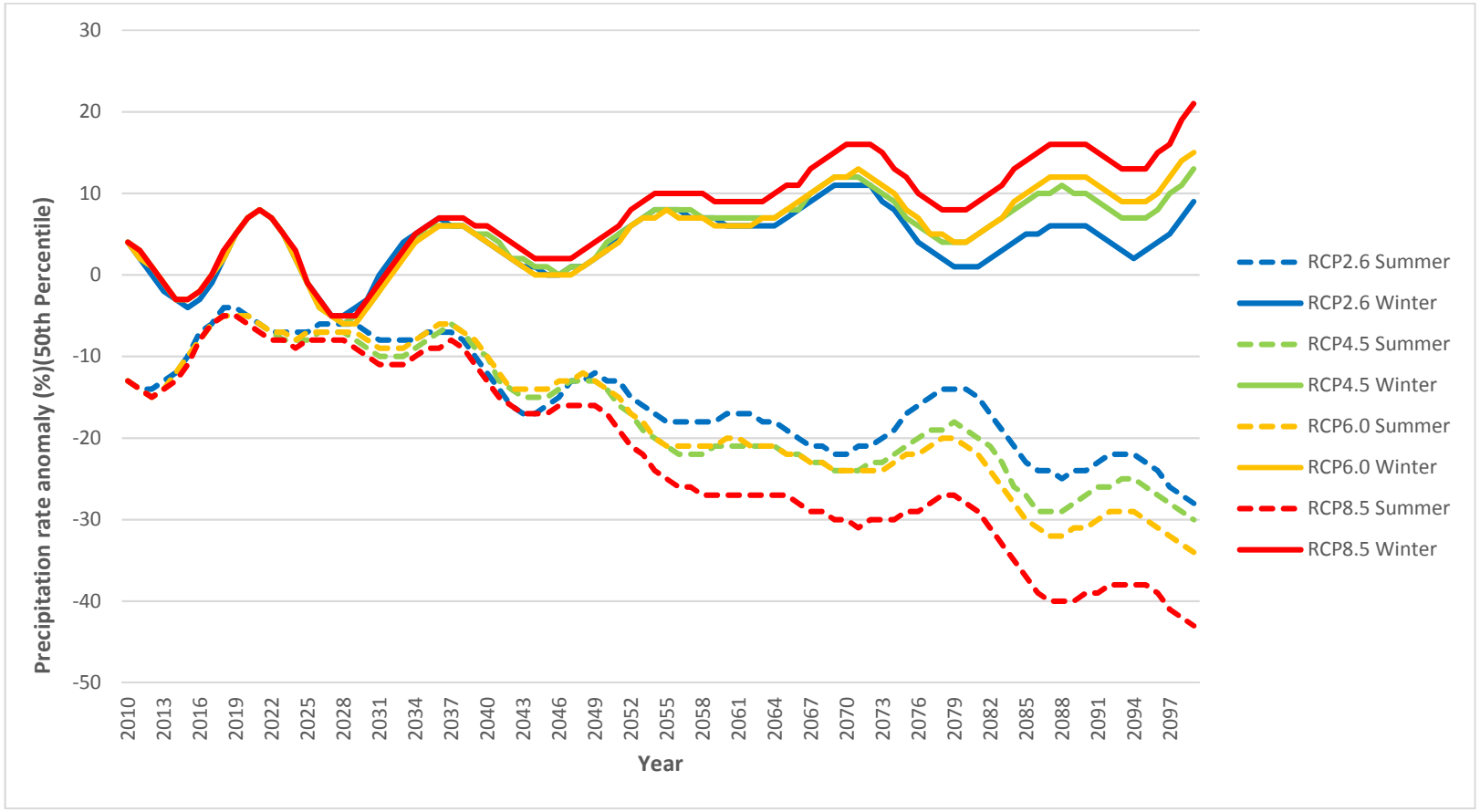


Figure 12.2: Projected changes in summer and winter mean precipitation across four RCP scenarios, from 2019-2100 compared to the 1981-2000 baseline, using the probabilistic projections.



Climate Change Impacts on Infrastructure

12.9. The Design of Future Climate Report published in 2010 identified three broad risk categories to buildings from future climate change in the UK, which are:

- **Risk to comfort and energy performance:** warmer winters will reduce heating requirements, however the increased use of cooling systems in the summer will present a challenge to energy consumption and carbon emissions;
- **Risk to construction:** resistance to extreme conditions, detailing, and the behaviour of materials; and
- **Risk to water management:** management of water during both flooding and drought events, and changes in soil composition.

12.10. Combined, these categories can be considered climate change threats that could result in increased energy demands, economic losses and loss of life.

12.11. Climate change may result in variations in approach to general building design and construction in order to offer a higher degree of protection against the identified perils. Many of these improvements will be brought about using existing off-the shelf components that are in common use in other places around the world but may not previously have been considered necessary in parts of the UK. Such design improvements will be beneficial for the overall quality of the UK housing stock, although it may result in some additional costs for developers.

12.12. As well as seeking improvements in the construction techniques for buildings there will also be a need to improve various aspects of their operational performance to provide more resilience for site users.

12.13. At the more localised levels the effects themselves can manifest in different ways and therefore the most appropriate strategies should be selected on a site-specific basis. A coastal village may be at most risk from sea-level rises and storm surges, while at inland locations the threat of heat waves or high winds might be more significant. Adaptation involves developing a resilience and a preparedness to deal with the likely consequences of climate change.

12.14. Table 12.2 indicates the impact on the Proposed Development that could arise form climatic effects, reproduced from data in the National House Building Council and European

Commission reports[25] [26] and the UK Climate Change Risk Assessment (2017) Evidence Report[ii].

Climatic Factor	General Impact	Component/Sub structure impact
Soil Drying	Increase will affect water tables and could affect foundations in clay soils.	Increased risk of basement heave or subsidence, water ingress, consequential damage to finishes and stored items. Ground shrinkage can lead to failure of electrical, gas and water pipes, foundations and sub-structures.
Temperature	Maximum and minimum changes will affect heating, cooling and air conditioning costs. Frequency of cycling through freezing point will affect durability. Daily maximum and minimum temperature will affect thermal air movement.	Air conditioning/ heating/ cooling systems due to increased cooling/ decreased heating requirements. Overheating of mechanical and electrical equipment effecting lifespan, reliability and potential health and safety issues. Plastic materials will have a reduced lifespan. Structure/cladding/roofing membranes, sealants, pavements and roads have increased risk of cracking. Reduced capacity of overheated power lines. Building overheating (due to increased fabric efficiency and incorrect implementation). Solar PV modules work slightly less efficiently at high temperatures and some studies27 have shown that high temperatures can age the panels more quickly. Decreased labour productivity.
Relative Humidity	Increase will affect condensation and associated damage or mould growth.	Timber framed construction. Internal walls, finishes and stored items.
Precipitation	Increase and decrease will affect water tables; cleaning costs will be increased in winter, with associated redecoration requirements; durability and risk of water ingress will be affected by combination of precipitation increase and gales.	Increased damage to roofing and higher risk of failure, increased chances of flooding. Structure/cladding/roofing membranes and sealants have increased risk of cracking due to different moisture movements. Damage to foundations and basements. Delays in construction and increased costs. Increased risk of subsistence.

[25] National House Building Council Foundation (NHBC) (2007). Climate change and innovation in house building: designing out risk (NF3).
[26] European Commission (2013). Adapting infrastructure to climate change.
[27] Patt, A., Pfenninger, S. and Lilliestam, J., (2013). Vulnerability of solar energy infrastructure and output to climate change. Climate Change 121 pp93-102.

Gales	Increase will affect need for weather tightness, risk of water ingress, effectiveness of air conditioning, energy use, risk of roof failures.	Increased damage to roofing and higher risk of failure.
Radiation	Increase may affect solar glare control.	Window specification and glare control requirement.
Cloud	Increase/decrease in seasonal lighting needs.	Changes in lighting systems and glare control requirement.

Table 12.2: Potential effects of climate change on the Proposed Development

Temperature

12.15. The UK Climate Change Risk Assessment 2017 states that buildings will need to be carefully designed to reduce heat loss during winter, reduce solar gain during summer and maximise the effectiveness of natural ventilation in buildings. The Carbon Trust[28] found that energy costs and associated CO_2 emissions are 30% higher in an air-conditioned building compared to natural ventilation, on top of increased capital and maintenance costs. Methods for reducing energy consumption of buildings for cooling and ventilation include:

- Using low energy lighting;
- Installing energy efficient appliances;
- Night cooling[29];
- Stack ventilation and wind scoops;
- Fan-coil units;
- Window shading or heat reflective glass;
- 'Dead band' control[30]; and,
- Smart meters.

12.16. Design measures can be incorporated into the wider development to reduce the urban heat island effect which can include planting deciduous trees and increasing the availability of green and blue spaces. The use of water features and vegetation to improve landscaping can provide

[28] Carbon Trust (2012). Air conditioning: maximising comfort, minimising energy consumption.
[29] An established technique where cool night air is passed through the building to remove heat accumulated in the day. This could be natural or fan-assisted. When building fabric is cooled, it will absorb more heat the next day, reducing internal temperatures.
[30] When mechanical systems for cooling or heating are required, using dead band control can be effective in reducing energy consumption and costs. This creates a gap between temperature cut ins, preventing heat and cooling operating simultaneously.

a cooling effect as well as providing insects, invertebrates, small mammals and humans shading from the elements.

12.17. It is also essential to limit the heat release rate of materials used in linings, materials and finishes by strict compliance with national fire regulations. Consideration should be given to careful planning of spaces, that reduce compartmentalisation, and have the potential to increase risk to fire. The increasing number of heatwaves could result in periods of dry environments, where the fire risk will increase significantly. The use of fire and smoke alarms in all properties is mandatory and the implementation of basic fire preparation and response plans can significantly reduce the risks to human life.

Precipitation

12.18. Following the IPCC Fifth Assessment on Climate Change Report series, key findings for the builder sector were summarised into a briefing called Climate Change: Implications for Buildings[31]. It found that increased precipitation and weather extremes pose a direct threat to building construction through delays, changes to building seasons and the increased likelihood of rebuilding and repair work.

12.19. A Flood Risk assessment was undertaken and can be read in full at ES Part II Chapter 9, Appendix 9.1. In summary, the site is located in Flood Zone 1 and has no flood risk from tidal, sewer or artificial sources and a low risk of flooding from fluvial, pluvial/overland and groundwater sources.

12.20. It is concluded that the surface water drainage system, with storage, for the Site will result in no increase in flood risk on or off the Site. The strategy also provides a reduction in the surface water runoff from the existing land thereby reducing flood impacts to the surrounding area.

12.21. The surface water management strategy has utilised a 20% climate change allowance whilst the Silver Lane Brook diversion, which receives a discharge flow from the neighbouring

[31] Buildings Performance Institute Europe (BPIE), Global Buildings Performance Network (GBPN), World Business Council for Sustainable Development (WBCSD), Cambridge Institute for Sustainability Leadership (CISL) and Cambridge Judge Business School (CJBS) (undated). Climate Change: Implications for Buildings. Key findings from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) on Buildings.

restored Landfill that has been designed with a 40% climate change allowance, is not considered to result in increased flood risk on or off site.

Extreme Weather

12.22. Storm damage will typically involve the damage or removal of roof slates/tiles or potentially the whole roof structure. The NHBC Foundation recommends that the optimum roof angle is 30 ° to the horizontal to minimise the suction forces that will apply to the roof. At lower angles the suction forces will be greater and at higher angles the forces will tend to exert downward force on the roof. Eaves and roof structures that overhang external walls may be particularly susceptible to the effects of wind loading and sufficient consideration will be required to ensure that problems are avoided. Wind loading can also apply significant lateral forces to buildings and modelling to ensure that adequate bracing is in place to deal with these forces will be necessary.

12.23. In all cases, within the loading calculations a suitable margin of error will be used to ensure the roof materials remain fixed in position during extremely severe wind conditions although it is not possible to quantify precisely future impacts of climate change vulnerability as insufficient data is available.

12.24. Storms can potentially lead to rain penetration through external masonry walls, particularly where walls are single-skin or cavities have been poorly constructed (e.g. with debris in the cavity).

12.25. Another side effect of increased storms and high winds may be loss of centralised power through powerline failure or damage, as well as power loss potentially arising from flooding or other climate related events. Power failure could represent a risk of major accident in several ways from downed cables igniting a fire to site users and staff health and well-being coming under threat from not having access to essential services. In order to minimise the risk of major accidents and retain resilience to climate change the Proposed Development should consider the need for provision for the loss of power distribution for periods of time.

12.26. Traditionally back-up power has been provided by diesel or gas generators but there are other low-carbon options available. Power generation from renewable technologies operating in island mode can potentially ensure that critical services can be maintained during such outages. Not all renewable power generation has the necessary hardware/software to enable island operation but ensuring suitable provision, along with connection to those critical services, will

mean that the Proposed Development is better equipped to deal with grid blackouts and brownouts.

12.27. Although projections suggest an overall decrease in cold spells and snow, it is still important to consider risk mitigation in the event of adverse extreme weather. The vulnerability of users and staff of the Proposed Development will be dependent upon a variety of factors, including age and physical health, however appropriate design measures can reduce the risk to human health and accident, such as:

- Sufficient insulation
- Energy efficient buildings
- Secure and reliable energy supply
- Stress loading of roofs (snow bearing) – BS EN 1991-1-3:2003
- Cover and/or pitch walkways and driveways to aid drainage and avoid puddling that can form ice
- Ensure roof pitch is correct for water/snow shedding without avalanching
- Design drainage away from buildings and employ roof overhangs to keep snow and water away from foundations
- Use suitably textured materials on walkway surfaces, avoid steep gradients and provide railings and banisters to reduce risk of slipping and falling

Limiting Impacts on Biodiversity

12.28. Impacts on biodiversity can include but are not limited to mortality, biome shifts, ecosystem change, water scarcity/flooding, pest exacerbation and ecosystem feedback capabilities, including carbon sequestration[32].

12.29. In the establishment of landscapes and ecological habitats the Proposed Development will need to consider the climate resilience of enhancements that are used.

12.30. The key to maintaining these landscapes in changing climates is focusing on maintaining functioning ecosystems[33]. Ecosystem resilience can be defined as "*the properties that enable an ecosystem to absorb expected and unforeseen change yet retain its character and remain functional*". The important concepts are sustaining functional diversity, connectivity and upholding variety

[32] Grimm, N.B., Chpain, F.S., Bierwagen, B., Gonzalez, P., Groffman, P.M., Luo, Y., Melton, F., Nadelhofferm K., Pairis, A., Raymond, P., Schimel and Williamson, C (2013). The impacts of climate change on ecosystem structure and function. Front Ecol Environ 11, 474-482

[33] Friends of Ecosystem-based Approach (2018). Making Ecosystem-based Adaptation Effective. A technical paper prepared for the 46th session of the UNFCCC Subsidiary Body for Scientific and Technological Advice conference.

in ecological thresholds. This will ensure that built landscapes and existing habitats have the capability to continually offer shelter and forage in changing conditions.

12.31. Key aspects suggested for consideration when designing climate resilient landscaping are:

- Species selection: Drought tolerant species e.g. enzymic resilience to warmer temperatures;
- Sensitivity to watering e.g. induced root hypoxia and rot from oversaturation;
- Growth inhibition e.g. pollution tolerance;
- Wind tolerance e.g. strong, deep root structures;
- Year-round ecosystem services e.g. forage and shelter capability during different seasons to continually support ecology and human needs;
- Avoiding fragmentation of green spaces, landscapes and ecological habitats where possible; and
- Control use and ongoing spread of invasive and alien species that may impede native species ability to adapt or be in competition for resources during times of decreased availability e.g. as a response of extreme weather.

Limiting Impacts to Renewable Technology Implementation

12.32. Widespread use of renewable energy technologies offers considerable benefits over conventional sources of power generation by reducing GHG emissions and combating the impacts of the climate change at the global level. However, this does not mean that at a localised level, the technologies themselves are impervious to the effects of climate change, as demonstrated with solar panels. However, modern solar PV panels can come with a warranty to ensure acceptable output is maintained, and this would be something to ensure when any technology is procured.

12.33. Infrastructure above ground for all technologies, such as ASHP, would be vulnerable to flooding which poses a risk to stable energy supply and therefore, placement design would need to take this into account. For example, avoiding infrastructure at low levels in Flood Zones. Additionally, technology feedstock could be impacted, such as the use of biomass, whereby the crop would be vulnerable to climatic effects of rising temperatures and fluctuations in water supply affecting growth.

13. Conclusion

13.1. The Proposed Development's relative emissions were modelled as +1,107 tCO2e per annum, which is greater than the baseline. Using the methodology established this represented a **high negative** impact with **minor adverse significance** for the operational phase of the development.

13.2. Recommendations have been made for the implementation of a ground source heat pump system, which has the potential to meet up to 50% of the site energy demand and offset 24.7% of site emissions.

13.3. The IEMA guidance clearly states that all greenhouse gas emissions should be considered significant. Therefore, even after installing a ground source heat pump the overall emissions associated with the site would still be considered a significant negative environmental impact.

13.4. On the other hand, this does not necessarily provide a justification for rejection on planning terms as it should be acknowledged that the local policy requirements outlined in QE1, for the implementation of renewable technology to meet 10% of site energy demand, is significantly exceeded.

13.5. This assessment has demonstrated that through renewable technology considerations at the detailed design stage, the Applicant has the potential to reduce the environmental impact of this development from **high negative** to **moderate negative.** Other commitments at detailed design stage such as sustainable design and energy efficiency standards could also reduce this impact further,

13.6. It will not be possible to eliminate every risk associated with climate change but through intelligent design, preparation and responsible construction, these risks will be minimised. Discussion and recommendations have detailed reducing these risks in key areas such as overheating, flooding and extreme weather, which has taken into consideration not only the health and safety of the users of the Proposed Development, but the resilience of the Proposed Development itself.

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15. Appendices

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APPENDIX 13.1 – LEGISLATION, POLICY AND REGULATION REVIEW

1.1 National Policy

European Commission EIA Directive (2014/52/EU) and Town and Country Planning (EIA) Regulations 2017[1]

1.1.1 On the 16th May 2017, the European Commission Environmental Impact Assessment Directive (2014/52/EU) was incorporated into English law under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. The key text in relation to sustainability, energy and climate change in the Directive is detailed below. The majority of the text from EU Directive was transposed word for word into the Regulations and therefore have not been repeated here, however the aforementioned text can be found in the Regulations Schedule 3 and 4.

1.1.2 *"(7) Over the last decade, environmental issues, such as resource efficiency and sustainability, biodiversity protection, climate change, and risks of accidents and disasters, have become more important in policy making. They should therefore also constitute important elements in assessment and decision-making processes.*

1.1.3 *(13) Climate change will continue to cause damage to the environment and compromise economic development. In this regard, it is appropriate to assess the*

[1] Statutory Instrument 2017 No. 571 (2017). Town and Country Planning (Environmental Impact Assessment) Regulations 2017. HMSO, London.

impact of projects on climate (for example greenhouse gas emissions) and their vulnerability to climate change.

Article 3

1.1.4 *1. The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:*

1.1.5 *(c) land, soil, water, air and climate;*

Annex III

1.1.6 *1. The characteristics of projects must be considered, with particular regard to:*

1.1.7 *(f) the risk of major accidents and/or disasters which are relevant to the project concerned, including those caused by climate change, in accordance with scientific knowledge;*

Annex IV

1.1.8 *1. Description of the project, including in particular:*

1.1.9 *(4) A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.*

1.1.10 *(5) A description of the likely significant effects of the project on the environment resulting from, inter alia:*

b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;

(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;"

National Planning Policy Framework (NPPF) 2019[2]

1.1.11 The National Planning Policy Framework ('the Framework' or NPPF) was published in July 2018 and updated in January 2019 with minor changes. The Framework replaced

[2] Ministry of Housing, Communities and Local Government (2019). National Planning Policy Framework 2019. HMSO, London.

the majority of existing Planning Policy Statements which provided policy guidance prior to this and the previous NPPF (March 2012). The Framework is a material consideration that must be taken into account in the determination of planning applications.

1.1.12 Annex 1 of the new document clearly states that "*existing policies should not be considered out-of-date simply because they were adopted or made prior to the publication of this Framework. Due weight should be given to them, according to their degree of consistency with this Framework*".

1.1.13 References to NPPF or 'the Framework' from hereafter shall be in relation to the 2018 revised documents, unless otherwise stated.

1.1.14 The cornerstone of the Framework is the "*presumption in favour of sustainable development*" (paragraph 11) to ensure that sustainable development is pursued in a positive way.

1.1.15 This indicates that local authorities should generally seek to approve development proposals that accord with the development plan without delay. Where the relevant plan is silent or out of date, planning permission should be granted unless it would give rise to adverse impacts which would significantly and demonstrably outweigh the benefits, when assessed against the Framework as a whole. Development which is sustainable should proceed.

1.1.16 The Framework requires that an overall approach is taken to sustainable development, incorporating social, economic and environmental dimensions which should not be considered in isolation. The central issue is whether the proposal as a whole accords with the three dimensions and therefore constitutes sustainable development.

1.1.17 All elements of a scheme should be balanced to determine whether it is sustainable; even if there is a conflict with one aspect of policy, a development could still be sustainable.

1.1.18 Paragraph 17 of the 2012 Framework identifies 12 core land use planning principles which are particularly relevant in respect of the current Development Proposal:

- "*Not simply be about scrutiny, but instead be a creative exercise in finding ways to enhance and improve the places in which people live their lives;*
- *Proactively drive and support sustainable economic development to deliver new businesses, homes and infrastructure" … "Every effort should be made objectively to identify and then meet the housing, business and other development needs of an area, and respond positively to wider opportunities for growth. Plans should take account of market signals, such as land prices*

and housing affordability, and set out a clear strategy for allocating sufficient land which is suitable for development in their area, taking account of the needs of the residential and business communities;

- *Always seek to secure a high-quality of design and a good standard of amenity for existing and future occupants of land and buildings;*
- *Take account of the different roles and character of different areas, promoting the vitality of our main urban areas, protecting the Green Belts around them, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it;*
- *Recognising the different roles and character of different areas, promoting the vitality of main urban areas, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it;*
- *Support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change and encouraging the reuse of existing and renewable resources (for example by the development of renewable energy);*
- *Contribute to conserving and enhancing the natural environment and reducing pollution;*
- *Promote mixed use developments, and encourage multiple benefits from the use of land, recognising that some open land can perform many functions;*
- *Actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable; and*
- *Take account of and support local strategies to improve health, social and cultural wellbeing for all, and deliver sufficient community and cultural facilities and services to meet local needs."*

1.1.19 Paragraph 103 states "*Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health."*

1.1.20 Paragraph 124 states "*Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities."*

1.1.21 Paragraph 131 states "*In determining applications, great weight should be given to outstanding or innovative designs which promote high levels of sustainability or help raise the standard of design more generally in an area, so long as they fit in with the overall form and layout of their surroundings*."

1.1.22 Chapter 14 of the Framework emphasises that in order to meet the challenges of climate change "*The planning system should support the transition to a low carbon*

future in a changing climate... and support renewable and low carbon energy and associated infrastructure".

1.1.23 Paragraph 150 states "*New development should be planned for in ways that*:

a) *avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and*

b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards."

1.1.24 Paragraph 151 states: "*To help increase the use and supply of renewable and low carbon energy and heat, plans should:*

a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);

b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and

c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers."

1.1.25 Paragraph 152 states: "*Local planning authorities should support community-led initiatives for renewable and low carbon energy, including developments outside areas identified in local plans or other strategic policies that are being taken forward through neighbourhood planning*."

1.1.26 Paragraph 153 states "*In determining planning applications, local planning authorities should expect new development to:*

a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and

b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption."

1.1.27 Paragraph 154 states "*When determining planning applications for renewable and low carbon development, local planning authorities should:*

a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and

b) approve the application if its impacts are (or can be made) acceptable[3]. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas."

Building Regulations

1.1.28 Part L of The Building Regulations sets fabric energy efficiency standards, energy efficiency requirements and CO_2 emissions limits for dwellings and non-residential buildings. Approved document 'L1A and L2A 2013 edition incorporation 2016 amendments'[4] provide details on the assessment criteria and methodologies used to test whether buildings are compliant. Aside from any local planning policy requirements it must be demonstrated that a building is compliant with the building regulations to be approved by building control. These regulations are the government's key mechanism for reducing CO_2 emissions in buildings.

1.1.29 Calculations are undertaken using a prescribed methodology - the Standard Assessment Procedure (SAP). A Target Emissions Rate (TER) is calculated, which represents the minimum standard for a building of that size. A Dwelling Emissions Rate (DER) is then calculated which is an estimation of likely emissions for the development in question. The DER must not exceed the TER for a building to be compliant.

1.1.30 Whilst these assessments are typically undertaken post planning when specification and information regarding mechanical and electrical systems have been produced, the

[3] Except for applications for the repowering of existing wind turbines, a proposed wind energy development involving one or more turbines should not be considered acceptable unless it is in an area identified as suitable for wind energy development in the development plan; and, following consultation, it can be demonstrated that the planning impacts identified by the affected local community have been fully addressed and the proposal has their backing."

[4] Ministry of Housing, Communities and Local Government (2018). Approved Document L1A: conservation of fuel and power in new dwellings, 2013 edition with 2016 amendments.

regulations are significant to this assessment because it legally binds new buildings to be constructed to a minimum standard, which can be utilized as a baseline.

Department for Transport Circular 02/2013: The Strategic Road Network and the Delivery of Sustainable Development[5]

1.1.31 The purpose of this document is to set out the Highways Agency will ensure sustainable development and economic growth whilst safeguarding the strategic road network. Annex B is for 'Roadside facilities for road users on motorways and all-purpose trunk roads in England'.

1.1.32 In relation to sustainability this Annex covers aspects of travel including road safety measures, signage, parking provisions and facilities for low emission vehicles. Additionally, operators are encouraged to introduce measures that reduce the carbon footprint of their sites through on site power generation and other sustainability measures.

1.2 Local Policy

1.2.1 The site falls under the administrative boundary of Warrington Borough Council of which the Local Planning Framework is underpinned by the overarching Local Plan Core Strategy. Warrington Borough Council is a unitary authority and has the powers and functions of both a non-metropolitan county and district council.

Local Plan Core Strategy (Adopted 2014)[6]

1.2.2 The plan also clearly states that all development proposals, regardless of scale or nature, will be assessed against the first core policy detailing the delivery of sustainable development, in line with National Planning Policy Framework (July 2018).

1.2.3 Policy CS1: Overall Spatial Strategy – Delivering Sustainable Development

"Throughout the borough, development proposals that are sustainable will be welcomed and approved without delay.

To be sustainable, development must accord with national and local planning policy frameworks, taking into account other material considerations, and must, in no particular order, have regard to:

- *The planned provision made for economic and housing growth;*

[5] Department for Transport, 2013. The Strategic Road Network and the Delivery of Sustainable Development. DfT Circular 02/2013. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/237412/dft-circular-strategic-road.pdf

[6] Warrington Borough Council, 2014. Local Plan Core Strategy. Available at: https://www.warrington.gov.uk/info/200564/planning-policy/1903/local-plan

- *The requirement to provide for recognised and identified development needs;*
- *The priority afforded to the protection of the green belt and the character of the countryside;*
- *The priority afforded to accommodating growth in Inner Warrington through the use of previously developed land;*
- *The importance of sustaining and enhancing the vitality and viability of the town centre and other designated centres that act as community hubs;*
- *The need to develop sites, services and facilities in appropriate locations accessible by public transport, walking and cycling;*
- *The need to make the best use of existing transport, utility, social and environmental infrastructure within existing settlements, and ensure additional provision where needed to support development;*
- *The need to address the causes of and be resilient to the effects of climate change;*
- *The need to sustain and enhance the Borough's built heritage, biodiversity and geodiversity;*
- *The importance of prudently using resources and maximising re-use, recovery and recycling where possible;*
- *The need to safeguard environmental standards, public safety, and residential amenity;*
- *The delivery of high standards of design and construction, that have regard to local distinctiveness and energy efficiency; and*
- *The need to improve equality of access and opportunity.*

The Council's approach will always be to work proactively with applicants jointly to find solutions which mean that proposals can accord with the development plan and be approved without delay wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.

Where there are no policies relevant to the application or relevant policies are out of date at the time of making the decision then the Council will grant permission unless material considerations indicate otherwise - taking into account whether:

- *Any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole; or*
- *Specific policies in that Framework indicate that development should be restricted."*

1.2.4 Policy CS2: Overall Spatial Strategy – Quantity and Distribution of Development

"Up to 277 hectares of land for business, general industrial and storage/distribution uses (principally Use Classes B1, B2 & B8) is available over the period 2006 to 2027, to support growth of the local and sub-regional economy.

The town of Warrington will continue to function as the primary settlement in the borough. The following principles will determine the detailed distribution of development through the Local Plan Core Strategy period:

- *The general extent of the Green Belt and the detailed boundaries as indicated on the Local Plan Core Strategy Policies Map will be maintained for as long as can be seen ahead and at least until 2032;*
- *Within the Green Belt area, development will only be allowed where it is considered to be appropriate in accordance with national policy;*
- *The re-use of previously developed land within defined settlements (2) will be prioritised and at least 80% of all new homes within the borough will be delivered on previously developed land;*
- *Around 60% of new residential development should be delivered in the defined Inner Warrington area. The remainder will be delivered in the town's suburbs and to a lesser extent within the borough's defined settlements;*
- *Defined centres, primarily Warrington Town Centre, will maintain their role and status by being the focus for further retail and leisure development investment, and by strictly controlling inappropriate out of centre retail developments;*
- *The Town Centre will be promoted for office development to re-establish the centre as an employment location with excellent public transport from all areas of the borough and beyond;*
- *The main focus for other business, general industrial and storage / distribution development (B1/B2/B8) will continue to be the existing employment areas of the town principally Birchwood Park, Gemini & Winwick Quay (within the wider A49 corridor), together with further sites at Woolston Grange and the strategic location of Omega and Lingley Mere;*
- *Major Warehousing and Distribution developments will be located away from areas sensitive to heavy vehicle movements, with direct access to the Primary Road Network, and where possible with access to rail and/or the Ship Canal.*

All new development should where appropriate make provision for supporting infrastructure in accordance with Policy MP10."

1.2.5 Policy CS3: Overall Spatial Strategy – Maintaining a 10 Year Forward Supply of Housing Land

"Should monitoring indicate that an on-going, 5 years' deliverable and a subsequent 5 years' supply of developable housing land can no longer be sustained or where it can be demonstrated that housing need cannot be met within Warrington, the Council will review its housing land provision, and bring on-stream additional housing sites as required, with priority given to encouraging the reuse of previously developed land and avoiding sites in the Green Belt where possible."

1.2.6 Policy CS4: Overall Spatial Strategy – Transport

"In order to support Warrington's role as a regional transport gateway/interchange, the Council and its partners will:

- *Support the implementation of the national high speed rail network including where possible links through Warrington to the wider region and sub-region;*
- *Seek to retain the status of and welcome initiatives to improve and modernise Bank Quay, Central and other Rail Stations with their associated routes and connections;*
- *Support sustainable economic activity generated and sustained by the Manchester Ship Canal;*
- *Promote the implementation of the Arpley Chord line to improve rail freight movements interchanging between the west coast main line and the line west to Southern Widnes, Ditton and the port of Liverpool and unlock future development land in the Waterfront Strategic Opportunity;*
- *Work together to assess the impacts of transport initiatives outside of the borough to inform their implementation and any necessary mitigation measures.*

Using the principles set out in Policy CS2, development will be located to reduce the need to travel, especially by car, and to enable people as far as possible to meet their needs locally.

The Council will support improvements to Warrington's Transport Network that:

- *Look to integrate with transport networks both within and outside Warrington to enhance the sustainability of cross boundary travel and reduce commuting by car;*
- *Strengthen public and sustainable transport links between recognised areas for business, general industrial and storage/distribution uses, the Town Centre and Inner Warrington, focusing particularly on areas of deprivation;*
- *Improve access to the Town Centre, health facilities, education, culture, leisure and the natural environment by all modes, especially by walking and cycling;*
- *Reduce the impact of traffic on air quality and reduce carbon emissions to help tackle climate change.*

Early consultation with the Highways Agency will be necessary for any proposal that may affect the Strategic Road Network. In particular, efforts should be aimed at reducing the proportion of car-borne commuting and education trips made during peak periods and tackling the most congested parts of the Strategic Road Network notably the M6, M56, and M62. This is particularly relevant to development proposals under consideration in the Local Plan Core Strategy and to any further Local Plans. It

will be necessary for the Council, developers, and the Agency to identify and agree mitigation measures where required."

1.2.7 Policy CS5: Overall Spatial Strategy – Green Belt

"The Council will maintain the general extent of the Green Belt for as far as can be seen ahead and at least until 2032, in recognition of its purposes:

- *To check the unrestricted sprawl of large built-up areas;*
- *To prevent neighbouring towns from merging into one another;*
- *To assist in safeguarding the countryside from encroachment; and*
- *To assist in urban regeneration by encouraging the recycling of derelict and other urban land.*

The boundaries of the Green Belt in Warrington, which is contiguous with the Green Belt in Merseyside, Greater Manchester, and North Cheshire, are shown on the Policies Map.

The strategic locations and proposals set out in Policy CS2 - Quantity and Distribution of Development provide for significant growth throughout and beyond the plan period. There is therefore no need to review Strategic Green Belt boundaries during the plan period.

A minor detailed change to the approved Green Belt boundary in the Warrington Unitary Development Plan has been made at Bents Garden Centre, Glazebury.

Development Proposals within the Green Belt will be approved where they accord with relevant national policy.

1.2.8 Policy CS6: Overall Spatial Strategy – Strategic Green Links

"The Council will work with partners to develop and adopt a strategic approach to the care and management of the borough's Green Infrastructure. A key focus of these efforts will be on reinforcing, and maximising the environmental and socio-economic benefits from, those Strategic Green Links which connect the borough to the wider sub-region such as:

- *The Bridgewater Canal;*
- *The Mersey Valley;*
- *The River Bollin;*
- *Sankey Valley Park and St. Helens Canal;*
- *The Transpennine Trail; and*
- *Bold Forest Park*

The Council is committed to supporting wider programmes and initiatives which seek to connect the borough's Strategic Green Links with employment areas, residential communities, and Green Infrastructure Assets including the Manchester Mosses,

Mersey Forest, Walton Hall Estate and the potential significant country park in the Arpley area when landfill operations have finished, and restoration is complete.

In accordance with Policy QE3 the Development Management Process will contribute to the objectives of this Policy.

1.2.9 Policy PV3: Creating Prosperity and Vibrancy – Strengthening the Borough's Workforce

"Through joint working, the Council and its partners will support developments which assist in strengthening the boroughs workforce and enhancing training opportunities for its residents by:

- *Maximising the social benefits from proposals which contribute to the Council's "Closing the Gap" agenda by securing local employment opportunities associated with the construction and subsequent operation of new development by way of measures including planning obligations;*
- *Supporting the operational needs of and expansion of the borough's colleges and higher education establishments; and*
- *Establishing linkages with local businesses to support their ongoing land, development and workforce needs."*

1.2.10 Policy PV7: Creating Prosperity and Vibrancy – Promoting the Visitor Economy

"The Council and its partners will support proposals which sustain and enhance Warrington's visitor and tourism economy which:

- *Expand or improve existing visitor attractions and facilities to ensure they remain viable and continue to actively contribute to the visitor economy;*
- *Are of an appropriate scale and nature to their locality and are accessible by public transport;*
- *Encourage and include links to Warrington Town Centre and promote new walking and cycling routes to link attractions and facilities across the borough;*
- *Enhance heritage and natural environment assets, where appropriate, to encourage visitors to use and enjoy such assets;*
- *Enhance the diversification of the local economy in the borough's countryside without harm to the openness of the Green Belt and the character of the local landscape."*

1.2.11 Policy SN5: Strengthening Neighbourhoods – New Retail and Leisure Development Within Defined Centres

"Retail and Leisure uses will be directed towards District, Neighbourhood and Local Centres where the development is of a scale and nature appropriate to the area served by the centre. Proposals will be expected to enhance the vitality, viability and overall attractiveness of the centre.

Where retail or leisure uses are proposed outside of a defined centre, the applicant will be required to demonstrate that no suitable sites are available within the centre or in edge of centre locations through applying a sequential approach. Where there are no suitable, available or viable sites within a defined centre, the proposal must demonstrate that there are no significant adverse impacts on that centre(s).

Outside of a defined centre:

- *Proposals for all main town centre uses will need to provide justification in the form of a sequential test;*
- *Proposals for retail, leisure and office uses over 500 square metres gross will need to provide justification in the form of an impact test proportionate to the scale of the proposal."*

1.2.12 Policy SN7: Strengthening Neighbourhoods – Enhancing Health and Well-being

"The Council and its partners will seek to reduce health in equalities within the borough by supporting the development of new, or the co-location and co-ordination of existing, health, social, cultural and community facilities. Where possible such facilities should be located in defined centres or neighbourhood hubs.

The Council and its partners will seek to ensure that planning helps to promote healthy lifestyles across all of the borough's communities. Within the Town Centre, Inner Warrington and North Warrington, where health and well-being inequalities are at their greatest, the Council will require all development proposals to give full and proper consideration to;

- *Ensuring good and convenient access to employment and training opportunities as well as essential social and community services and facilities;*
- *Maximising opportunities for contact with nature, cultural activities, exercise and active travel;*
- *Improving access to and promoting opportunities for 'grow your own' food;*
- *Delivering a mixture of dwelling types and tenures designed to enable a greater degree of self independent living;*
- *Securing environments which deter crime and are resilient to the impacts of climate change; and*
- *Maximising opportunities for renewable and decentralised energy*

The redevelopment of existing allotment sites for other uses will only be permitted where it can clearly be shown that the facility is no longer required or that it can be adequately and conveniently replaced elsewhere without a loss of biodiversity or community value.

Developers will be required to consider provision for allotments and community gardens in new development in line with the Council's standards. Where deficiencies

exist in the provision of allotments, the Council will seek to identify potential sites and undertake improvements to existing sites."

1.2.13 Policy QE1: Securing a High Quality Environment – Decentralised Energy Networks and Low Carbon Development

"The Council will encourage proposals that seek to maximise opportunities for the use of decentralised renewable and low carbon energy. Specific opportunities exist at the strategic locations, proposals and opportunities identified in the Overall Spatial Strategy and on the Key Diagram. In these areas development will be required to;

- *Seek to meet a proportion of their energy needs from renewable or low carbon sources based on an assessment of the feasibility and viability of such sources. Initially this proportion will continue the former RSS target of 10% but the Council is committed over the plan period to increase this figure subject to appropriate evidence to justify such an increase.*
- *Establish, or connect to an existing decentralised energy network where appropriate and available; or*
- *Make provisions to enable future connectivity in terms of site layout, heating design and site-wide infrastructure design.*

Development proposals in all locations should seek to minimise carbon dioxide emissions and the impacts of climate change on the environment, economy and quality of life by adhering to the following hierarchy:

1. *Reducing the need for energy consumption;*
2. *Using energy as efficiently as possible;*
3. *Using renewable and low carbon energy where possible;*
4. *Using fossil fuels and / or nuclear power.*

1.2.14 Policy QE3: Securing a High Quality Environment – Green Infrastructure

"The Council will work with partners to develop and adopt an integrated approach to the provision, care and management of the Borough's Green Infrastructure. Joint working and the assessment of applications will be focussed on:

- *Protecting existing provision and the functions this performs;*
- *Increasing the functionality of existing and planned provision especially where this helps to mitigate the causes of and addresses the impacts of climate change;*
- *Improving the quality of existing provision, including local networks and corridors, specifically to increase its attractiveness as a sport, leisure and recreation opportunity and its value as a habitat for biodiversity;*

- *Protecting and improving access to and connectivity between existing and planned provision to develop a continuous right of way and greenway network and integrated ecological system;*
- *Securing new provision in order to cater for anticipated increases in demand arising from development particularly in areas where there are existing deficiencies assessed against standards set by the Council.*

1.2.15 Policy QE4: Securing a High Quality Environment – Flood Risk

"The Council will only support development proposals where the risk of flooding has been fully assessed and justified by an agreed Flood Risk Assessment.

A site specific Flood Risk Assessment is required for:

- *Proposals of 1 hectare or greater in Flood Zone 1 and Critical Drainage Areas as defined by the SFRA; and*
- *All proposals for new developments in Flood Risk Zones 2 and 3, and*
- *Proposed minor development or change of use in Flood Risk Zones 2 and 3 where a more vulnerable use may be susceptible to other sources of flooding.*

The Flood Risk Assessment should also address, if required, the sequential and exceptions tests as set out in National Policy.

Where the sequential and exception tests are satisfied, the Council will require development proposals to:

- *Provide safe and clear access and egress routes in the event of a flood;*
- *Manage surface water run-off to ensure that flood risk is not increased and that a reduction of at least 30% will be sought on previously developed land, rising to a minimum of 50% in Critical Drainage Areas or in areas susceptible to intermediate or high risk surface water flooding;*
- *Use Sustainable Drainage Systems that incorporate natural drainage, rather than using traditional piped systems in new development unless it can be demonstrated that such techniques are impractical or would present an unacceptable pollution risk;*
- *Provide compensatory storage where development is proposed in undefended areas of the floodplain;*
- *Ensure that the layout and design of the site is considered to provide the opportunity to provide flood resilience measures and reduce flood risk within the development;*
- *Apply a sequential approach at a site level to minimise risk by directing the most vulnerable development to areas of a lowest risk;*
- *Avoid the use of culverting and building over watercourses and where practical to re-open existing culverts;*
- *Ensure that appropriate mitigation is included within the design of the development to make sure it safe for the future users of the site without adversely affecting others;*
- *Ensure that developers have considered the impacts of climate change to ensure that the future users of the development are not put at additional*

danger of flooding, which may be exacerbated by climate change over the lifetime of the development.

In addition, in areas identified by the Council as being at intermediate and high risk of surface water flooding, development proposals that are greater than 0.5 hectares should be supported by a Flood Risk Assessment which considers information in Warrington's Strategic Flood Risk Assessment and Preliminary Flood Risk Assessment to demonstrate that the development;

- *Is not at risk from existing drainage systems or overland flows*
- *Will not make a positive contribution to managing or mitigating flood risk*
- *Will not adversely affect existing flood conditions."*

1.2.16 Policy QE5: Securing a High Quality Environment – Biodiversity and Geodiversity

"The Council will work with partners to protect and where possible enhance sites of recognised nature and geological value. These efforts will be guided by the principles set out in National Planning Policy and those which underpin the strategic approach to the care and management of the Borough's Green Infrastructure in its widest sense.

Sites and areas recognised for their nature and geological value are shown on the Policies Map and include:

- *European Sites of International Importance*
- *Sites of Special Scientific Interest*
- *Regionally Important Geological Sites*
- *Local Nature Reserves*
- *Local Wildlife Sites*
- *Wildlife Corridors*

The specific sites covered by the above designations at the time of publication are detailed in Appendix 3.

Proposals for development which may affect ***European Sites of International Importance*** *will be subject to the most rigorous examination in accordance with the Habitats Directive. Development or land use change not directly connected with or necessary to the management of the site and which is likely to have significant effects on the site (either individually or in combination with other plans or projects) and which would affect the integrity of the site, will not be permitted unless the Council is satisfied that;*

- *there is no alternative solution; and*
- *there are imperative reasons of over-riding public interest for the development or land use change.*

Proposals for development in or likely to affect ***Sites of Special Scientific Interest*** *(SSSI) will be subject to special scrutiny. Where such development may have an adverse*

effect, directly or indirectly, on the SSSI it will not be permitted unless the reasons for the development clearly outweigh the nature conservation value of the site itself and the national policy to safeguard the national network of such sites.

Proposals for development likely to have an adverse effect on ***regionally and locally designated sites*** *will not be permitted unless it can be clearly demonstrated that there are reasons for the development which outweigh the need to safeguard the substantive nature conservation value of the site or feature.*

Proposals for development which may adversely affect the integrity or continuity of ***UK Key habitats or other habitats of local importance****, or adversely affect* ***EU Protected Species, UK Priority Species or other species of local importance****, or which are the subject of* ***Local Biodiversity Action Plans*** *will only be permitted if it can be shown that the reasons for the development clearly outweigh the need to retain the habitats or species affected and that mitigating measures can be provided which would reinstate the habitats or provide equally viable alternative refuge sites for the species affected.*

All development proposals affecting protected sites, wildlife corridors, key habitats or priority species (as identified in Local Biodiversity Action Plans) should be accompanied by information proportionate to their nature conservation value including;

- *A site survey where necessary to identify features of nature and geological conservation importance; an assessment of the likely impacts of the proposed development proposals for the protection and management of features identified for retention;*
- *An assessment of whether the reasons for the development clearly outweigh the nature conservation value of the site, area or species; and*
- *Proposals for compensating for features damaged or destroyed during the development process*

Where development is permitted, the Council will consider the use of conditions or planning obligations to ensure the protection and enhancement of the site's nature conservation interest and/or to provide appropriate compensatory measures."

1.2.17 Policy QE6: Securing a High Quality Environment – Environment and Amenity Protection

"The Council, in consultation with other Agencies, will only support development which would not lead to an adverse impact on the environment or amenity of future occupiers or those currently occupying adjoining or nearby properties, or does not have an unacceptable impact on the surrounding area. The Council will take into consideration the following:

- *The integrity and continuity of tidal and fluvial flood defences;*

- *The quality of water bodies, including canals, rivers, ponds and lakes;*
- *Groundwater resources in terms of their quantity, quality and the ecological features they support;*
- *Land quality;*
- *Air quality;*
- *Noise and vibration levels and times when such disturbances are likely to occur;*
- *Levels of light pollution and impacts on the night sky;*
- *Levels of odours, fumes, dust, litter accumulation and refuse collection / storage.*
- *The need to respect the living conditions of existing neighbouring residential occupiers and future occupiers of new housing schemes in relation to overlooking/loss of privacy, outlook, sunlight, daylight, overshadowing, noise and disturbance;*
- *The effect and timing of traffic movement to, from and within the site and car parking including impacts on highway safety;*
- *The ability and the effect of using permitted development rights to change use within the same Use Class (as set out in the in the Town and Country Planning (General Permitted Development Order) without the need to obtain planning consent.*

Proposals may be required to submit detailed assessments in relation to any of the above criteria to the Council for approval.

Where development is permitted which may have an impact on such considerations, the Council will consider the use of conditions or planning obligations to ensure any appropriate mitigation or compensatory measures are secured.

Development proposals on land that is (or is suspected to be) affected by contamination or ground instability or has a sensitive end use must include an assessment of the extent of the issues and any possible risks. Development will only be permitted where the land is, or is made, suitable for the proposed use.

Additional guidance to support the implementation of this policy is provided in the Design and Construction and Environmental Protection Supplementary Planning Documents."

1.2.18 Policy QE7: Securing a High Quality Environment – Ensuring a High Quality Place

The Council will look positively upon proposals that are designed to;

- *Be sustainable, durable, adaptable and energy efficient;*
- *Create inclusive, accessible and safe environments;*
- *Function well in relation to existing patterns of movement and activity;*
- *Reinforce local distinctiveness and enhance the character, appearance and function of the street scene, local area and wider townscape;*
- *Harmonise with the scale, proportions and materials of adjacent and/or existing buildings;*

- *Maintain and respect the landscape character and, where appropriate, distinctiveness of the surrounding countryside;*
- *Use the density and mix of development to optimise the potential of the site without damaging the character of the area; and*
- *Be visually attractive as a result of good architecture and the inclusion of appropriate public space.*

Developers will be encouraged to engage with neighbourhoods and communities in developing design solutions. Where appropriate, developments should harness the imagination and creative skills of artists and urban designers in the design process to create distinctive urban environments.

The Council will promote design excellence in new housing developments and will use accepted environmental standards such as Building for Life and the Code for Sustainable Homes to evaluate the design quality of all proposals for major residential development within the borough.

Additional guidance to support the implementation of this policy is provided in the Design and Construction Supplementary Planning Document."

1.2.19 Policy QE8: Securing a High Quality Environment – Historic Environment

"The Council will ensure that the fabric and setting of heritage assets, as set out below, are appropriately protected and enhanced in accordance with the principles set out in National Planning Policy.

- *Scheduled Monuments*
- *Listed Buildings*
- *Conservation Areas*
- *Areas of known or potential Archaeological Interest*
- *Locally Listed Heritage Assets*

The Council and its partners will aim to recognise the significance and value of historic assets by identifying their positive influence on the character of the environment and an area's sense of place; their ability to contribute to economic activity and act as a catalyst for regeneration; and their ability to inspire the design of new development.

Heritage Assets such as buildings, structures and sites which are valued as good examples of local architectural styles or for their historic associations, are included on a local list produced by the Council. The buildings, structures and sites included on this list are detailed in Appendix 4.

To be included on the local list, an asset should be substantially unaltered and retain the majority of its original features and either:

1. be a good example of a particular local asset type, craftsmanship, architectural quality, style or detailing, or

2. display physical evidence of periods of local economic, technical or social significance, well-known local people or historic events

Development proposals which affect the character and setting of all heritage assets will be required to provide supporting information proportionate to the designation of the asset which;

- *Adopts a strong vision of what could be achieved which is rooted in an understanding of the asset's significance and value, including its setting;*
- *Avoids the unnecessary loss of and any decay to the historic fabric which once lost cannot be restored;*
- *Recognises and enhances the asset's contribution to the special qualities, local distinctiveness and unique physical aspects of the area;*
- *Fully accords with the design principles outlined elsewhere within the local planning framework;*
- *Includes suitable mitigation measures, including an appropriate desk-based assessment and where necessary field evaluation and publication, for areas with known or potential archaeological interest.*
- *Ensures the knowledge and understanding of the historic environment is available for this and future generations. The evidence arising from any investigations should be publicly accessible through the historic environment record and the local museum.*

Applications for new development will also be required to take all reasonable steps to retain and incorporate non-statutorily protected heritage assets contributing to the quality of the borough's broader historic environment."

1.2.20 Policy MP1: Making the Place Work – General Transport Principles

"To secure sustainable development the Council and its partners will support proposals where they:

- *Reduce the need for private car use through its location, travel planning and marketing (smarter choices) and any other measures to change travel behaviour*
- *Consider demand management measures including the effective reallocation of road space in favour of public transport, pedestrians and cyclists*
- *Adhere to locally determined car and cycle parking standards*
- *Mitigate the impact of the development or improve the performance of Warrington's Transport Network, including the Strategic Road Network, by delivering site specific infrastructure which will support the proposed level of development.*

1.2.21 Policy MP3: Making the Place Work – Active Travel

"The Council will expect that a high priority will be given to the needs and safety of pedestrians and cyclists in new development.

New development should not compromise and should contribute to enhancing and developing integrated networks of continuous, attractive and safe routes for walking and cycling including improvements to roads, Rights of Way and the Greenway Network (as shown on the Policies Map). This should include appropriate segregation of users and appropriate priority should be given to users at junctions. Where appropriate the Council will consider the use of conditions or planning obligations to secure such improvements.

Enhancements and improvements should look to increase accessibility and make the most of potential environmental, social and health benefits.

Particular priority will be given to routes linking residential areas (especially those in recognised areas of deprivation) with employment areas, transport interchanges, schools, Warrington hospital and other local services and facilities.

1.2.22 Policy MP6: Making the Place Work – Transport Infrastructure

"The Council will support priorities and improvements set out in the Local Transport Plan and other delivery documents by ensuring development will not prejudice the implementation of proposed transport schemes and projects that require land beyond the limits of the public highway.

The Council will safeguard land for the following schemes, as shown on the Policies Map:

- *Provision of a new railway station at Chapelford Urban Village*
- *The Bridgefoot Bypass*
- *A new or replacement high-level crossing of the Manchester Ship Canal between Ackers Road, Stockton Heath and Station Road, Latchford.*
- *The Long Lane Diversion scheme, connecting Birchwood Way, Padgate, to the A49 Winwick Road, between its junctions with Alder Lane and Long Lane / Hawleys Lane, together with dualling of those sections of Birchwood Way, not yet dualled. This safeguarding relates only to the alignment to the east of Hallfields Road as consented development has superseded the safeguarding of the scheme to the west of Hallfields Road.*

These and additional schemes, including the potential for Park and Ride schemes, will be tested using the Council's Multi Modal Transport Model, and any additional land

considered necessary will be safeguarded via a partial review of the Local Plan Core Strategy or a further Local Plan.

The Council will support any resulting proposals for Park and Ride facilities in appropriate locations where they will not give rise to significant adverse impacts on the adjacent Strategic and Primary Road Networks or the quality of the local environment, including public enjoyment of the countryside and established rights of way and the openness of the Green Belt."

1.2.23 Policy MP7: Making the Place Work – Transport Assessments and Travel Plans

"The Council will require all development to:

- *Demonstrate that it will not significantly harm highway safety and that trips generated by the development can adequately be served by Warrington's Transport Network.*
- *Identify where there are any significant effects on Warrington's Transport Network and/or the environment and ensure appropriate mitigation measures including any necessary transport infrastructure are in place before the development is used or occupied.*

Development proposals which would prejudice the primary function of the Strategic Road Network will not be allowed unless improvements are designed and carried out to provide suitable mitigation to the satisfaction of the local highway authority, having regard to the views of the Highways Agency.

Applications for major developments, developments that are not consistent with the Local Planning Framework or developments that raise specific issues in a locality that consist of housing, employment, retail, leisure, and service uses must be accompanied by a Transport Assessment, Transport Statement, and Travel Plan in accordance with National Planning Policy and national guidance on transport assessments.

Where schools add capacity through development or new schools are proposed, they will be required to revise their existing Travel Plan or develop a School Travel Plan.

1.2.24 Policy MP8: Making the Place Work – Waste

"The Council will promote sustainable waste management in accordance with the waste hierarchy.

This means that the Council will seek to manage waste at as high a level of the waste hierarchy as possible. In order to achieve this the Council will;

- *bring forward a Waste Local Plan which will identify and if necessary safeguard sites/areas appropriate to meet the waste management needs of the borough in accordance with the borough's spatial aspirations; and*

- *seek to achieve a continuing reduction in the amount of waste materials imported into the borough by working with adjacent authorities to help them achieve their own self sufficiency; and*
- *encourage waste minimisation in new developments, the use of recycled materials, the sustainable transportation of waste and the preparation of site waste management plans.*

In determining applications for new waste management facilities within the Borough, the Council will have full regard to the environmental, social and economic impacts of such development.

1.2.25 Policy MP10: Making the Place Work – Infrastructure

"The Council and its partners will ensure that Warrington's future growth is supported and enhanced through the timely delivery of necessary transport, utility, social and environmental infrastructure required to support strategic and site specific proposals as set out in the Infrastructure Delivery Plan in accordance with the Overall Spatial Strategy by;

- *Ensuring that development maximises the benefits of existing infrastructure and minimises the need for new provision.*
- *Supporting the delivery and enhancement of strategic infrastructure in the borough through the introduction of the community infrastructure levy by building on the infrastructure delivery plan to understand the wider strategic infrastructure requirements.*
- *Where appropriate, negotiating with developers to secure section 106 agreements to meet the infrastructure needs directly arising from development, where viable to do so.*
- *Supporting the delivery of carbon reduction priorities set out in the Council's Carbon Management Plan and Climate Change Strategy through allowable solutions.*

1.2.26 Policy CC2: The Countryside and its Constituent Settlements – Protecting the Countryside

"Development proposals in the countryside which accord with Green Belt policies set out in national planning policy will be supported provided that;

- *The detailed siting and design of the development relates satisfactorily to its rural setting, in terms of its scale, layout and use of materials;*
- *They respect local landscape character, both in terms of immediate impact, or from distant views;*
- *Unobtrusive provision can be made for any associated servicing and parking facilities or plant, equipment and storage;*
- *They relate to local enterprise and farm diversification; and*
- *it can be demonstrated that there would be no detrimental impact on agricultural interests."*

Draft Local Plan[7]

1.2.27 Warrington Borough Council are currently undertaking a review of the Local Plan. A 'Preferred Development Option' Consultation report was published in July 2017. The report notes that the Council proposes to carry forward current adopted policies which are consistent with the new objectives.

1.2.28 Due to the high volume of responses to this report the publication of the Draft Local Plan was delayed. The draft Local Plan was approved for consultation by Full Council on 25 March 2019. Consultation on this draft Local Plan will run for a 9 week period from 15 April 2019 to 17 June 2019.

1.3 Supplementary Planning Documents

Planning Obligations Supplementary Planning Document (2017)[8]

1.3.1 The aim of this document is to provide supplementary guidance to the following Local Plan Core Strategy policies:

- *CS1 Overall Spatial Strategy – Delivering Sustainable Development*
- *CS4 Overall Spatial Strategy – Transport*
- *PV3 Strengthening the Borough's Workforce*
- *SN2 Securing Mixed and Inclusive Neighbourhoods*
- *SN7 Enhancing Health and Wellbeing*
- *QE1 Decentralised Energy Networks and Low Carbon Development*
- *QE3 Green Infrastructure*
- *QE4 Flood Risk*
- *QE5 Biodiversity and Geodiversity*
- *QE6 Environment and Amenity Protection*
- *MP4 Public Transport*
- *MP7 Transport Assessments and Travel Plans*
- *MP10 Infrastructure*

1.3.2 **Biodiversity:**

Biodiversity measures/enhancements will be sought from development where there is an impact on protected sites, key habitats or protected species and would normally be expected to be provided on- site and secured through appropriate planning condition(s). Planning obligations relating to biodiversity will be sought from development where the Council is satisfied that off-site provision (or a financial

[7] Warrington Borough Council, 2019. Proposed Submission Version Local Plan. Available at: https://www.warrington.gov.uk/info/201073/local-plan/2479/draft-local-plan

[8] Warrington Borough Council, 2017. Planning Obligations Supplementary Planning Document. Available at: https://www.warrington.gov.uk/info/200564/planning_policy/2089/supplementary_planning_documents

contribution in lieu of off-site provision) would deliver a better outcome and/or support strategic proposals set out in the Infrastructure Delivery Plan.

1.3.3 **Energy:**

Planning obligations relating to energy efficiency will be sought for:

- *Commercial developments with a gross floorspace of 1,000 sqm (gross internal area) or more (or a site area of 1 hectare or more) in all locations.*
- *Major commercial and residential development on sites in the strategic locations, proposals and opportunities identified in the Overall Spatial Strategy and shown on the Key Diagram.*

In accordance with Policy QE1 major commercial development proposals in all locations are required to demonstrate what efficiency measures and low-carbon technologies have been considered and the reductions that can be achieved. These will be measured against the current building regulations at the time that the application is submitted, with an expectation that the carbon reductions will exceed the requirements of the current regulations.

In the Strategic Locations, Proposals and Opportunities identified in the Overall Spatial Strategy (Policies CS7, CS8, CS9, CS10 and CS11) and on the Key Diagram the Council will encourage proposals that seek to maximise opportunities for the use of decentralised renewable and low carbon energy. In these areas major commercial and residential development will be required to;

- *Seek to meet a proportion of their energy needs from renewable or low carbon sources based on an assessment of the feasibility and viability of such sources. Initially this proportion will continue the former RSS target of 10% but the council is committed over the plan period to increase this figure subject to appropriate evidence to justify such an increase; or*
- *Establish, or connect to an existing decentralised energy network where appropriate and available, or*
- *Make provisions to enable future connectivity in terms of site layout, heating design and site-wide infrastructure design.*

The Council will require an Energy Statement to be submitted with all types of major commercial development proposals that demonstrates how the scheme will seek to minimise carbon dioxide emissions and the impacts of climate change by adhering to the energy hierarchy. Development proposals are required to demonstrate what efficiency measures and low-carbon technologies have been considered and the reductions that can be achieved. These will be measured against the current building regulations at the time that the application is submitted, with an expectation that the carbon reductions will exceed the requirements of the current regulations. Details of the format of an Energy Statement and what information it should contain may vary

dependent upon the nature of the scheme and advice will be provided at the pre-application stage.

1.3.4 **Flood Risk:**

In accordance with Policy QE4 all development in areas at risk of flooding will be required to demonstrate that account has been taken of flood risk from all sources and that the proposed development incorporates mitigation and management measures appropriate to the use and location. Flood risk mitigation and management measures would normally be expected to be provided on- site and secured through appropriate planning conditions. However, planning obligations will be required where; a Sustainable Urban Drainage System (SuDs) is required off-site; or where a financial contribution is required to deliver a SuDs or other flood risk alleviation or management scheme.

1.3.5 **Local Job/Employment Opportunities:**

Planning obligations relating to employment and skills training and local enterprise opportunities will be sought for:

- *Residential developments of 11 units or more, (or with a maximum combined gross floorspace of more than 1,000 sqm)*
- *Commercial developments with a gross floor space of 1,000 sqm or more (or a site area of 1 hectare or more).*

The Council will seek to negotiate a proportion of the total jobs, created by the construction and end-user phases of new development, to be provided to local residents. A minimum target of 20% will be sought. It is expected that all reasonable endeavours are to be used to ensure that a meaningful level of employment of local residents is achieved in both the construction and end- user phases.

The Council will seek to negotiate a proportion of the total value of contracts, which procure goods and services during the construction phase of the development, to be achieved using firms located within the borough. This will be subject to competition rules. Again a minimum target of 20% will be sought. The developer will be expected to work with the Council, the Warrington Partnership or other organisations it may choose to nominate, in order to maximise the opportunities for local firms to win contracts through established procurement procedures.

1.3.6 **Transport:**

Planning obligations relating to site specific highway and transport works will be sought for all types of developments where there is an impact on the transport network.

Planning obligations to address the cumulative impacts of a development on the wider transport network will be sought for town centre and major development sites of a strategic nature where necessary.

Highway Infrastructure

The Council will seek to secure financial and/or non-financial obligations to mitigate the impact of a development proposal. Such obligations could include:

- *The provision or alteration of an access to a site;*
- *Improved cycle and pedestrian access;*
- *The provision of controlled pedestrian and cycle crossings;*
- *The upgrading of roads through reconstruction and resurfacing (though not continued maintenance if the facility is for the wider public benefit);*
- *The provision of traffic management features to control traffic;*
- *The provision of improvements to bridleways and greenways or other highway improvements that would ensure the safe and efficient flow of traffic.*

Public Transport Infrastructure

The Council will seek to secure financial and/or non-financial obligations to mitigate the impact of a development proposal. Such obligations could include:

- *The provision of new facilities such as bus shelters, stops or real time passenger information to improve public transport access within the vicinity of the site;*
- *Meeting the costs of the re-routing of an existing bus service;*
- *Where there is no existing provision nearby and it is not viable to reroute an existing service, an obligation will be sought to provide a new public transport service.*

Influencing Travel Behaviour

The Council will seek to secure financial and/or non-financial obligations to mitigate the impact of a development proposal. Such obligations could include:

- *Sustainable transport initiatives;*
- *Funding for the monitoring of a travel plan;*
- *Provision of a service to prepare an appropriate travel plan;*
- *Working with occupiers of the site to implement the travel plan.*

Design and Construction Supplementary Planning Document (Amended 2016)[9]

1.3.7 The SPD details design considerations that should be incorporated in the production and determination of planning applications.

1.3.8 **Design and Access Statement**

[9] Warrington Borough Council, 2016. Design and Construction Supplementary Planning Document. Available at: https://www.warrington.gov.uk/info/200564/planning_policy/2089/supplementary_planning_documents

For major developments and developments in key locations, the Design and Access Statement should comprise:

- *An analysis of the site and its surroundings;*
- *How the chosen design relates to, enhances and respects its context;*
- *How the development relates to established patterns of movement and activity in the wider area;*
- *How the development contributes to sustainability, including sustainable transport and energy efficiency;*
- *The design concept, the principles behind the architectural and landscape design.*

1.3.9 Sustainable Design and Construction

"Sustainable construction should use materials and forms of design and construction that use resources efficiently and minimise energy use, waste and pollution, not just during the building period but also throughout the life of the development. It should result in buildings that are cheaper to run and are attractive now and in the future. They should be long lasting with minimum adverse impact on the local and global environment and natural resources."

"Issues to be taken into account at the design stage:

- *Location and transport*
- *Design and layout*
- *Recycling and Reuse of Buildings and Materials During Construction*
- *Minimising Waste During Use*
- *Energy Efficiency in Use*
- *Landscaping and the Natural Environment*

1. *Location and Transport*

   - *Making the best and most efficient use of land: The reuse of vacant derelict or underused sites is expected before the development of greenfield sites. However, regard should be had to the potential environmental value of vacant, derelict or underused sites in any development proposals.*

   - *Uses should be located to reduce the overall need to travel by occupiers and visitors and to facilitate trips by the most environment-friendly modes of transport: The layout of development should be planned to ensure safe pedestrian and cycling connections to local services such as shops, schools and public transport connections such as bus stops and railway stations. The opportunity to create direct, accessible, overlooked and attractive routes should be exploited, and development should be designed to take advantage of any existing routes. The installation of secure parking areas for bicycles will*

encourage cycling. Showers and changing rooms should be provided in commercial developments.

- *The suitability of sites and locations for development is also important to ensure their long-term viability: Development proposals will be assessed with regard to the appropriateness of the juxtaposition of different uses, as it affects the amenity of occupiers and users of the site and of the surrounding area. This will include a consideration of noise generation, air quality, odours, contamination etc. Both the effect of development on existing occupiers in the area and the suitability of the site for the proposed development considering its surroundings will be taken into account.*
- *Regard will be paid to the flood risk to and from new development. This will include consideration of whether the site is at risk from flooding and the flood mitigation measures proposed; the impact of site development on flood defences and the floodplain; and the likelihood of development increasing flood risk (such as the affect on watercourses, surface water run-off etc).*

2. *Design and Layout*
    - *Buildings that are flexible in their design can be adapted to changing needs and uses over time, prolonging the lifetime of the building. They should be designed to allow for adaptations and subdivisions at minimal cost. Creating a layout that allows for future extensions will minimise the need for rebuilding in the future.*
    - *Insulation and other mitigation measures against noise and odours should be integrated into developments.*
    - *Developments should be designed to be constructed with materials that have a low environmental impact. This could include certified sustainable timber, recycled materials or materials that are biodegradable and non-polluting in their manufacture and use.*
3. *Recycling and Reuse of Buildings and Materials During Construction*
    - *Thought should be given at the planning and design stages to the minimisation of waste during the construction process. As well as a reduction in landfill, this will also reduce the amount of vehicle movements associated with the construction process.*

- *The use of reclaimed building materials from other sites and materials with a high recycled content will also help limit waste. The use of appropriate local materials can help retain the local character and distinctiveness of an area.*
- *Careful project management can also help reduce waste, by controlling the amount of materials ordered to prevent over-ordering.*

4. *Site Waste Management*
    - *The Site Waste Management Plans Regulations 2008 require a site waste management plan to be prepared and implemented by clients and principal contractors for all construction projects with an estimated cost greater than £300,000 excluding VAT.*
    - *The plans must record details of the construction project, estimates of the types and quantities of waste that will be produced, and confirmation of the actual waste types generated and how they have been managed.*
    - *More detailed reporting requirements apply to projects exceeding £500,000. The regulations set out a range of offences relating to the failure to produce or implement a plan, punishable by a fine of up to £50,000 on summary conviction, or an unlimited fine on conviction on indictment.*
5. *Minimising Waste During Use*
    - *Reducing the amount of waste created by occupiers as a side effect of their use of buildings will limit the overall waste of resources and can reduce running and maintenance costs.*
    - *Choosing materials with a long life span for the structure of buildings and their curtilages reduces the need to replace. The construction methods used should enable the easy replacement of building elements without the need for major disruption.*
    - *Buildings should be designed to prioritise water conservation during use. This should include the installation of water-efficient items such as dual-flush lavatories and low flow taps as well as methods for the reuse of rainwater within the site.*
    - *SUDS (sustainable urban drainage systems) are designed to limit surface water run-off from sites to reduce the potential for flooding and pollution of urban watercourses. Features could include porous pavements, ponds and swales.*
    - *Space should be made within buildings or their curtilages for the storage of waste material to encourage recycling and recovery of waste.*

6. *Energy Efficiency In Use*

   - *The orientation of buildings can be used to increase solar gain, as direct sunlight into buildings helps reduce the need for lighting. This can be enhanced by larger windows on south-facing elevations and by the avoidance of deep-plan buildings. The provision of shading in sunny weather needs to be considered as part of this arrangement. The spatial relationship of buildings needs to be considered to minimise overshadowing.*
   - *High insulation levels will reduce energy requirements and conserve heat. As well as insulation of roofs, walls and windows this should also include insulation of pipes, ducts, boilers and hot water tanks. Building design can also improve insulation, such as enclosed central atriums rather than exposed courtyards in the centre of office blocks.*
   - *The choice of heating and ventilation equipment will also affect energy use. Natural ventilation is preferable to mechanical ventilation. Localised rather than centralised controls will allow for bespoke temperature controls.*
   - *The fitting out of buildings also will impact on energy use such as the use of energy-efficient lightbulbs, sensor lighting, "A" rated appliances and the type of heating system used (such as combined heat and power plants).*
   - *The source of energy used is also important. Renewable energy from sources such as solar electricity generation systems (photovoltaic panels) and ground source heat pumps produce minimum carbon emissions. Where renewable energy technologies are to be used, they should be conceived as part of the overall design concept of a building and integrated into the architectural language of the building rather than added as an after thought where possible.*

7. *Landscaping and the Natural Environment*

   - *Existing attractive or valuable natural features must be retained and protected on a site and be the starting point for the development of building design and landscaping proposals. These could include trees, hedges, ponds or streams. They may be valuable because of their visual amenity or their wildlife or biodiversity value. The Council has identified significant areas for nature conservation within the borough. Development proposals on or close to designated wildlife sites will warrant special scrutiny and those that will have an adverse effect on these sites will not be permitted without mitigation to reduce the damage.*

- *Planting that enhances nature conservation, wildlife habitat and diversity will be encouraged, particularly on sites that are close to existing wildlife areas or enhance and expand "green corridors".*
- *New landscaping should be designed for easy maintenance to ensure that the visual amenity continues into the long term and that the plants will thrive. Factors to consider include the appropriateness of species for the local climate, topography and soil; the landscape mix; ensuring that there is sufficient space for plants to thrive without constant maintenance and attention; and minimising the requirement for importing topsoil and using artificial irrigation.*
- *New development should be designed to harvest rainwater which can be used for irrigation of the site's landscaping.*
- *New development with flat roofs can also be designed to be "green roofs" such as sedum roofs. These will help improve biodiversity and provide extra insulation to buildings without needing irrigation or significant maintenance.*
- *Hard landscaping should also be designed and constructed with thought to future maintenance and ensuring a long life. This includes considering the durability of materials, the ease and cost of providing and installing replacements and the route of underground services and access to repair and renewal.*

1.3.10 **Landscaping in Development**

Industrial Estate, Retail and Business Park Landscapes:

- *The landscape design issues affecting these types of development are distinct from those of residential developments and will require different design solutions to integrate the development with its surroundings. Buildings on these developments tend to be large with associated extensive areas of car parking. The external layout together with the boundary treatment plays a significant part in the successful design of these sites.*
- *A typical approach is to screen the development from view but this is often impractical since certain retail sites will want maximum visibility to attract the passing public. There is, therefore, potential conflict with landscape design solutions and under these circumstances high quality building design is more important and capable of making a positive contribution to the local environment. In such instances, landscape design should enhance the setting of the built form rather than screening the development from view.*
- *Structure planting on industrial estates and business parks should be achieved wherever possible to reduce the scale of the built form and to help merge the development with its surroundings. Where the surroundings lack landscape merit, a new development can make a significant contribution to the area and stimulate environmental improvements in the vicinity.*

- *Development proposals must be accompanied by a Design Statement setting out how the applicant has taken account of the need for good design. Successful development schemes will involve the integration of buildings and planting design to create a unified design which sits comfortably in the landscape.*

Green Belt Landscapes:

- *The rural areas of the borough are all designated as Green Belt. Green Belts have performed a strategic role for many years by checking the unrestricted sprawl of built-up areas, maintaining access to the countryside and assisting in urban regeneration by encouraging development on brownfield sites.*
- *Policy GRN3 'Development Proposals in the Countryside' of the Adopted Unitary Development Plan builds upon the general development guidance set out in policy GRN1 'The Green Belt', by identifying forms of development which may be acceptable in the countryside whilst maintaining the character and appearance of the landscape and valued wildlife habitats.*
- *Development proposals in the Green Belt must be compatible with the character of the surrounding countryside. Design solutions should protect and, where appropriate, enhance existing landscape features by incorporating the features into the development layout and ensuring that new tree planting mirrors the locally native species. Where the development results in the loss of existing features such as trees, hedgerows or ponds, replacement planting or pond construction will be required to maintain the character of the locality and enhance the visual quality of the new development and its local setting.*

Landscape Information:

- *Landscape schemes must be submitted for all major developments. The definition of major development is in accordance with the Town and Country Planning General Development Procedure (England) Order 1995 as amended.*
- *In the case of outline planning applications, if landscaping is reserved at outline stage, the outline application does not need to provide any specific landscaping information, but the design and access statement should explain and justify the principles that will inform any future landscaping scheme.*
- *For full applications and outline applications which do not reserve landscaping, the design and access statement should explain and justify the proposed landscaping scheme, explaining the purpose of landscaping private and public spaces and its relationship to the surrounding area. It is recommended that where possible a schedule of planting and proposed hard landscaping materials to be used is also included.*

1.3.11 **Transport Design Guidance**

- *Warrington Borough Council, as Highway Authority will adopt as highways maintainable at public expense, those carriageways, footways, footpaths and cycle routes which are necessary for public access or passage and which are designed and constructed to the current standards and specifications of the Authority. The adoption will also include all signs, lighting, highway drainage and street furniture. Car parking bays, which are defined as being within the*

highway limits and are for general use, will be adopted. Private parking areas must be located and clearly defined outside the adoptable highway boundary. The ownership of areas that are to become public highway will be transferred to the Council by the developer. Developers must prove ownership of all land to be transferred prior to adoption by the Council. In situations where land is in "unknown ownership" the Council will require developers to provide adequate Defective Title Indemnity Insurance, which must be in place prior to the Section 38 Agreement being signed.

- *All road construction submissions are required to be designed to adoptable standards, to ensure that road standards and safety is not compromised by inferior designs. Developers are not obliged to enter into an adoption agreement with the Council but can choose to opt for roads to remain private. Future adoption of developments can take place if requested by the owners of the road infrastructure.*
- *With the exception of footpaths, land will only be adopted as public highway if it is contiguous with, and has all-purpose access to, an existing publicly maintained highway, comprising at least a carriageway.*

1.3.12 **Car Parking**

"In the case of large commercial car parks, attempts should be made to conceal them from the highway. On single aspect sites, attempts should be made to place parking at the rear of the site, with the building being located at the front of the site fronting onto the highway. In the case of multi aspects sites, a courtyard approach could be adopted with parking being located within the centre of the site, and the buildings being located on the perimeter fronting onto the highway. If neither approach can be adopted, then the solution lies in lessening the visual impact of the car park on the surrounding townscape. This can be achieved by conceiving and designing the car park not as a car park, but as a landscaped park in which cars are parked.

It is of paramount importance that car parking in all types of developments are conceived and designed as an integral part of the urban design / site planning concept of a development and not just simply conceived and designed as numerical or functional requirements.

1.3.13 **Waste Design Issues**

"*Where a building is erected, rebuilt, altered, adapted or undergoes a change of use which renders the waste storage accommodation, and access to it, insufficient or unsuitable, then revised waste storage facilities must be approved by the Council.*

All refuse should be separated at source and stored off the highway in purpose built refuse stores or in a bulk containerised system held within the boundary of the property, accessed with the minimum of travel from the roadway thus reducing opportunity for spillage.

The general requirements for all developments, including conversions and changes of use, are to provide:

- *On site waste collection, separation and storage facilities;*
- *Communal waste collection, separation, recycling and storage facilities for larger developments; and*
- *Access arrangements for collection vehicles and personnel.*

Commercial Development:

By law (Environmental Protection Act, sections 46 & 47) all commercial premises are required to enter into a commercial waste agreement with a registered waste carrier for the disposal of their waste.

1. *Refuse Requirements*

   - *All refuse should be stored within the confines of the premises in suitably designed and enclosed facilities to avoid storage on the public highway.*
   - *All refuse should be contained in containers or sacks as specified in the chosen registered waste carrier's contract.*
   - *Where special wastes are involved separate storage facilities must be provided to isolate such waste from wastes to be collected by the Council. For further detailed guidance see the contact numbers in para 1.7.*
   - *For large or complex commercial developments, advice should be sought from either the Council or the Environment Agency.*
   - *Developers are advised to consider the environmental advantages and business benefits in providing modern 'environment friendly' solutions to the storage and segregation of materials for re-use and recycling*

2. *Recycling Facilities*

   - *Premises visited by large numbers of the public, especially retail developments, will be expected to provide community recycling facilities (for example glass or paper banks) and other waste collection facilities for re-usable items in suitable locations.*

3. *Access*

   - *The construction of all access roads for refuse collection vehicles should be in accordance with the Department of Transport's Design Manual for Road and*

Bridge Works and also the Council's own Design Guide for Residential Streets and Industrial Estate Roads.

Environmental Protection Supplementary Planning Document (2013)[10]

1.3.14 This document sets out the Council's approach to dealing with Environmental Protection and the associated impacts that could affect health and wellbeing, including;

- *Contaminated Land*
- *Air Quality*
- *Light Pollution*
- *Noise and Vibration*

Contaminated Land

1.3.15 The section for contaminated land identifies 'oil refineries, petroleum storage & distribution sites' as a DOE Industry Profile for potentially contaminating uses of land.

1.3.16 In relation to outline planning applications the document states:

"When considering outline planning applications, the LPA will need to be satisfied that it has sufficient information from the applicant about the condition of the land and its remediation and the full range of environmental impacts arising from the proposals to be able to grant permission in full at a later stage. The LPA should be satisfied, therefore, that the risks have been properly assessed and, if there is an unacceptable risk, the options appraised sufficiently to identify a viable remediation scheme that will reduce the risks to acceptable level, just as it would with a full application."

Air Quality

1.3.17 There is a detailed methodology, guidelines and significance criteria available as well as sources of information that should be referenced within assessments. Most notably the Council inventory of emissions across the Borough containing annual air quality reviews and assessments.

1.3.18 The document concludes that:

"The Council will consider the relative merit of the application with regard to national and local planning policy. The relative weight given to air quality will depend on the significance of any impact. The Council is committed to reducing air quality levels in places where people live, work and relax and it accepts that the National Air Quality Objectives provide the basis for assessing significance as detailed in this document.

[10] Warrington Borough Council, 2013. Environmental Protection Supplementary Planning Document. Available at: https://www.warrington.gov.uk/info/200564/planning_policy/2089/supplementary_planning_documents

Any development that would interfere with an Air Quality Management Plan, result in a breach of a relevant objective or create a potential new AQMA will be treated as significant."

Light Pollution:

1.3.19 The document states:

"*For all lighting proposals, the Applicant/Developer should identify the purpose and use of the lights, the potential users of the lighting scheme (e.g. for recreation facilities) and the hours the lights will be in operation (summer-time and winter-time). The hours of operation will be expected to be kept to a working minimum and Applicants/Developer should show this in their application. Keeping the use of the lighting to a minimum will reduce the impact the lighting may have on the environment.*

To achieve the necessary minimisation of obtrusive light the Applicant/Developer should adhere to the following general principles taken from the Institute of Lighting Professionals, Guidance Notes for the Reduction of Obtrusive Light, GN01: 2011."

Noise:

1.3.20 In determining planning applications "*Consideration of noise will depend upon the development proposal. If a particular development is for a noise-sensitive end use then consideration of the locality of the proposal is imperative. The LPA will assess/review the local transport networks as well as local businesses and commercial developments. The review will also consider the operational times of local businesses as well as any noise that they may emit. Transport noise sources may also affect recommendations made by the LPA, especially if the development proposal is near to a busy road or major railway line.*

All development proposals should consider the ambient noise levels already present in a given area. The LPA is unlikely to grant planning permission to a development that will massively increase existing noise levels in an area, as this may significantly change the character of the local environment. For developments that are likely to have a significant noise impact, then consideration of appropriate acoustic mitigation measures will be necessary to reduce the impact from the development site to an acceptable level."

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ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
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MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT

EXTRA MSA GROUP

WARRINGTON MOTORWAY SERVICE AREA

APPENDIX 13.2: ENERGY STATEMENT

AUGUST 2019

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EXTRA MSA GROUP

WARRINGTON MOTORWAY SERVICE AREA

APPENDIX 13.2: ENERGY STATEMENT

AUGUST 2019

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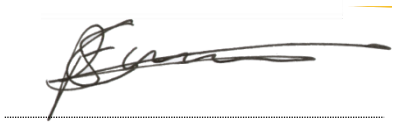
Paul Evans	Service Area Director	
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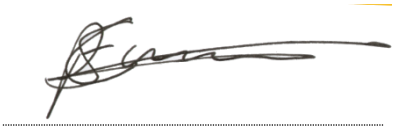
Paul Evans	Service Area Director	

CONTENTS

EXECUTIVE SUMMARY

Wardell Armstrong LLP (WA) have been commissioned to prepare this Energy Statement, on behalf of the Applicant, to support the planning application of a Motorway Service Area at Junction 11 of the M62 Motorway.

The report addresses energy and carbon emissions associated with the proposed development and consider the extent to which the development complies with local policy, in particular Policy QE1 of the Warrington Borough Council Local Plan Core Strategy.

Benchmarks, published in Technical Memoranda 46 (TM46) are presented as energy used per unit of floor area (kWh/m^2), for both electricity and fossil fuels. These have been used to estimate the regulated energy for space heating, hot water, fans, pumps and lighting as well as unregulated energy use for appliances, cooking and IT infrastructure.

The total energy demand for the Warrington MSA has been estimated as 4,888,789 kWh/yr, which equates to 1,107 tonnes of CO_2e emissions. This also takes into account external lighting and electric vehicle charging points.

Recommendations have been made for how the Applicant can adhere to the energy hierarchy at the detailed design stage. This includes building design and layout recommendations to reduce the energy demand, improved energy efficiency measures and an initial feasibility study of viable renewable technologies to meet a proportion of the energy demand.

Potentially viable technologies were identified as solar PV for electricity generation, solar thermal for hot water and ground/air source heat pumps for the provision of space heating and hot water.

In summary, the site is a feasible location to install a ground source heat pump system, either loop array or vertical borehole depending on geology and ground installation capacity, which has the potential to meet up to 48% of the site energy demand. The carbon savings could also be improved by utilizing the west and north west roof space for solar PV to generate the additional electrical demand from pump operation. This integrated renewable approach could create a low carbon system on site.

1 INTRODUCTION

1.1.1 Extra MSA Group ('the Applicant') is seeking to obtain planning permission for the erection of a Motorway Service Area including Facilities Building, up to 100 bedroom Hotel, service yard, Fuel Filling Station, Electric Charging Station, parking facilities for each category of vehicle, access and internal circulation roads, structured and natural landscaping with outside amenity space/picnic space and dog walking zone, pedestrian and cycle links, boundary fencing, surface water drainage areas, ecological mitigation, pumping station(s), substation(s), retaining structures and associated infrastructure and earthworks.

1.1.2 All matters, except for access, are reserved.

1.1.3 Wardell Armstrong LLP (WA) have been commissioned to prepare this Energy Statement, on behalf of the Applicant, to support the planning application. The report will address energy and carbon emissions associated with the proposed development and consider the extent to which the development complies with local policy.

1.1.4 This Statement relies on data and information provided by the Applicant and third parties. WA accepts not responsibility for inaccuracies in third party information.

1.1.5 This Energy Statement, along with the Sustainability Statement, will inform and should be read in conjunction with the Climate Change Technical Paper (No.13) and all chapters within the ES Part 1 Report.

2 POLICY AND REGULATIONS

2.1.1 A comprehensive documentation of all relevant national and local planning policy associated with the proposed development is provided in Appendix 13.1 and should be consulted in conjunction with this report. A short summary of the key policy directly relating to the Energy Statement is provided below.

2.2 National Policy

Town and Country Planning (EIA) Regulations (2017)

2.2.1 Schedule 4 'Information for Inclusion in Environmental Statements' requires "*a description of the main characteristics of the operational phase of the development…, for instance, energy demand and energy used".*

The National Planning Policy Framework (2019)

2.2.2 The revised National Planning Policy Framework ('the Framework' or NPPF) was published in July 2018 and updated in February 2019. The Framework replaced the majority of existing Planning Policy Statements which provided guidance prior to this. The Framework is a material consideration that must be taken into account in the determination of all planning applications.

2.2.3 Chapter 14 'Meeting the challenge of climate change, flooding and coastal change' states "*the planning should support the transition to a low carbon future…and support renewable and low carbon energy and associated infrastructure".*

2.2.4 Paragraph 151 notes that plans should "*identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems".*

2.2.5 Paragraph 153 states *"local planning authorities should expect new development to comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and to take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption."*

Part L of the Building Regulations

2.2.6 Parts of subsequent discussion relate to energy use in buildings due to the direct relation with greenhouse gas emissions. Part L of The Building Regulations sets fabric energy efficiency standards, energy efficiency requirements and CO_2 emissions limits

for dwellings and non-residential buildings. Approved document 'L1A and L2A 2013 edition incorporation 2016 amendments' provide details on the assessment criteria and methodologies used to test whether buildings are compliant. Aside from any local planning policy requirements it must be demonstrated that a building is compliant with the building regulations to be approved by building control. These regulations are the government's key mechanism for reducing CO_2 emissions in buildings.

2.3 Local Policy

2.3.1 The site falls under the administrative boundary of Warrington Borough Council of which the Local Planning Framework is underpinned by the overarching Local Plan Core Strategy. This document was adopted on 21st July 2014, replacing the existing Adopted Unitary Development Plan, and sets out guidance for the local and level of development within the borough up to 2027.

2.3.2 On consultation with Warrington Borough Council regarding the required content of the Energy Statement, the following response was received:

"*Unfortunately, the Design and Construction SPD hasn't been updated as had been expected when the validation checklist was published and therefore the energy statement should detail how the proposed development would adhere to the hierarchy set out in Policy QE1.*"

2.3.3 Policy QE1: Securing a High Quality Environment – Decentralized Energy Networks and Low Carbon Development

"*The Council will encourage proposals that seek to maximise opportunities for the use of decentralised renewable and low carbon energy. Specific opportunities exist at the strategic locations, proposals and opportunities identified in the Overall Spatial Strategy and on the Key Diagram. In these areas development will be required to;*

- *Seek to meet a proportion of their energy needs from renewable or low carbon sources based on an assessment of the feasibility and viability of such sources. Initially this proportion will continue the former RSS target of 10% but the Council is committed over the plan period to increase this figure subject to appropriate evidence to justify such an increase.*
- *Establish, or connect to an existing decentralized energy network where appropriate and available; or*
- *Make provisions to enable future connectivity in terms of site layout, heating design and site-wide infrastructure design.*

Development proposals in all locations should seek to minimize carbon dioxide emissions and the impacts of climate change on the environment, economy and quality of life by adhering to the following hierarchy:

1. *Reducing the need for energy consumption;*
2. *Using energy as efficiently as possible;*
3. *Using renewable and low carbon energy where possible;*
4. *Using fossil fuels and / or nuclear power*."

3 ENERGY DEMAND

3.1 Introduction

3.1.1 It is not practicable with the information available for an outline planning application to undertake an SBEM assessment. Simplified Building Energy Model is a software tool developed by Building Research Establishment (BRE) that provides an analysis of a non-domestic building's energy consumption. It is uncommon for this form of assessment to be undertaken until at least the Reserved Matters Application when the required construction details are known. However, in the interim, it is possible to obtain an approximate projection of energy use using industry benchmark standards.

3.2 Benchmarks

3.2.1 In 2008 the Chartered Institution of Building Services Engineers (CIBSE) developed operational building energy benchmarks for 29 categories, with each category representing a major group e.g. offices. These build on previous work published in CIBSE Guide F: Energy efficiency in buildings and Energy Consumption Guide ECG19: Energy efficiency in offices.

3.2.2 The benchmarks, published in Technical Memoranda 46 (TM46) are presented as energy used per unit of floor area (kWh/m^2), for both electricity and fossil fuels. This includes regulated energy for space heating, hot water, fans, pumps and lighting as well as unregulated energy use for appliances, cooking and IT infrastructure.

3.2.3 TM46 Section 2.4 also states that *"mixed use buildings may be split into their component uses for separate assessment for each type of use. Otherwise, a composite benchmark based on the relative percentage of total usable floor area allocated to each use may be calculated. For example, for a building having 1200m2 of general retail and 1800m2 of hotel, the retail element comprises 40% of total floor area and the hotel 60%. A composite benchmark will therefore be calculated by adding 40% of the retail benchmark to 60% of the hotel benchmark. This approach also applies where buildings include conditioned car parks, restaurants or swimming pools which can be specified by floor area.*

3.3 Parameters

3.3.1 The parameters that have been modelled for buildings at the Motorway Service Area (MSA) are shown in Table 3.1.

Table 3.1: Modelled Parameters and Benchmarks				
Building	**Area (m^2)**	**TM46 Benchmark Category**	**Electricity (kWh/m^2)**	**Fossil Fuel (kWh/m^2)**
Facility Building (Ground Floor)	3450	Composite Benchmark 7 and 25 – Restaurant (73%) and Public Circulation (27%)	Restaurant: 123.3 Public Circulation: 30 Composite: 98.109	Restaurant: 432.9 Public Circulation: 120 Composite: 348.417
Facility Building (First Floor)	1550	Benchmark 1 - Office	95	120
Hotel	4250	Benchmark 9 - Hotel	105	330
Fuel Filling Station	450	Benchmark 3 - Retail	165	0

3.3.2 TM46 benchmarks account for both regulated and unregulated energy use, including internal lighting, pumps and fans.

3.3.3 The electricity demand for external lighting and electric vehicle charging facilities have also been taken into account in the energy model. Data regarding external lighting has been obtained from the Lighting Assessment. Demand for electric vehicle charging points (EVCP) assumes 10 charges a day per each of the 6 chargers, with a car drawing 50 kWh per charge.

3.3.4 The total energy demand for the Warrington MSA has been estimated as 4,888,789 kWh/yr. Figure 3.1 indicates the split of estimated energy demand across site services.

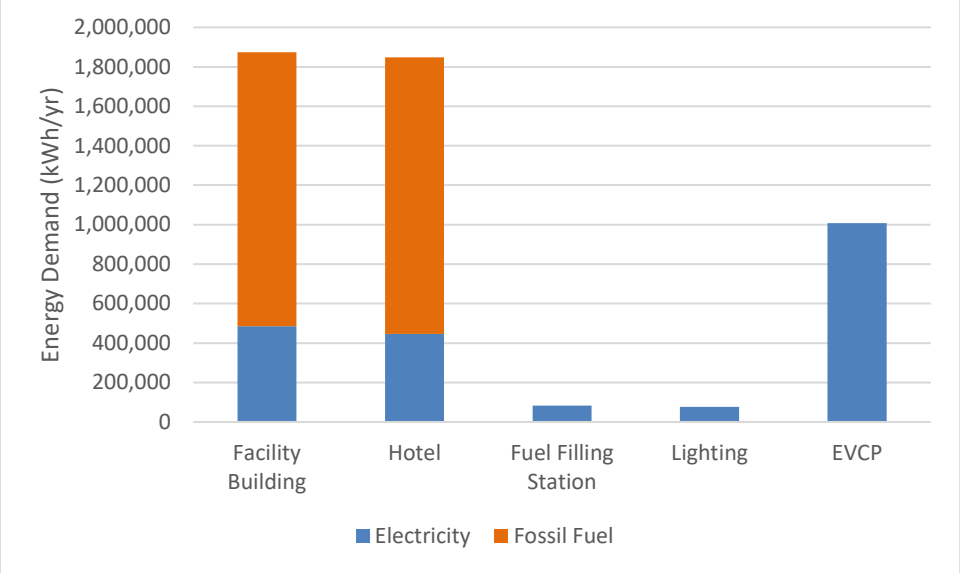


Figure 3.1: Estimated Total Energy Demand Across Site Services (kWh/yr)

4 ENERGY HIERARHCY

4.1.1 Policy QE1 is clear in the requirement for all developments to adhere to the energy hierarchy in order to reduce impacts on climate change. The purpose of this energy statement is to highlight how the proposed development accords to the hierarchy, shown in Figure 4.1, with a particular focus on undertaking an initial feasibility study on viable renewable energy options. The measures detailed in the following sections are recommendations for the Applicant to consider at the detailed design stage and do not represent formal commitments by the Applicant at this stage.

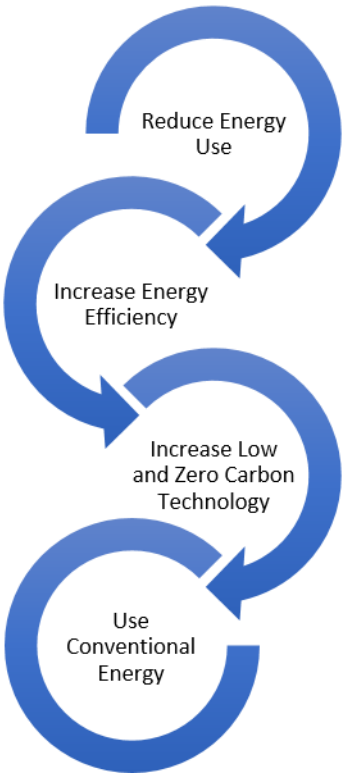


Figure 4.1: Energy Hierarchy

5 REDUCING ENERGY DEMAND

5.1 Introduction

5.1.1 The aim of the first tier of the energy hierarchy is energy conservation. The Applicant is considering the following design options in order reduce the requirement of energy once the development is operational.

5.2 Building Design and Layout

Solar shading[1]

5.2.1 The orientation of a building should maximise the benefits of sunlight by allowing for passive heating through solar gains. The key to good design is ensuring that the coupled risk of overheating during summer is minimised through appropriate solar control measures.

5.2.2 External shading is one of the most effective measures to control heating as it directly prevents sunlight from reaching the windows. These can vary from simple overhang, slatted or roller blinds, awnings or brise soleil form (Figure 5.1). Other options include mid plane blinds on double glazed windows or internal systems.

[1] Information obtained from CIBSE (2006) TM37: Design for improved solar shading control

Figure 5.1: Brise Soleil Shaders on a South Facing Office Building

5.2.3 There is additionally extensive availability of solar control glass and films, that can either absorb or reflect solar gains. Similarly, it is possible to use glazing with selective coatings that reflect infrared radiation while admitting visible light.

5.2.4 Important considerations include outward view, usability and cleaning of windows as well as level of occupancy control required. Caution should be aired when considering the design of solar shading to ensure valuable winter solar gain is not also lost.

Ventilation

5.2.5 Building ventilation has four purposes, which are:

- Air change – to maintain indoor air quality
- Air movement – to provide thermal comfort
- Cooling – to cool building mass during the night
- Heating – to warm building mass during the day

5.2.6 Smart architecture allows for the use of site climatic conditions and topography to aid natural ventilation and air circulation of the building, reducing the requirement for mechanical ventilation such as air-conditioning. Outdoor air is driven through purpose built openings in the building envelope as a result of differences in air density.

5.2.7 The location of inlets, outlets, shading and obstructions all affect cross ventilation patterns across a building, shown in Figure 5.2, and therefore good design can inherently impact the effectiveness of natural ventilation.

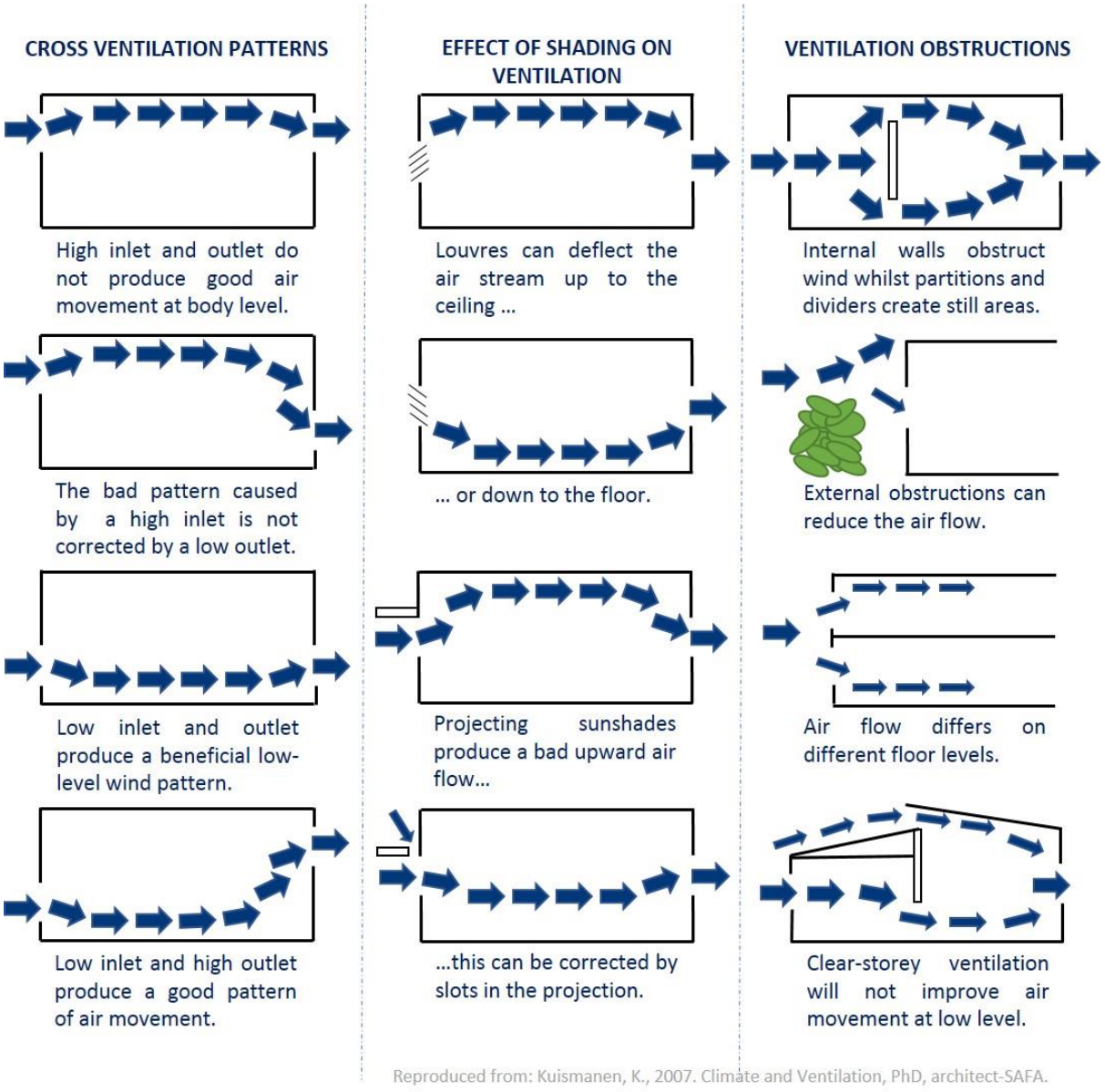


Figure 5.2: Different Aspects of Ventilation and the Effect of Shading Control and Obstructions on Ventilation Patterns

Thermal mass

5.2.8 The thermal mass relates to a building's ability to absorb and store heat and is critical in controlling temperature. Materials with a high thermal mass are dense, heavy, have a dark and/or textured surface and are a reasonably good heat conductor e.g. concrete. Exposure of thermal mass to solar gains can be used to heat or cool a building depending on the time of year. For example, during the winter daytime

sunlight can be absorbed by materials, so that heat is passed to cooler air and surfaces in the evenings when temperature drops. Conversely, in summer thermal masses should be shaded during the day and exposed at night. The effective use of thermal mass in building design will even out daily temperature fluctuations and help maintain a 'thermal comfort environment' for building users, with minimum requirement for artificial heating/cooling.

5.3 Fabric Efficiency

5.3.1 Part L of the Building Regulations Approved document 'L1A and L2A 2013 edition incorporation 2016 amendments' include a Target Fabric Energy Efficiency (TFEE) rate which sets a minimum energy performance requirement. This is expressed as an energy demand (kWh/m^2/year) and is mainly impacted by U-values[2], air pressure testing[3] and thermal bridging[4].

5.3.2 The shape of the building has been an important design consideration throughout that will ensure a maximum volume with a minimal building envelope. This will aid in obtaining a favourable Fabric Energy Efficiency as well as reduce the energy consumption requirements of the development.

5.4 Monitoring and Reporting

5.4.1 It is essential in all cases, whether domestic or commercial, that building users monitor energy use throughout the year in order to be able to make effective energy decisions post construction. Regular monitoring allows for the identification of monthly, seasonal and annual trends which should be recorded and reported. The Applicant will consider the monitoring of energy levels for the purpose of evaluating opportunities for reducing consumption during different periods of the year. It is recommended that annual reporting is undertaken to establish baseline figures, monitor performance and develop future targets.

[2] A measure of heat transmission through a building part or given thickness of material e.g. wall, window insulation.
[3] Process of measuring the amount of conditioned (heated or cooled) air leaking from a building through uncontrolled ventilation.
[4] An area or component of an object which has a higher thermal conductivity than the surrounding materials, creating a path of least resistance for heat transfer.

6 ENERGY EFFICIENCY

6.1 Introduction

6.1.1 The purpose of the second tier of the energy hierarchy is to increase energy efficiency by using technology that reduces consumption and/or eliminates waste. There is a significant opportunity to minimise the risk of behaviour that can result in wasteful energy e.g. leaving lights/heating on and using poor quality equipment that leaks heat/energy.

6.2 Environment Control

6.2.1 As noted in Chapter 5, the Applicant will take careful consideration in the detailed design of the proposed development in order to maximise passive solar gains and utilise natural ventilation. In the event that additional mechanical support is needed it will be important to have a suitable heating, ventilation and air conditioning (HVAC) system that has flexible zoning, multi climate capabilities. This will need to be taken into consideration during the design of internal infrastructure such as air ducts and unit placement, particularly in relation to maintaining correct pressure and minimising heat loss.

6.2.2 The purpose of these modular systems will allow different areas of the MSA facility to utilise energy effectively depending on the service demands in different areas. For example, heating requirements in food preparation and cooking zones will be substantially less to public seating due to attenuation of heat from appliances.

6.2.3 Daily and weekly fluctuations in local climate will also require HVAC systems to be manually altered or climate sensitive, whereby changes in external temperatures impact the heating and cooling requirements of the building. Seasonal settings are not energy efficient and result in increased consumption and costs.

6.3 Lighting

6.3.1 The Applicant will ensure all lighting will meet best practise standards and use the most appropriate technology for zonal areas, and have due regard to sensitive receptors, where necessary.

Internal

6.3.2 Lighting demand is included within the TM46 benchmarks that have been used in the energy modelling for this assessment. It is anticipated that the Applicant will opt for

LED lighting within all buildings, as these have been proven to be at least 70% less energy consuming as well as producing minimal heat.

6.3.3 During daylight hours natural light will maximised to its full potential through effective window and glazed roofing placement. In all buildings areas where further lighting is required due to zone use e.g. toilet and shower rooms where large windows would be inappropriate, motion sensors will be installed to minimise lighting use, particularly at night when visitor frequency can be expected to decrease. Some areas of localised lighting may be required at all times to ensure safety of users. In such instances lighting should be low energy LED and regularly maintained to ensure maximum efficiency.

External

6.3.4 External lighting will be used in the car park, fuel filling station forecourt and inner roadways and access. A detailed lighting design has not been established at this stage, however a precautionary lighting strategy has estimated power demand for these areas of 17.3kWp, which has been accounted for in the energy modelling. Lighting of the roundabout and main access road is excluded.

6.3.5 The purpose of this lighting is to ensure the safety of all site users and staff whilst minimising the impacts of light pollution on surrounding roads, ecology and landscapes. A Lighting Assessment has been undertaken which specifies the precautionary lighting strategy in greater detail and how these impacts are minimised. For example, it is noted that "*lamp specification is based on LED<2700K, >550nm peak to minimise UV light distraction to nocturnal ecology*".

6.3.6 External lighting will only be used during dusk to dawn hours. However, an advantage of using LED lighting is the dimming capabilities to adjust the brightness (or switch-off) when car parks are empty, or lighting is not required. Figure 6.1 indicates example lighting for use in car parks and access roads (a) and fuel filling station canopy fuel areas (b).

Figure 6.1: Example Lighting from the Precautionary Lighting Strategy - a) Car Parks and Access Roads b) Fuel Filling Station Canopy Fuel Areas

7 RENEWABLE AND LOW CARBON ENERGY

7.1 Introduction

7.1.1 Following the implementation of energy effective design and efficiency technologies, the next stage is to meet as much of the remaining energy demand using renewable, sustainable and/or low carbon technologies.

7.1.2 Whilst it is premature at the outline planning stage to specify a particular technology, the Applicant will take the accommodation of renewable technologies into consideration at the detailed design stage. This section includes a feasibility study into viable technologies that would aim to meet up to 10% of the proposed development's energy demand, as outlined in QE1, and provide a recommendation of technologies that could be considered by the Applicant.

7.1.3 It will also investigate if the proposed development will be able to "*establish or connect to an existing decentralized energy network where appropriate and available; or make provisions to enable future connectivity in terms of site layout, heating design and site-wide infrastructure design*."

7.2 Unsuitable Technologies

7.2.1 After an initial scoping exercise, the following technologies were not deemed to be appropriate for the site at this stage:

- Hydroelectric generation – no suitable watercourses
- Roof mounted wind turbines – expensive and poor yields
- Biomass CHP – non sufficient heat loads and air quality impacts
- Gas CHP – less effective due to grid decarbonisation and air quality impacts
- Anaerobic Digestion – insufficient plant and storage space on site

7.3 Analysis of Viable Technologies

7.3.1 Potentially viable technologies have been identified as solar PV for electricity generation, solar thermal for hot water and ground/air source heat pumps for the provision of space heating and hot water.

Solar Panels

7.3.2 The indicative site design and orientation has been used for the purpose of panel placement modelling. Table 7.1 indicates the total potential available roof space for each building and orientation.

Table 7.1: Panel Placement Modelling Parameters		
Building	**Roof Orientation**	**Available Roof Space* (m^2)**
Facility Building	West	638
	East	1006
Hotel	West	188
	East	188
	South East	356
	North West	356
Fuel filling station	Flat Roof	400

** 80% of total roof area has been assumed as suitable for solar panels.*

7.3.3 The consideration of roof mounted solar panels must be balanced against other roof infrastructure requirements and/or potential design features such as green roofing. Other potential solar options could be incorporated into the MSA such as canopy mounted solar PV over car parking spaces, potentially at EVCP's, however, the generation quantities for this design type have not been assessed at this stage. The Applicant may choose to consider this option for a financial feasibility study at the reserved matters stage if sufficient roof space is not available.

Solar PV

7.3.4 The use of photovoltaic panels can displace the requirement for grid electricity. This can be used for lighting, ventilation systems, EV charging and other electrical appliances. Table 7.2 indicates the maximum possible panel deployment for each orientation, based on the roof spaces outlined in Table 7.1.

Table 7.2: Maximum Panel Deployment for Solar PV		
Roof Orientation	**No. Panels**	**Energy Generation (kWh/yr)***
West 255°	503	99,693
East 74°	728	144,287
South East 110°	216	42,810
North West 294°	216	42,810
Flat Roof 0°	243	48,162
TOTAL	**1,906**	**377,762**

**Panels have been modelled as 1.64 m^2 CS6K-275P in a roof parallel installation and this analysis was undertaken in PV SOL software. For all roof areas the inclination is assumed at 31° other than the flat roof which is 0°.*

7.3.5 However, further analysis has also been carried out to consider limitations such as other factors affecting available roof space and visual impact.

7.3.6 For example, the roof of the fuel filling station has been discounted as usable for solar panels at this stage to prevent restrictions on operator bidding. In the circumstance that an operator is contracted before reserved matters, and solar panels are taken forward by the Applicant, then a further consultation could be undertaken with the proposed operator to discuss the feasibility of utilizing the roof space.

7.3.7 Additionally, panels have been removed from the hotel roof space in the south east and east facing directions to reduce visibility to road and facility users.

7.3.8 Table 7.3 indicates a nominal, viable panel deployment based on the roof space outlined within the table.

Table 7.3: Nominal, Viable Panel Deployment for Solar PV			
Roof Orientation	**Assumed Available Roof Space* (m^2)**	**No. Panels**	**Energy Generation (kWh/yr)***
West 255°	800	488	95,024
East 74°	975	594	115,664
North West 294°	344	210	40,891
TOTAL		**1,791**	**251,579**

**Calculated from Table 7.1 Available roof space subtracting 114 panels from the east orientation and all panels on the flat roof and south east orientation. An additional 2.5% roof available roof space reduction has been applied to the remaining roof space to demonstrate a conservative approach.*

7.3.9 At the maximum level of deployment (Table 7.2) solar PV could meet 7.7% of the site energy demand, saving 101 tonnes of CO_2e per year compared to using grid electricity. At a notional, viable level of deployment (Table 7.3) solar PV could meet 5.1% of the site energy demand, saving 71 tonnes of CO_2e per year compared to using grid electricity.

7.3.10 It is evident from this analysis that Solar PV on its own would not provide sufficient energy to meet the QE1 policy target.

Solar Thermal

7.3.11 Solar thermal panels can displace the use of fossil fuels for the heating of hot water. These use sunlight to heat a transfer fluid, that is contained in multiple glass tubes that makeup the panel. The fluid is then pumped to the storage tank where a heat exchanger allows the transfer of heat from fluid to water, before allowing the fluid to return the tubes to repeat the cycle.

7.3.12 The disadvantage is that this technology also requires roof space, in competition with PV panels. Solar thermal panels have a much higher efficiency in comparison with PV panels. The increased efficiency of the solar thermal panels provides greater flexibility in placement, as less are required to meet the same demand.

7.3.13 Table 7.4 indicates the maximum possible panel deployment for each orientation, based on the roof spaces outlined in Table 7.1.

Table 7.4: Maximum Panel Deployment for Solar Thermal			
Roof Orientation	**Solar Insolation on Active Collector Surface (kWh/m²/yr)**	**No. Panels***	**Energy Generation (kWh/yr)**
West	860.02	437	159,374
East	774.56	632	180,947
South East	875.29	188	101,308
North West	743.39	188	83,566
TOTAL		**1,445**	**525,195**

*Panels have been modelled as 1.89m² (gross surface area) Jiangsu DMG70-10 evacuated tube collector in a roof parallel installation and this analysis was undertaken in T SOL software. For evacuated tube collectors the active surface area is typically circa 60% of the gross surface area. For all roof areas the inclination is assumed at 31°.

7.3.14 Despite a high solar insolation, deployment has been excluded from the fuel filling station roof due to the minimal natural gas requirement for this building benchmark.

7.3.15 As indicated previously, it is unreasonable to assume that maximum deployment will be possible and therefore further analysis has been undertaken based on a nominal, viable deployment that takes into consideration visual impact.

7.3.16 Table 7.5 indicates a nominal, viable panel deployment based on the roof space outlined within the table.

Table 7.5: Nominal, Viable Panel Deployment for Solar Thermal			
Roof Orientation	**Assumed Available Roof Space* (m²)**	**No. Panels**	**Energy Generation (kWh/yr)***
West 255°	800	423	157,046
East 74°	975	515	166,405
North West 294°	344	182	81,496
TOTAL		**1,120**	**404,947**

**Calculated from Table 7.1 Available roof space subtracting 100 panels from the east orientation and all panels on the flat roof and south east orientation. An additional 2.5% roof available roof space reduction has been applied to the remaining roof space to demonstrate a conservative approach.*

7.3.17 At the maximum level of deployment (Table 7.4) solar thermal could meet 10.7% of the site energy demand, saving 96.6 tonnes of CO_2e per year compared to using a gas fired boiler. At a notional, viable level of deployment (Table 7.5) solar thermal could meet 8.3% of the site energy demand, saving 74.5 tonnes of CO2e per year compared to using a gas fired boiler.

7.3.18 There is a potential to meet the QE1 policy requirement based on a higher deployment of panels than nominally selected here as demonstrated by the maximum deployment. However, it is worth reiterating that the technology modelled can only contribute to the heating of hot water, not space heating, and cannot be used to meet any electrical requirements. At the maximum deployment up to 19% of the fossil fuel requirement (i.e. gas) could be displaced with solar thermal. Due to the outline planning stage it is not possible to quantify what proportion of the total fossil fuel requirement will be associated with hot water. Further calculation at detailed planning would be required to correctly ascertain this technologies potential contribution.

Heat Pumps

7.3.19 A heat pump can be defined as a mechanic system that transfer heat from a source to sink, using a vapour compression cycle. This cycle can also be reversed so that a system can offer both heating and cooling.

7.3.20 There are several advantages of displacing fossil fuels using heat pumps such as safety, low running costs and reduced carbon emissions. On the other hand, there are some disadvantages such as high capital cost and increased electricity demand.

7.3.21 The Coefficient of Performance for a heat pump, a measure of useful heat/cooling divided by work required for the system to operate, is typically around 4. This equates to every 1 unit of electricity producing approximately 4 units of heat. Usually, the CoP is lower than this in operation and is dependant upon conditions and temperatures. The CoP will also decrease if the heat pump is used for space heating and hot water, as opposed to heating only, due to the increased temperature requirement.

<u>Ground Source Heat Pump</u>

7.3.22 Ground source heat pumps can utilise either vertical boreholes or buried loop arrays to draw naturally occurring heat from the ground. Due to the intent of large, flat

vehicle car parks on site a large loop array could be feasible, buried approximately a meter under this area. This would need to take into consideration any underlying utility pipes and soil structure. In the event that ground installations are too extensive to accommodate a ground loop array, vertical boreholes could also be used as an alternative, geology permitting.

7.3.23 Similar to the solar thermal technology, a transfer fluid flowing around the loop array is heated to a low temperature by absorbing heat from the surrounding ground. This fluid is compressed to a higher temperature which can then heat water for use in space heating or hot water.

7.3.24 The temperature at this depth usually only marginally varies from the mean annual air temperature and therefore is fairly consistent and reliable all year round. These types of systems are particularly good for commercial buildings which require low-level continuous heating/cooling over long periods.

7.3.25 This particular renewable technology is often favoured, where space allows, due to the minimal visual and noise impacts.

7.3.26 It should be noted that these systems must be custom designed and installed in an engineered layout to match the space and demand profile of the building. On this basis, it is difficult to quantify a 'maximum deployment' in this scenario.

7.3.27 The parameters modelled for a nominal ground source heat pump system is shown in Table 7.4. It assumed that a multi-unit system will be used to provide heating and hot water with a nominal sizing benchmark of 50W/m^2. The CoP is modelled as 3.3 based on a Kensa High Temperature Plantroom.

Table 7.6: Modelling Output for GSHP

Unit Size (kW)	No. Units	Installed Capacity (kW)	Estimated Required Operating Hours	Energy Generation (kWh/yr)
25	10	250	5,552	1,388,039
30	7	210	6,679	1,402,500
TOTAL	**17**	**460**	**12,231**	**2,790,539**

7.3.28 The deployment of this nominal system would increase the overall site energy demand by 15% to 5,734,406 kWh/yr however, it could theoretically displace 100% of the Facility Building and Hotel's fossil fuel demand and still meet 48.7% of the overall (increased) site demand.

7.3.29 It should be noted that the heat pump could not realistically displace 100% of fossil fuel demand, because natural gas would still be required for catering purposes. Due to the outline planning stage, the tenant of units within the facility building has not been decided, and therefore it was not possible to estimate the energy demand split between heating, hot water and catering at this time.

7.3.30 Despite the increased electricity, the use of this approximated, nominal ground source heat pump system would still save 274 tonnes of carbon/yr compared to using natural gas. The carbon savings could be improved if the electrical demand of the heat pumps were met with another renewable source e.g. solar PV. This integrated approach could allow for a low carbon heating/cooling system.

Air Source Heat Pump

7.3.31 Air source heat pumps work in a similar system whereby heat is extracted from the outside air to heat a transfer fluid, that passes through a compressor and then exchanger. There are two types of ASHP, firstly an air-to-water system which heats water for circulation around a central heating system. There are also air-to-air pumps that circulate warm air by fans around the building, but this will not be able to provide hot water.

7.3.32 Air source heat pumps typically have a lower CoP efficiency compared to GSHP and have the added disadvantage of requiring a sunny space next to the building it will heat. Due to the size of the proposed development it is likely this unit will be large and have greater visual impacts. The efficiency of the pump is closely related to temperature differences. For example, the efficiency will drop with ambient air temperature or if there is a large range between outside ambient air and indoor target temperature.

7.3.33 The parameters modelled for air source heat pumps is shown in Table 7.5. It assumed that the system will be used to provide heating and hot water, with a nominal sizing benchmark of 40 W/m^2 and the CoP is modelled at 2.6 based on a large Vaillant system.

Table 7.7: Modelling Output for ASHP (FB = Facility Building)				
Unit Size (kW)	**No. Units**	**Installed Capacity (kW)**	**Estimated Required Operating Hours**	**Energy Generation (kWh/yr)**
11	FB: 18 Hotel: 15	FB: 198 Hotel: 165	FB: 7,010 Hotel: 8,500	FB: 1,388,039 Hotel: 1,402,500
TOTAL	**33**	**363**	**6,679**	**2,790,539**

7.3.34 The deployment of this system would increase the overall site energy demand by 18% to 5,962,073 kWh/yr however, it could theoretically displace 100% of the Facility Building and Hotel's fossil fuel demand and still meet 46.8% of the overall (increased) site demand.

7.3.35 Similar to the GSHP, it should be noted that the heat pump could not realistically displace 100% of fossil fuel demand, because natural gas would still be required for catering purposes. Due to the outline planning stage, the tenant of units within the facility building has not been decided, and therefore it was not possible to estimate the energy demand split between heating, hot water and catering at this time.

7.3.36 The increase in electrical requirement is significantly greater compared to GSHP due to lower CoP efficiency. As a result, whilst this system would save 210 tonnes of carbon/yr compared to using natural gas, it is not as effective as GSHP. The additional space requirement above ground and associated visual impact also make this technology less favourable to the Applicant.

7.4 Decentralized Energy Network

7.4.1 There are no other existing decentralized energy networks within the vicinity of the site to connect to and there are not sufficient commercial or residential energy loads in close enough proximity for the development of a network at this stage.

7.4.2 Whilst it is known that Biffa are producing electricity from landfill gas at the neighbouring site, there are anticipated connection difficulties and issues surrounding the finite, depleting supply which may not guarantee energy security for the life of the Proposed Development. The Applicant is in discussion with Biffa to see if these problems are resolvable, and as such may be considered at detailed design, if appropriate.

7.4.3 The Applicant will take the prospect of ensuring connectivity capabilities to future decentralized energy networks into consideration at the detailed design stage.

8 USING FOSSIL FUELS

8.1.1 A utilities assessment (Appendix 13.3) has been undertaken to consider the available capacity for water, gas and electricity at the site. The assessment has been undertaken assuming full capacity of conventional fuels e.g. gas and grid electric in order to assess the worst-case demand profile. Should the Applicant choose to implement a proportion of renewable or low carbon energy sources, this assessment will need revising as the demand load will reduce.

9 CONCLUSION

9.1.1 The total energy demand for the Warrington MSA has been estimated as 4,888,789 kWh/yr taking into account the Facility Building, Hotel, Fuel Filling Station, external lighting and EVCP.

9.1.2 Energy demand has been estimated using CIBSE TM46 building benchmarks, data from the lighting assessment and charging assumptions outlined in paragraph 3.3.3.

9.1.3 The energy statement has demonstrated the recommendations for adhering to the energy hierarchy, as outlined in policy QE1, that the Applicant will take into consideration at the detailed design stage.

9.1.4 A feasibility study has been undertaken to assess potential viable renewable technologies that could be integrated into the building design to meet a proportion of the energy demand. Table 9.1 compares the carbon emissions of meeting the estimated total energy demand of the site utilising different energy sources.

Table 9.1: Summary of Energy Generation and Emissions from Different Energy Sources

Technology	Energy Generated	Percentage of Site Energy Demand	Carbon Emissions (CO_2e)
	kWh/yr	%	tonnes
FOSSIL FUEL			
Natural Gas	2,790,539	57	513
Grid Electricity	2,098,250	43	594
RENEWABLE			
Solar PV	251,579	5.1	6.4% Offset
Solar Thermal	404,947	8.3	6.7% Offset
Ground Source HP	1,869,661	48.7	24.7% Offset
Air Source HP	1,283,648	46.8	18.9% Offset

9.1.5 The size and proposed use of the site make it a feasible location to install a ground source heat pump system, either loop array or vertical borehole depending on geology and ground installation capacity, which has the potential to meet up to 48% of the overall site energy demand. The carbon savings could also be improved by utilising the west and north west roof space for solar PV to generate the additional electrical demand from pump operation. This integrated renewable approach could create a low carbon system on site.

9.1.6 The feasibility of using this technology within the building design will be considered by the Applicant at detailed design stage.

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ENERGY AND CLIMATE CHANGE
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LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT

EXTRA MSA GROUP

WARRINGTON MOTORWAY SERVICE AREA

APPENDIX 13.3: UTILITIES ASSESSMENT

AUGUST 2019

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DATE ISSUED:	**AUGUST 2019**
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EXTRA MSA GROUP

WARRINGTON MOTORWAY SERVICE AREA

APPENDIX 13.3: UTILITIES ASSESSMENT

AUGUST 2019

PREPARED BY:

Abbigail Spiers Technician

REVIEWED BY:

John Scullion Associate Director

APPROVED BY:

Steven Hopkins Technical Director

CONTENTS

APPENDICES

DRAWINGS	**TITLE**	**SCALE**
SH11739-019-C	Existing Utilities Plan	1:1,000 @ A0

EXECUTIVE SUMMARY

Wardell Armstrong LLP (WA) has been commissioned by Extra MSA Group to undertake an assessment of existing utilities and to investigate the capacity available to serve the proposed development of a new Motorway Service Area (MSA) north of the M62 at Warrington.

The assessment indicates the presence of existing utilities within the red line boundary of the proposed development site and the immediate surrounding area. This report reviews the existing service loads, and based on WA experience of similar developments, provides an estimate of the loads that would be required by the proposed MSA.

This report also comments on, the potential scope of the diversion works that would be needed to facilitate the proposed development, the potential for offsite reinforcement works and where possible provides an estimate of the associated costs.

The investigation has confirmed from the incumbent utility providers that the following assets and transmission networks are present on-site or in the immediate surrounding area:

- Electricity;
- Potable Water;
- Foul Water;
- Gas; and
- Telecommunications.

Existing Utilities Plan (Drawings SH11739-019-C) has been prepared to show the approximate location of each identified network and assets.

Once alterations have been identified, the developer is responsible for the associated diversionary and service disconnection costs, with the affected apparatus owner.

United Utilities, Electricity North West and Cadent Gas have confirmed there is capacity to connect the proposed development from the local network without reinforcement. However, infrastructure will need to be laid off-site from the points of connection to the site.

In conclusion, the information provided by the utilities' companies to date confirms that connection to the utilities networks is feasible with respect to the proposed development.

1 INTRODUCTION

1.1.1 Wardell Armstrong LLP (WA) has appointed Extra MSA Group Ltd to undertake a review of the existing utility information available from current records and to investigate the capacity availability within the network. This report considers the proposed development of the site for a Motorway Service Area including the following:

- Facilities building
- 100-bedroom hotel
- Service yard
- Fuel filling station
- Parking facilities for each category of vehicle
- Access and internal circulation roads
- Structured and natural landscaping with outside amenity space/picnic space and dog walking zone
- Pedestrian and cycle links
- Surface water drainage areas
- Ecological mitigation
- Pumping station
- Substation
- Retaining structures and associated infrastructure and earthworks

1.1.2 It should be noted that all advice, opinion, assessments and views set out in this report are based on WA current professional knowledge and understanding of the services on site. Wardell Armstrong LLP may change these views, due to any actions by the Statutory Undertakers in maintaining or upgrading their networks.

1.2 Site Location

1.2.1 The proposed development site location is shown in **Figure 1** below.

1.2.2 The land at Warrington (hereafter referred to as 'the Site') is north-east of Risley. The Site is approximately 16.81 hectare in size (including highway works) and is located in the administrative area of Warrington Borough Council. The nearest postcode is WA3 7UD, and the grid reference is 367038, 393593 at the centre of the Site.

Figure 1: Approximate Site Location, (Source: Google Maps).

1.2.3 The majority of the Site is greenfield, and also captures the roundabout at junction 11 of the M62 motorway. The north, east and west of the Site is bounded by agricultural fields and the south of the Site is bounded by the M62 motorway.

1.2.4 The proposed development red line boundary plan is shown in Figure 2 below.

Figure 2: Approximate Red Line Boundary, (Source: Google Earth).

1.3 Statutory Authorities

1.3.1 The following companies, as set out in **Table 1**, were approached to obtain records of their equipment/plant located in the vicinity of the Site as part of the incumbent utilities search.

Table 1 Statutory Authorities

Company	Address	Description
Electricity North West Limited	enquiries@enwl.co.uk	Electricity
United Utilities	propertysearches@uuplc.co.uk	Potable Water
United Utilities	propertysearches@uuplc.co.uk	Foul & Surface Water
Cadent Gas	Cadent Gas Plant Protection Block 1, Floor 2 Brick Kiln Street HINCKLEY LE10 0NA	Gas
BT Openreach	https://www.swns.bt.com/pls/mbe	Telecoms
Virgin Media	PlantEnquiriesTeam@virginmedia.co.uk	Telecoms

1.3.2 Further to those listed above, a Linesearch enquiry was carried out to determine whether any transmission lines, pipelines or other assets cross the Site.

1.3.3 WA would suggest commencing a full detailed search at the detailed design stage to confirm there are no further apparatuses located within the Site boundary.

2 EXISTING UTILITIES

2.1 Introduction

2.1.1 The following section provides detail of all existing utilities within the Site. The statutory authorities' apparatus located within and adjacent to the Site area is summarised, and copies of the plans are appended to this report (**Appendices A – G**). Private services are not marked on the asset records but may be present within the Site area.

2.2 Electricity

Electricity North West Limited

2.2.1 Electricity North West Limited (ENWL) records show 11kV underground (UG) cables are located within the south of the Site and within the vicinity of the motorway junction. UG low voltage (LV) cables are also located within the vicinity of the roundabout.

2.2.2 ENWL records show two substations located to the south-west of the existing roundabout.

2.2.3 ENWL records do not show any other apparatus within or around the Site boundary.

2.2.4 Please see **Appendix A** for a copy of existing ENWL records.

2.3 Potable Water

United Utilities

2.3.1 United Utilities (UU) records do not show any potable water apparatus located within or around the Site boundary.

2.3.2 Please see **Appendix B** for a copy of UU potable water records.

2.4 Foul & Surface Water

United Utilities

2.4.1 United Utilities (UU) records do not show any foul or surface water apparatus located within or around the Site boundary.

2.4.2 Please see **Appendix C** for a copy of UU foul & surface water records.

2.5 Gas

Cadent Gas

2.5.1 Cadent Gas (CG) records show a high pressure (HP) gas main located within the Site and along the eastern Site boundary, in a north-south orientation.

2.5.2 Drawing SH11739-019 shows the location of the HP gas main as shown on utilities records. A surveyor also recorded the actual position of the HP gas main, which is slightly west of the position shown on the utilities records.

2.5.3 Wardell Armstrong LLP has contacted The Health and Safety Executive (HSE). The HSE has confirmed the HP gas main is considered a major hazard pipeline and it is governed by the following HSE consultation zones.

- Inner Zone: 96 meters
- Middle Zone: 190 meters
- Outer Zone: 335 meters

2.5.4 The HSE Consultation Zones are either side of the pipeline and should be measured from the centreline of the pipeline.

2.5.5 HSE zones are used to govern the type of construction that can take place within the vicinity of pipelines. Further contact with HSE will be required during the detailed design period. Engagement with the HSE will allow any objections to be raised during the design stage.

2.5.6 CG records do not show any other apparatus located within or around the Site boundary.

2.5.7 Please see **Appendix D** for a copy of CG records.

2.6 Telecoms

BT Openreach

2.6.1 BT Openreach records show underground (UG) apparatus located within the south of the Site, within the vicinity of the motorway.

2.6.2 Overhead (OH) and UG apparatus is located to the south-west of the Site.

2.6.3 BT Openreach records do not show any other apparatus located within or around the Site boundary

2.6.4 Please see **Appendix E** for a copy of BT Openreach records.

Virgin Media

2.6.5 Virgin Media (VM) records do not show any apparatus located within or around the Site boundary

2.6.6 Please see **Appendix F** for a copy of VM records.

2.7 Linesearch

2.7.1 A Linesearch together with the associated 'Before-U-Dig' assessment has confirmed that no pipeline assets are crossing the Site.

2.7.2 Please see **Appendix G** for a copy of Linesearch results.

3 LOAD SCHEDULES

3.1 Summary of load requirements

3.1.1 The utility load requirements for the Site have been provided by the client and are understood to be based on similarly sized service stations. These loads are summarised in **Table 2**.

Table 2: Load Schedule

Building type	Electricity (kVA)	Gas Peak Hourly (kWh)	Potable Water Peak (l/s)	Peak Foul Discharge Rate (l/s)
Motorway Service Station comprising of MSA food outlets, fuel filling station and 100-bed Hotel	2,000	2,700	20	20.4

N.B.: According to the 'National Guidance Document on the Provision of Water for Firefighting – 3rd Edition (January 2007)', developments of this type should have a water supply capable of delivering a minimum of 20 to 35 litres per second through any single hydrant on the development. Further liaison with local statutory portable water suppliers and the local fire authority will be required in order to confirm the specific requirements for this Site.

4 NEW SUPPLIES

4.1 Introduction

4.1.1 The load requirements for the Site are described in Section 3. The figures have been used, in consultation with the utility companies, to assess the provision of new network supplies to serve the proposed development. The loads will need to be updated once the masterplan is finalised. The final scope of works and costs will need to be confirmed with the relevant utility company following a site assessment and detailed design.

4.2 Electricity

Electricity North West Limited

4.2.1 The Proposed Development will impose an additional diversified electrical load demand of approximately 2,000kVA on the electrical network.

4.2.2 Electricity North West Limited have provided the scope works and associated costs to bring electrical supply to the development and install associated infrastructure. An indicative cost for the works has also been provided (Table 3).

4.2.3 Further consultation with ENWL will be required during the detailed design stage.

4.2.4 Please see **Appendix H** for a copy of the ENWL response.

4.3 Potable Water

United Utilities

4.3.1 The proposed development will impose an additional demand of approximately 20 l/s on the local Potable Water network.

4.3.2 United Utilities have confirmed the proposed development can connect to the 8inch water main located along Warrington Road approximately 1,800m east of the Site boundary.

4.3.3 Onsite costs have not been included within the quote as these are subject to a detailed design process.

4.3.4 Further consultation with UU will be required during the detailed design stage.

4.3.5 Please see **Appendix I** for a copy of UU potable response.

4.4 Foul Water

United Utilities

4.4.1 The proposed development will impose an additional Peak Foul Discharge Rate of approximately 20.4 l/s on the local network.

4.4.2 United Utilities has confirmed the foul water flows emanating from the Site will be allowed to drain freely into the nearest available public foul combined sewerage system located within a public highway, which is a considerable distance south of the M62. To fully understand the impact on the network calculations indicating potential foul flows should be obtained to identify the best point of connection.

4.4.3 Please note the connection will be subject to Section 106 approval. Therefore, further consultation with UU will be required during the detailed design stage.

4.4.4 Please see **Appendix J** for a copy of UU foul response.

4.5 Gas

Cadent Gas

4.5.1 The proposed development will impose an additional gas peak hourly demand of approximately 2,700 kWh on the gas network.

4.5.2 CG has confirmed that there is sufficient capacity 1,770m east from the Site boundary in the medium pressure (LP) network.

4.5.3 CG has suggested a point of connection from 180mm medium pressure main located east of the Site in Warrington Road.

4.5.4 Further consultation with CG will be required at the detailed design stage to review requirements.

4.5.5 Please see **Appendix K** for a copy of CG response.

4.6 Telecoms

BT Openreach

4.6.1 WA has reviewed further information from BT Openreach and can advise that BT Openreach is *"working with government and industry to bring Superfast fibre to as many people as possible but don't yet have a plan in this area yet"*. BT Openreach suggests co-funding as part of a community fibre partnership (shown in Figure 3).

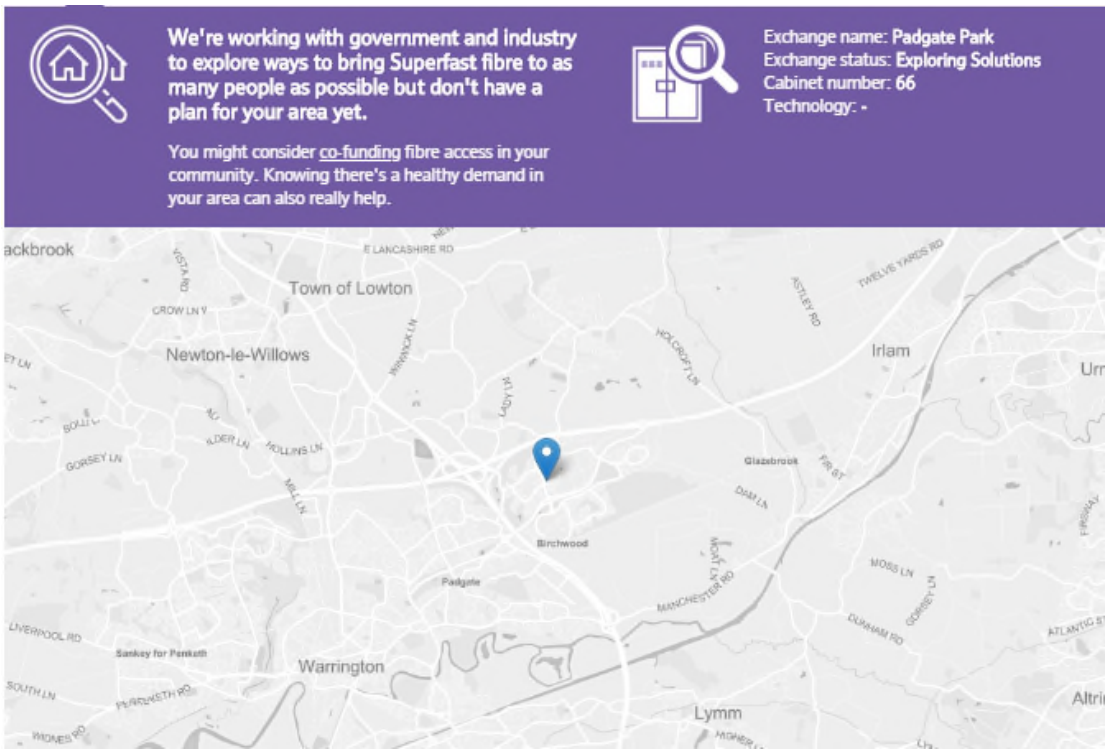


Figure 3: Superfast Broadband Enquiry.

4.7 New Supplies Summary

4.7.1 Table 3 provides a summary of the estimated budget costs, payable to the respective utility companies, for the new building connections. The costs are for budget purposes only and exclude VAT.

Table 3: New Supplies Summary

Utility	Company	Budget Cost	Comment
Electricity	Electricity North West Limited	£691,000	ENWL has provided an indicative cost for works required for providing an electrical supply to the Site. The indicative quote provided is for the following work: • Only nominal costs for legal consents are included. • Supply & Installation of substation HV/LV switchgear & earth mat. • Installation of HV/LV infrastructure. • Termination of incoming HV cable/s & outgoing LV cables. • Supply and bolting down of the substation GRP kiosk. • Remote LV metering panel & multicore cable. • Install new low voltage mains service/s to modular metering panel/s. • HV shutdown to commission substation. • Associated HV &/or LV reinforcement works. **The charges do not include for:** • Land acquisition costs for legal consents etc. • Clearing the Site of trees, vegetation etc for substation construction / access. • Substation civil works, e.g. Plinths / base for GRP enclosure. • ·Provision of metering room. • Damage to crops / land during operational access / work etc. • The provision and installation of a cable entry duct for new service(s).

Table 3: New Supplies Summary			
Utility	**Company**	**Budget Cost**	**Comment**
			• The provision and the installation of your LV singles and earth cables, including termination lugs. • Out of hours working. Please refer to the original offer letter for further details in Appendix H.
Potable Water	United Utilities	£169,838	UU has suggested connecting the Site from the 8inch water main located 1,800m east of the Site boundary. The indicative cost provided makes allowance for the following work: • Laying 2,415 metres of pipe from the point of connection at Warrington Road; • Adding one branch connection to the existing network; and UU have assumed that barrier pipe will not be required. UU have assumed that traffic management cost will be paid by the developer. Please refer to AW quote in Appendix I for further information.
Foul Water	United Utilities	See comments	UU has confirmed that there will be sufficient foul water capacity in their sewerage network to serve the development. The foul water flows emanating from the Site will be allowed to drain freely into the nearest available public foul combined sewerage system located within a public highway which is some considerable distance south of the M62.
Gas	Cadent Gas	See comments	CG does not provide budget costs and there is insufficient information at this stage to do a detailed enquiry. However, CG has confirmed there is enough capacity in the medium pressure network the nearest main with sufficient capacity is 1,770 metres from the Site boundary and it is a Medium Pressure main located east at Warrington Road.

* Table 3 Excludes infrastructure charges, traffic management & onsite costs unless otherwise stated.

5 CONCLUSIONS

5.1.1 Utilities Constraints Plans have been prepared (Drawing SH11739-019-C) to show the location of existing utilities apparatus which need to be considered to inform the development of the masterplan and detailed design.

5.1.2 The developer is responsible for the associated diversionary and service disconnection costs, with the affected apparatus owner following the identification of any required works.

5.1.3 Further consultation with the utility providers and both intrusive and non-intrusive surveys will be required to verify the location and status of any assets affected by the development.

5.1.4 Analysis of the results of non-intrusive and intrusive surveys will provide enough detail, to be able to specify the precise reinforcement and alteration requirements for each utility as the masterplan is developed into detailed design. We recommend contact be made with the affected utility providers at the detailed design stage to establish any constraints associated with accommodating the development proposals, to determine actual cost for diversion and any disconnection of live apparatus as well as assessing existing private service connections.

5.1.5 WA would recommend avoiding the diversion of the Cadent High-Pressure gas apparatus. Further consultation with utilities providers will be required at the detailed design stage to confirm requirements once a masterplan is available.

5.1.6 Further contact with the utilities' providers will be required at the detailed design stage to confirm the diversion requirement.

5.1.7 United Utilities, Electricity North West and Cadent Gas have confirmed there is capacity to connect the proposed development from the local network without reinforcement. However, infrastructure will need to be laid off-site from the points of connection to the Site.

5.1.8 In conclusion, the information provided by the utilities' companies to date, confirms that connection to the utilities networks is feasible with respect to the proposed development.

APPENDIX A

Existing Services Plans – Electricity – Electricity North West Limited

Electricity North West
Data Management,
Electricity North West
Linley House
Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk
Web: www.enwl.co.uk

Mr John Scullion
Wardell Armstrong
2 Devon Way Longbridge
Birmingham West Midlands
B31 2TS

Our Reference: 14282994

Your Reference: Warrington MSA

Dear Mr John Scullion

Electricity Network Plans

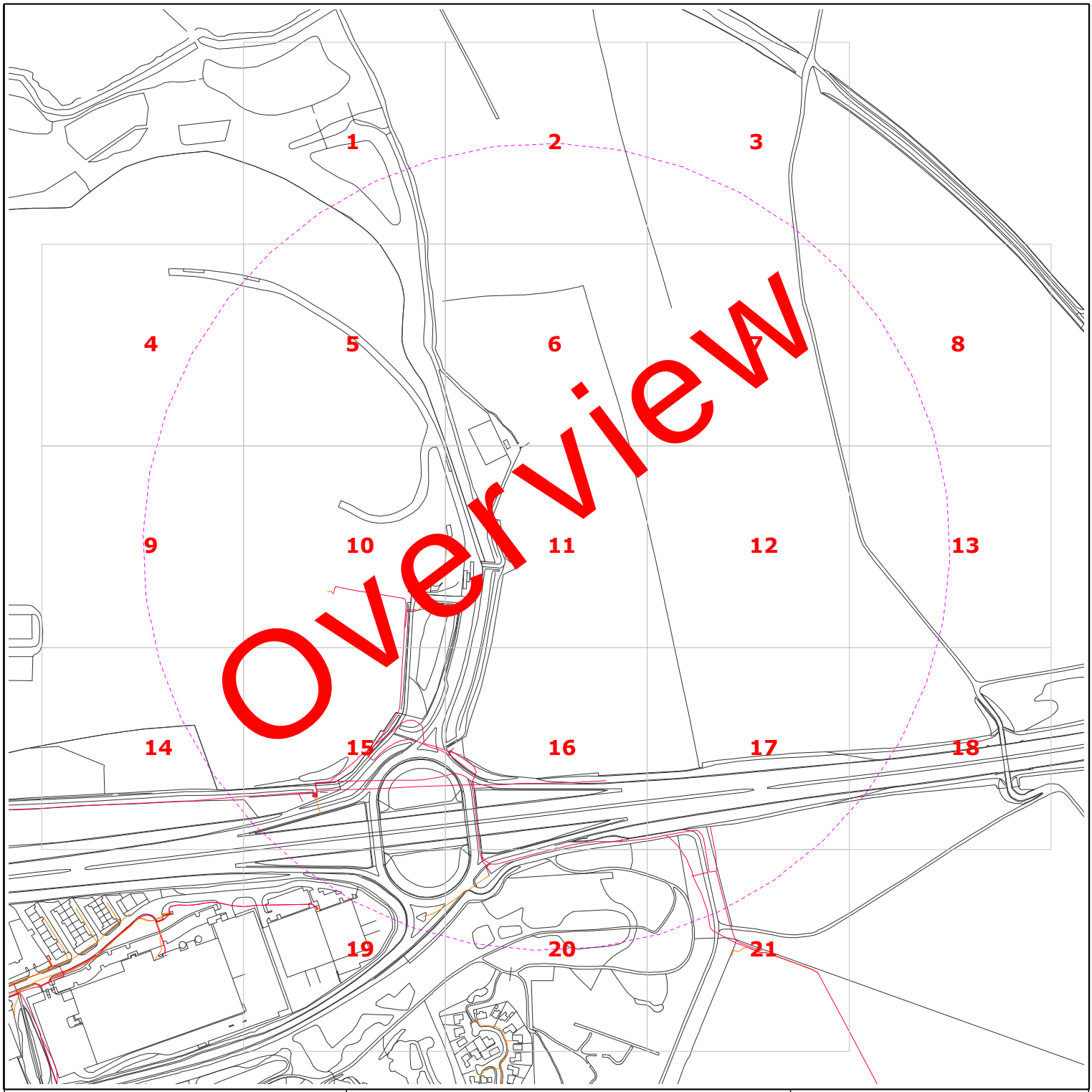
I acknowledge with thanks your request dated 27/11/2018 10:10:18 AM for information on the location of our services.

Please find enclosed plan(s) showing the approximate position of our apparatus known to be in the vicinity of this site.

I attach Conditions and information regarding electricity mains, which details contact numbers for additional services (i.e. new supplies, connections, diversion). In addition you should ensure they are made available to anyone carrying out any works which may affect our apparatus.

Yours sincerely,

Data Management



Requested by: John Scullion

Company: Wardell Armstrong

Date Requested: 27/11/2018

Job Reference: 14282994

Your Scheme/Reference: Warrington MSA

Dig Sites:

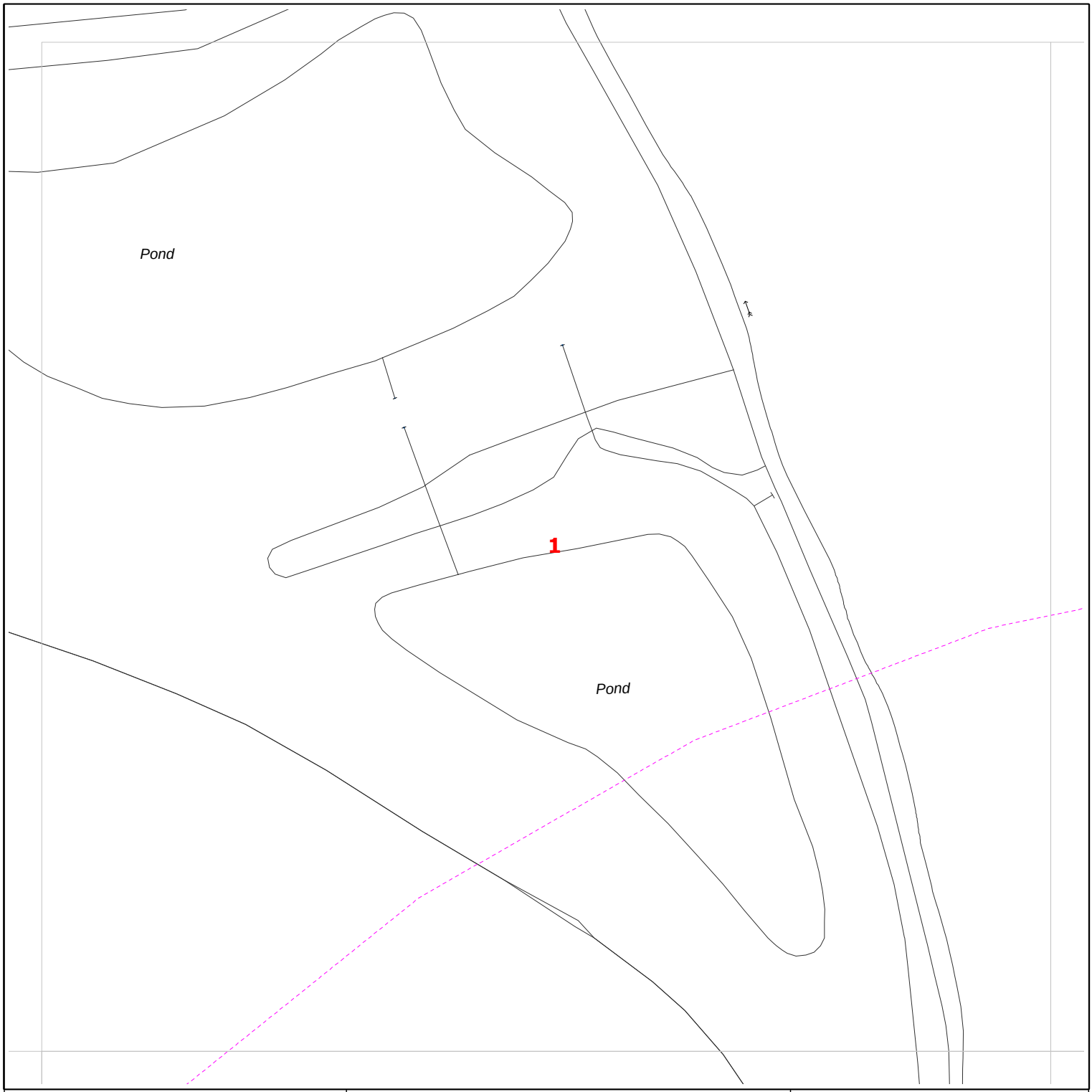
Area Line

Operating Voltage	Colour Code	Line Colour
132kV	Black	
33kV	Green	
22kV-25kV	Yellow	
11kV	Red	
6kV-6.6kV	Blue	
1kV-6kV	Violet	
LV	Orange	
Unknown Voltage	Brown	

electricity north west

Data Management
Electricity North West
Linley House
Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Scales on A4 paper:
1:1250 Area dig site
1:250 Line dig site



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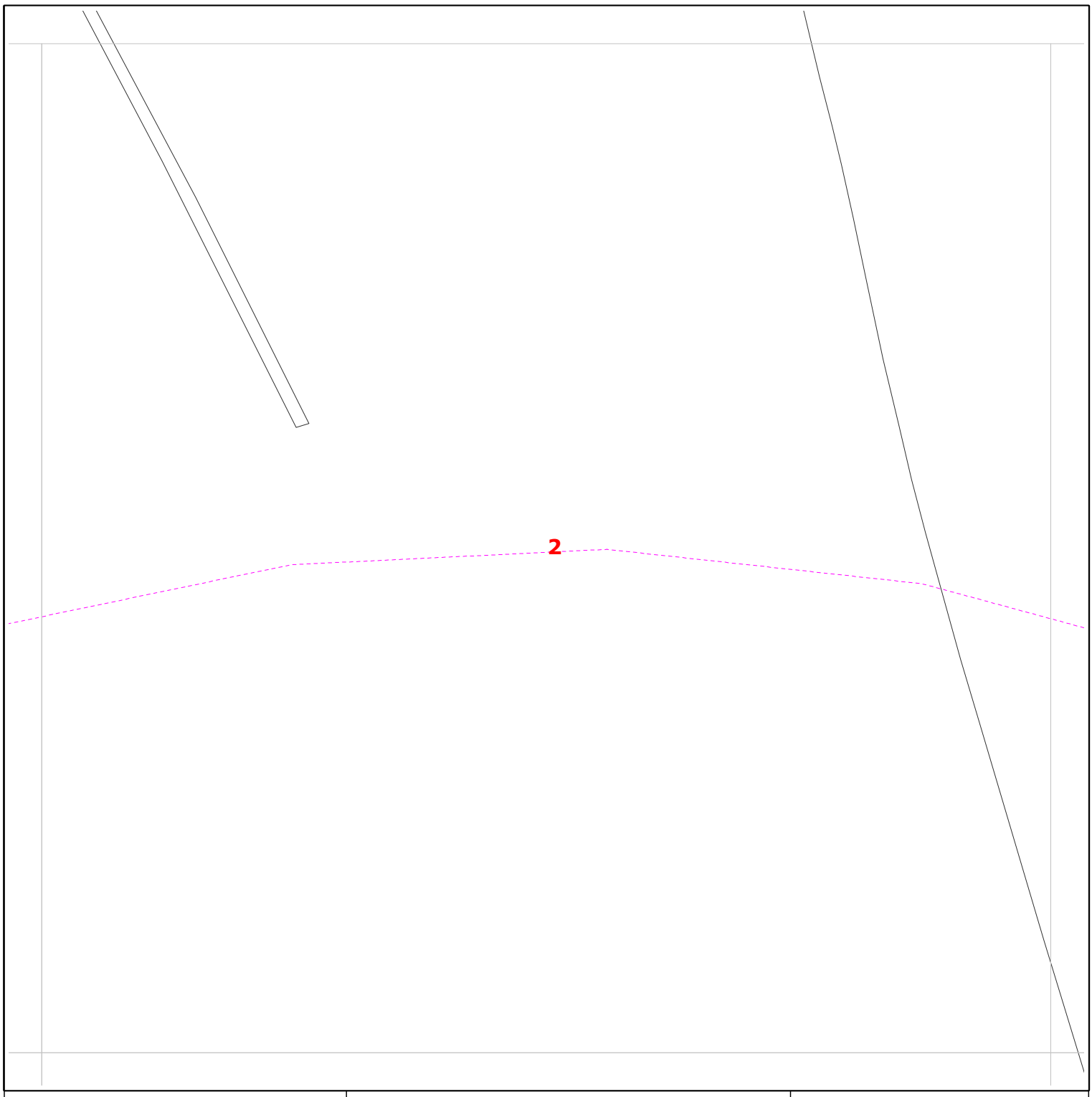

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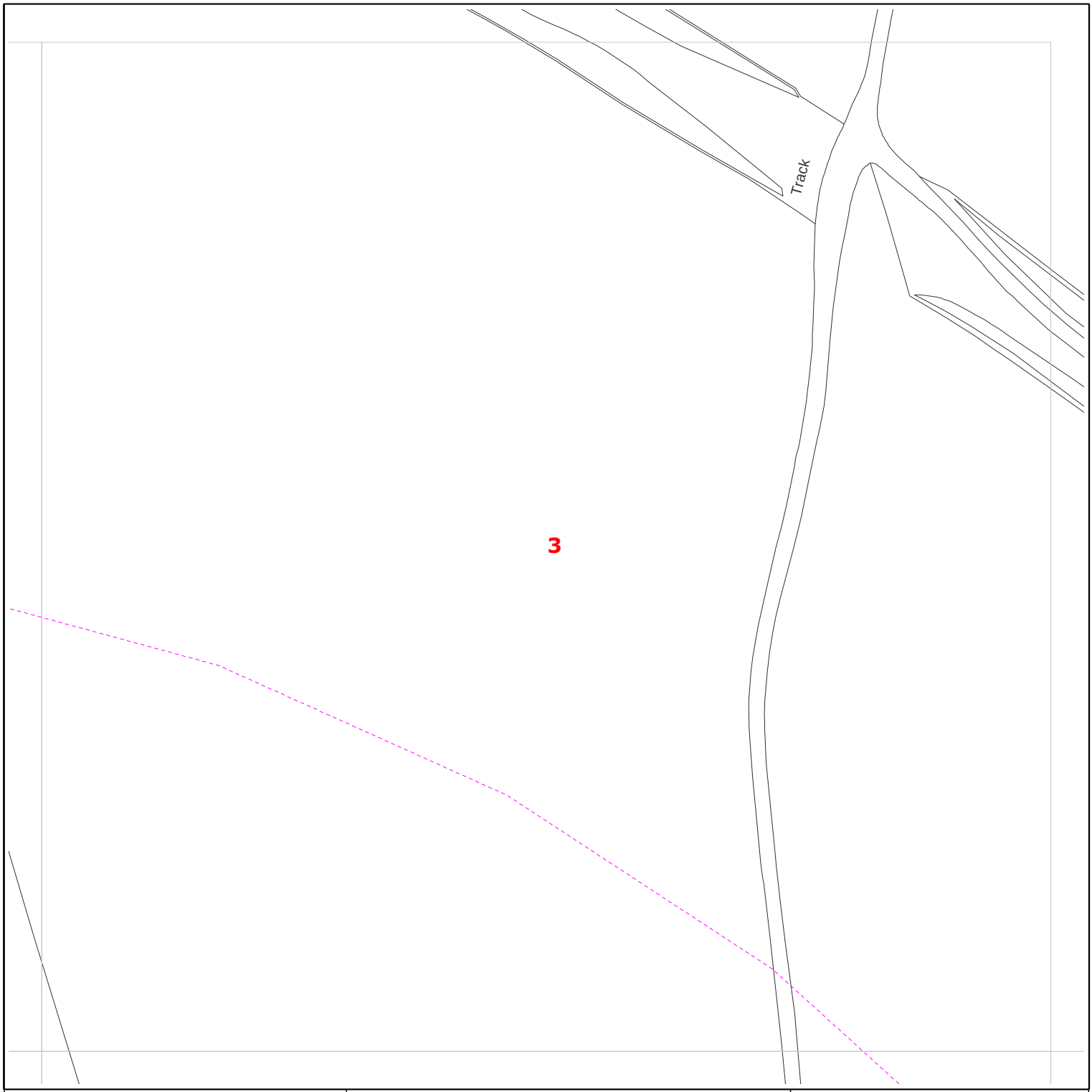

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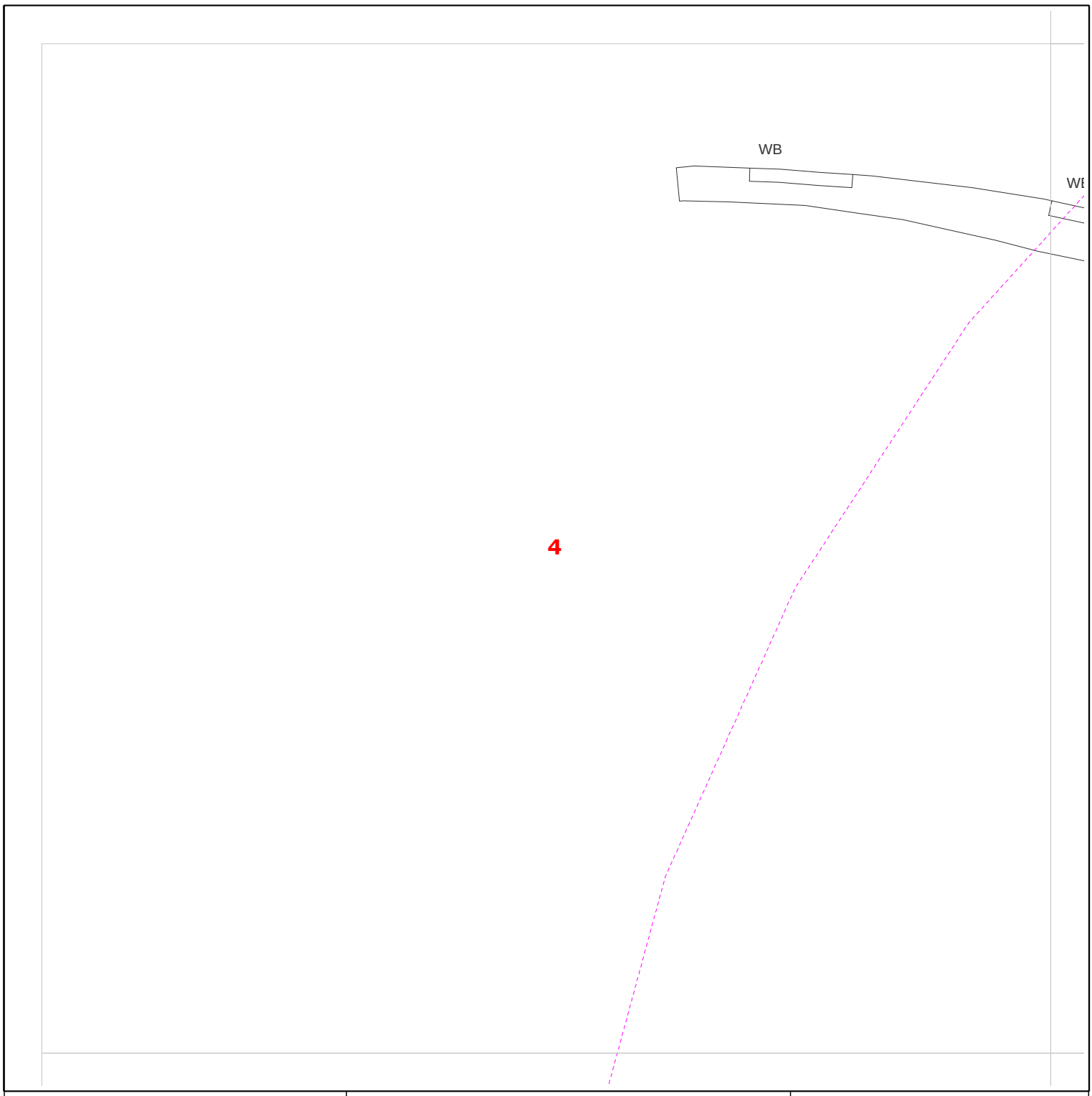

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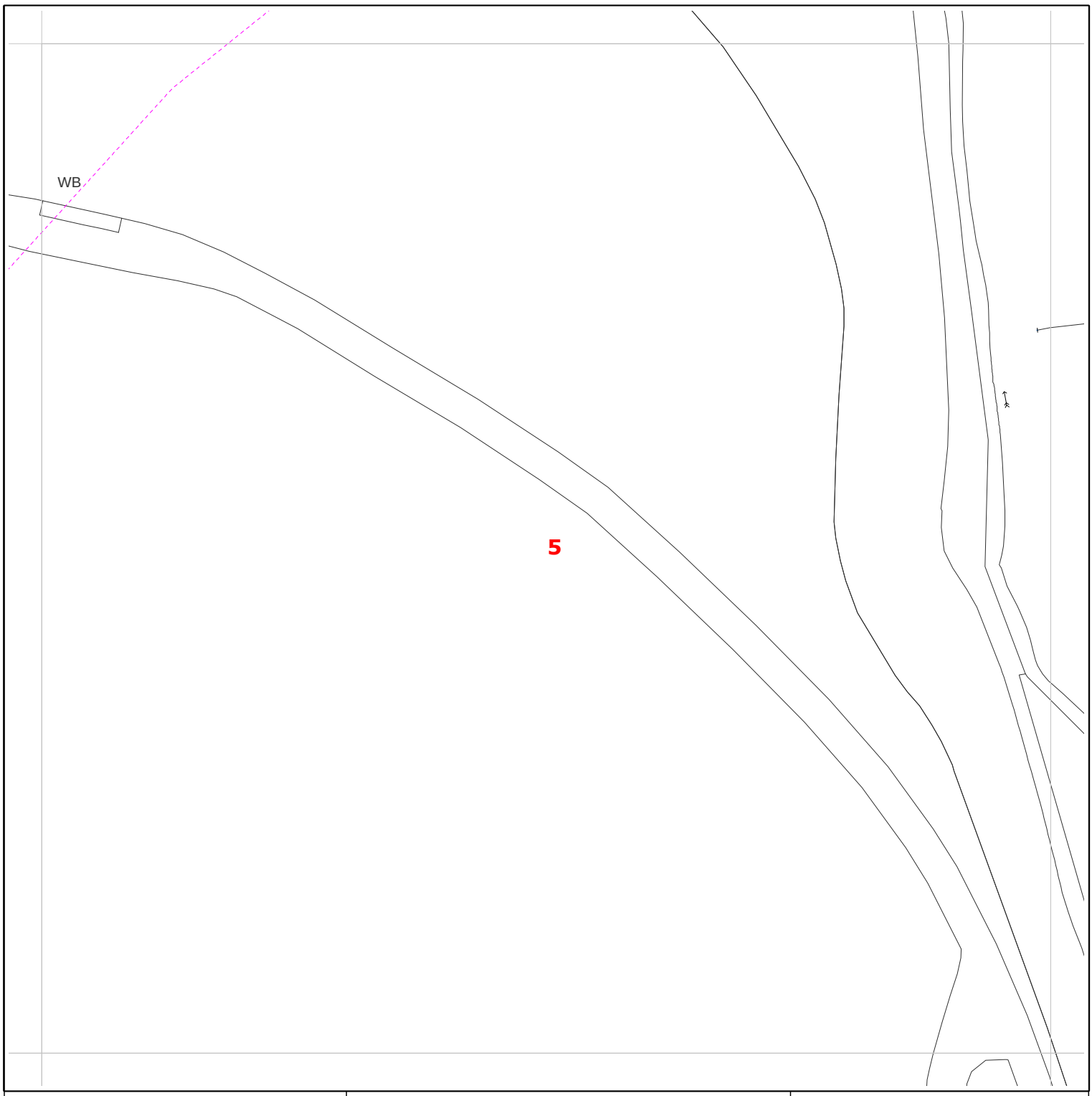

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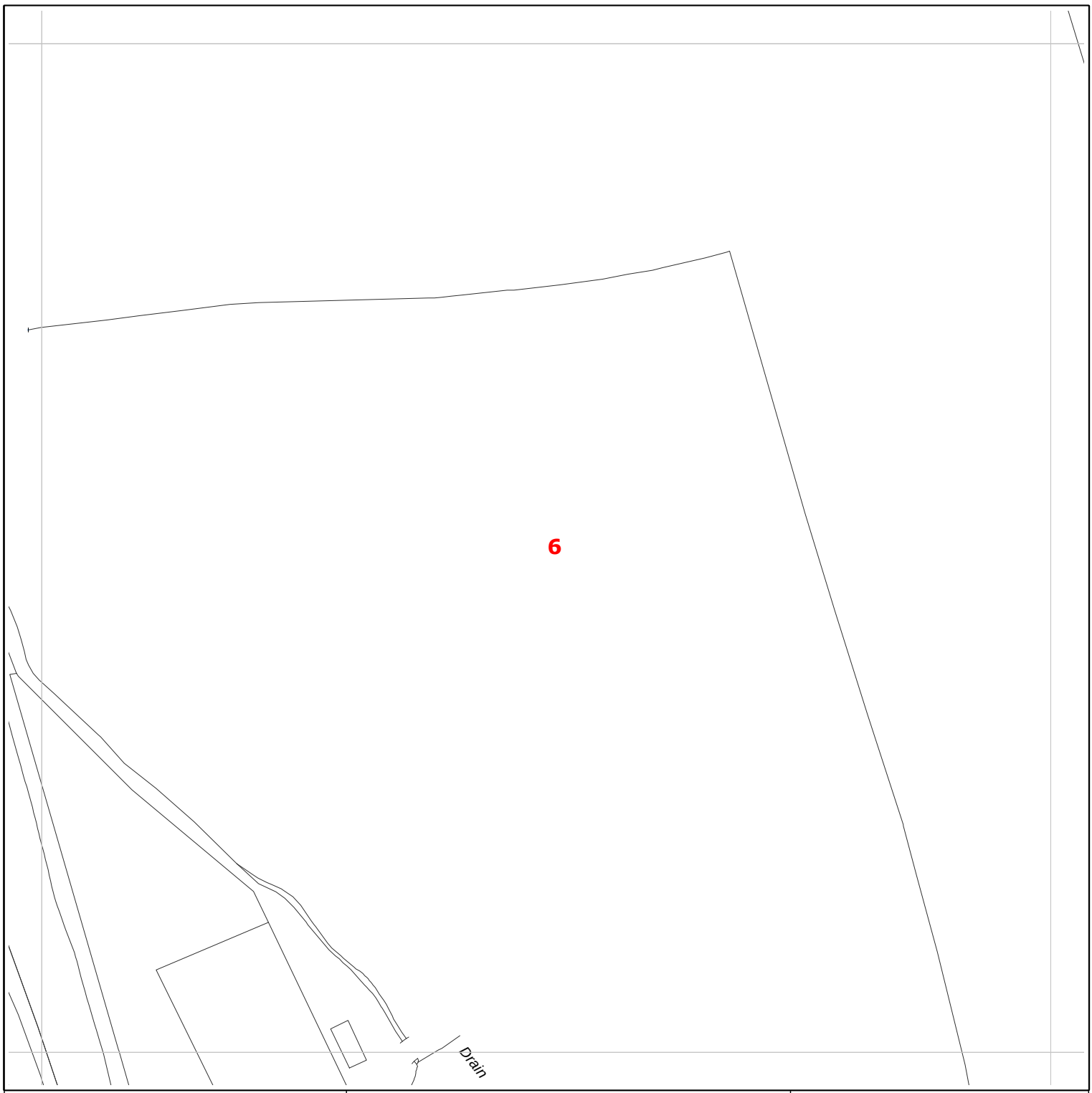

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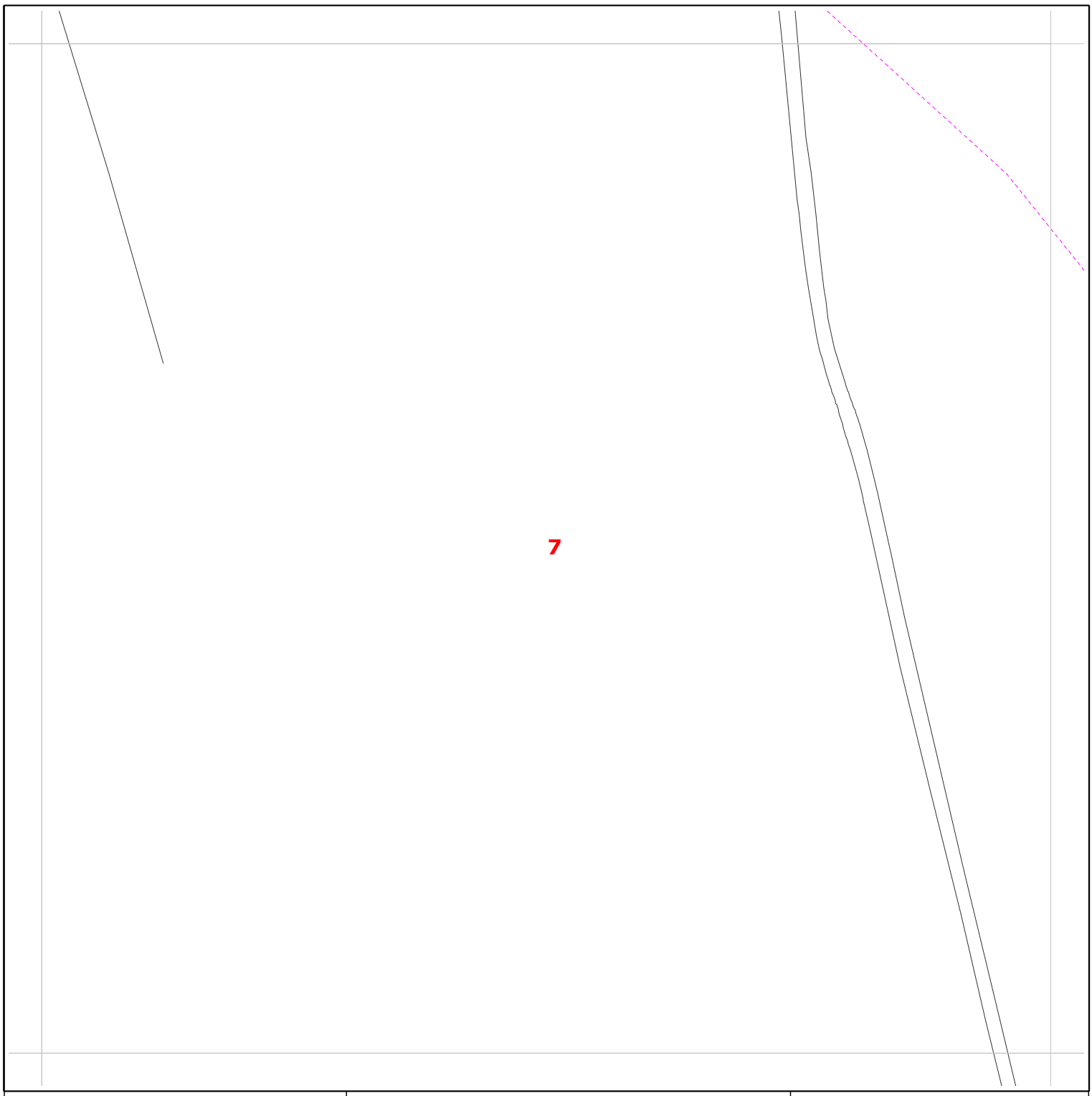

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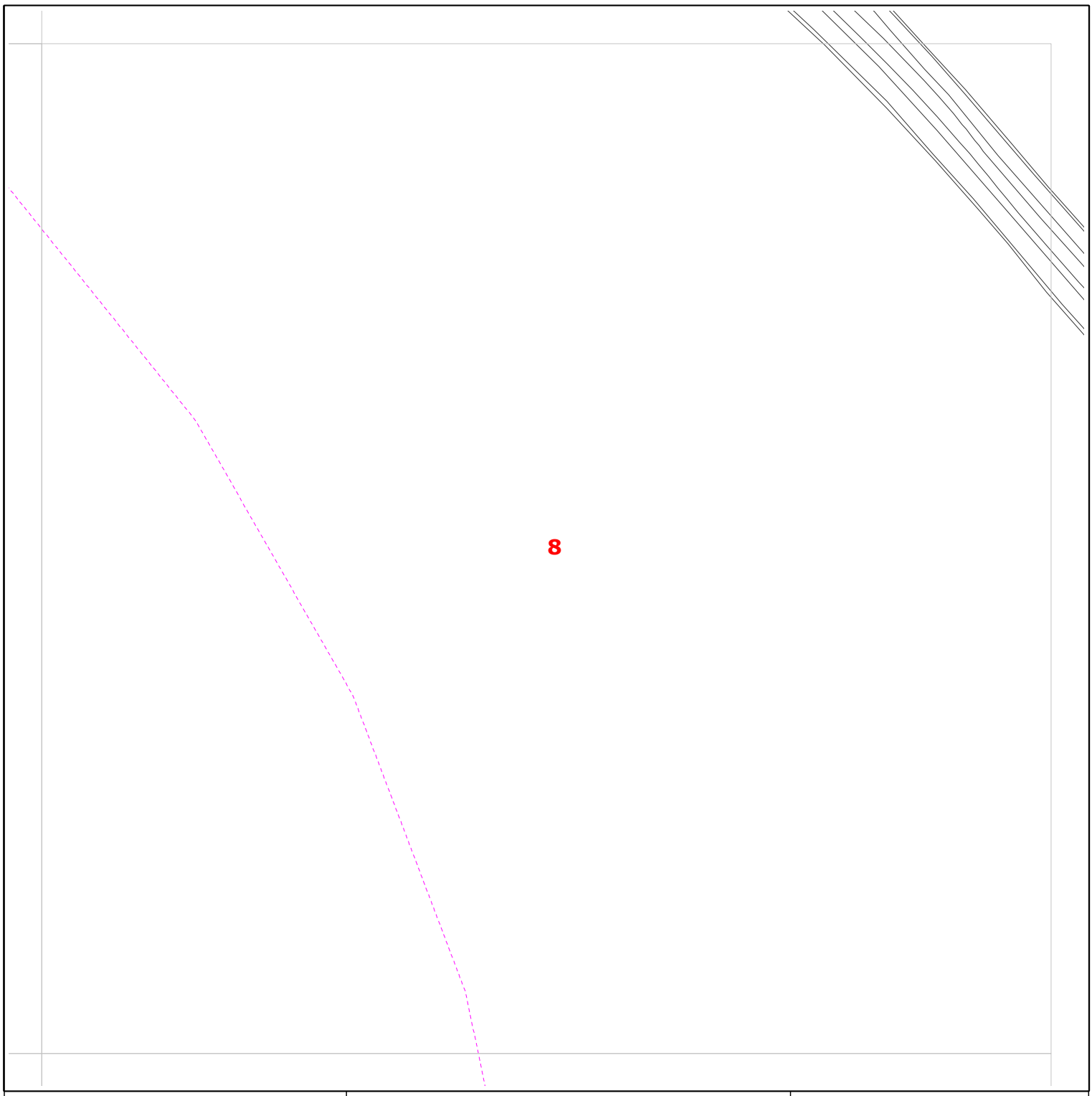


Requested by: John Scullion
Company: Wardell Armstrong
Date Requested: 27/11/2018
Job Reference: 14282994
Your Scheme/Reference: Warrington MSA

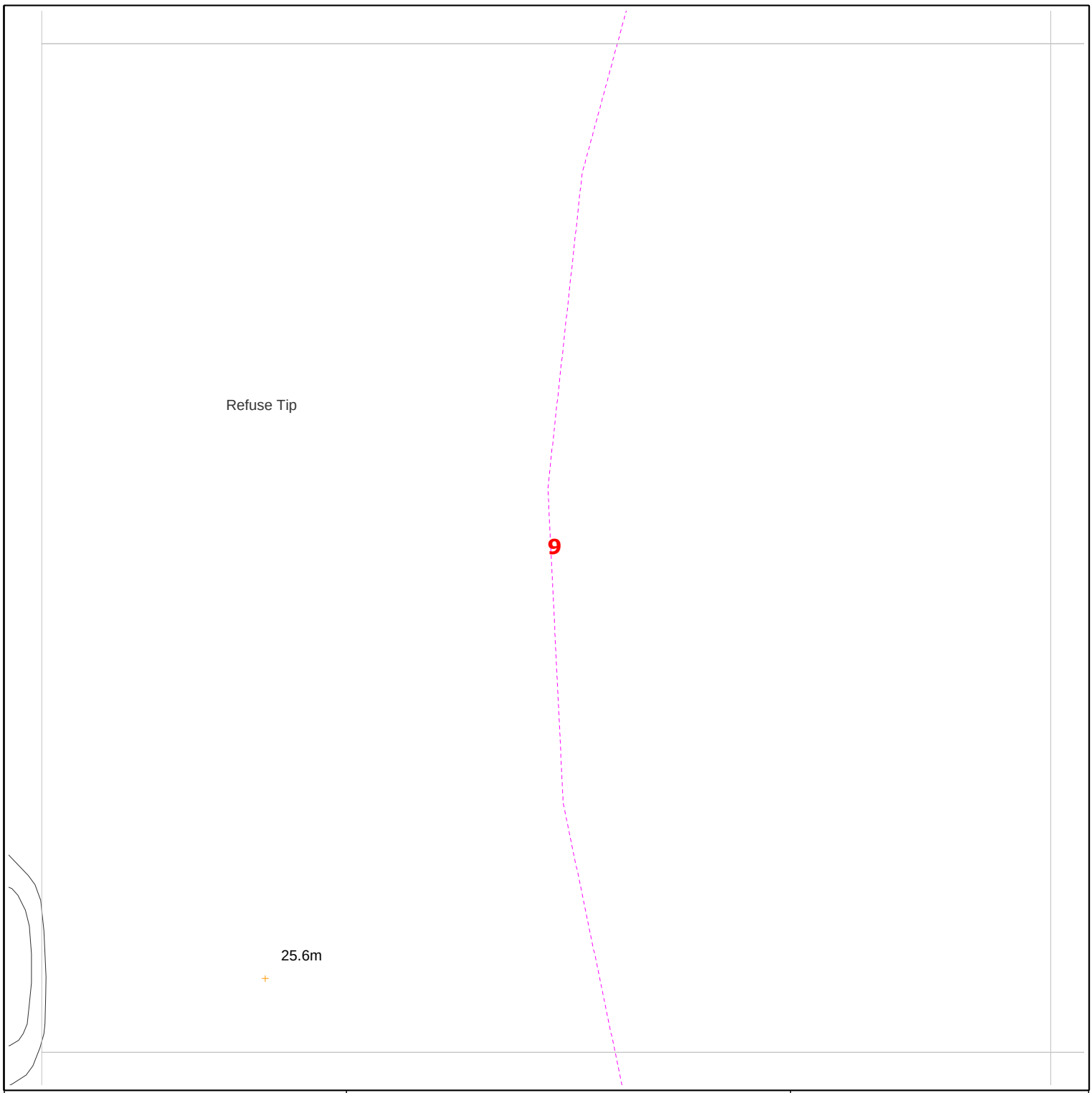
Dig Sites:

Area Line

Operating Voltage	Colour Code	Line Colour
132kV	Black	
33kV	Green	
22kV-25kV	Yellow	
11kV	Red	
6kV-6.6kV	Blue	
1kV-6kV	Violet	
LV	Orange	
Unknown Voltage	Brown	

Data Management
Electricity North West
Linley House
Dickinson Street
Manchester, M1 4LF
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Scales on A4 paper:
1:1250 Area dig site
1:250 Line dig site



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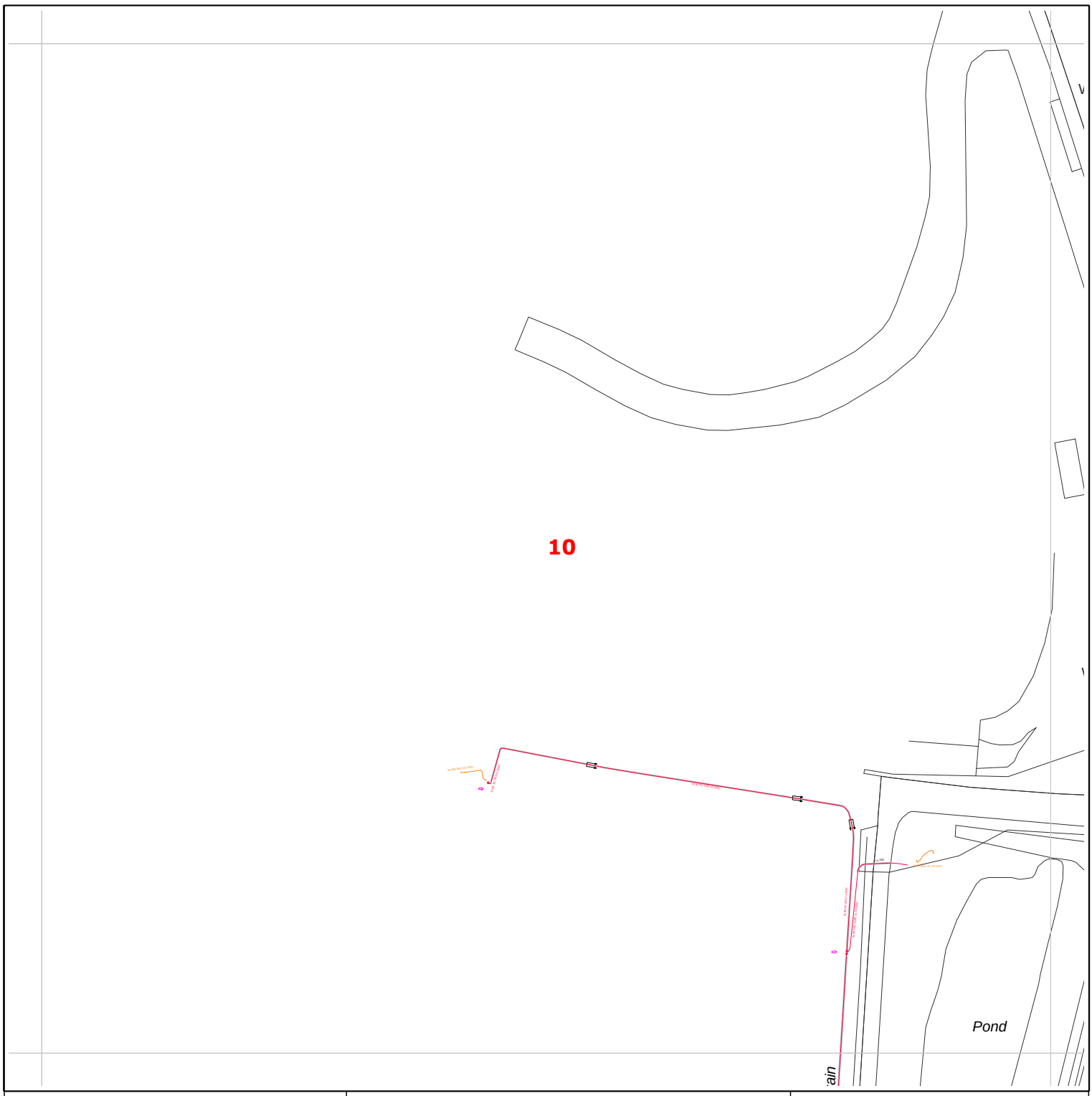

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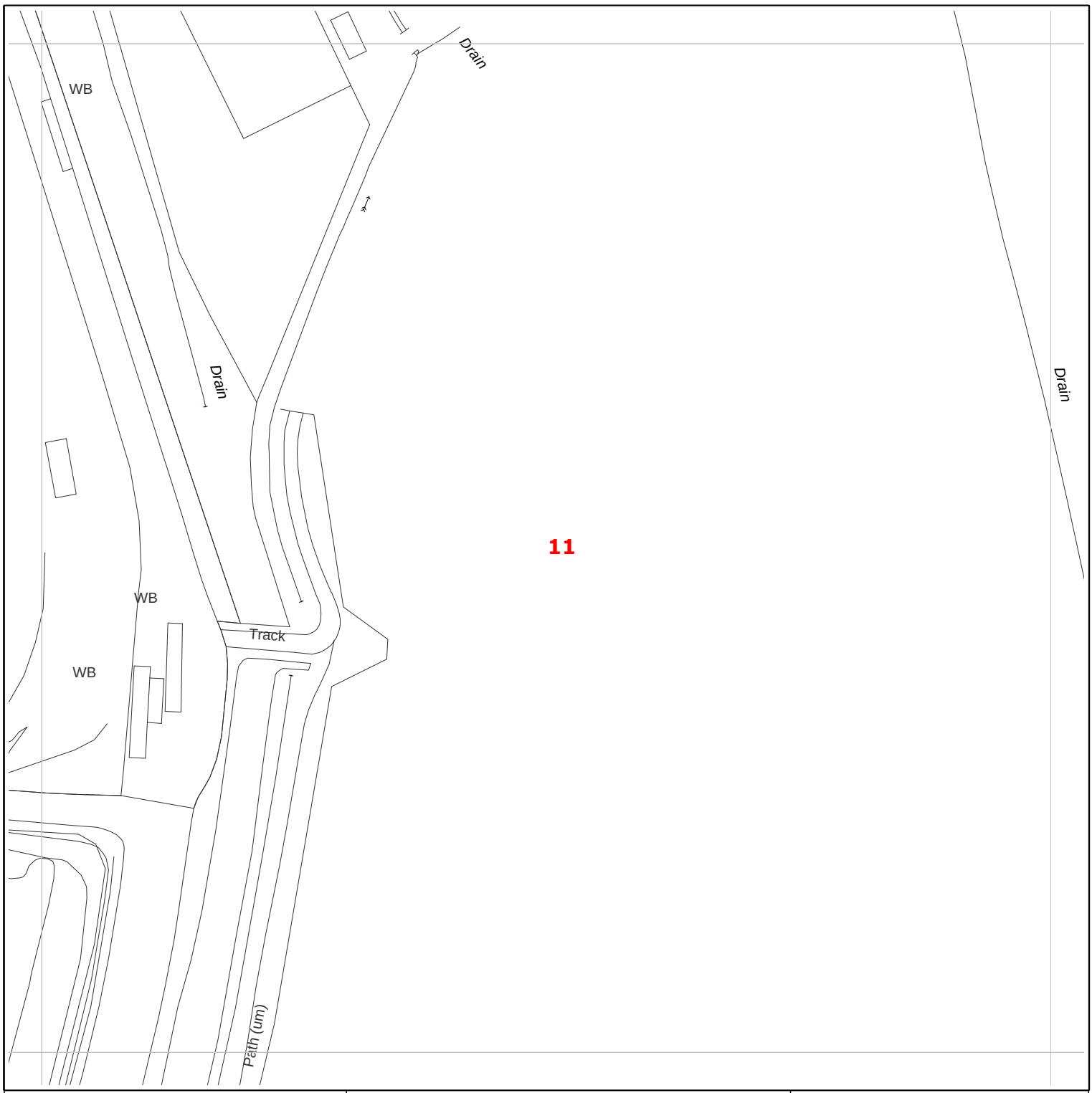

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electricity north west

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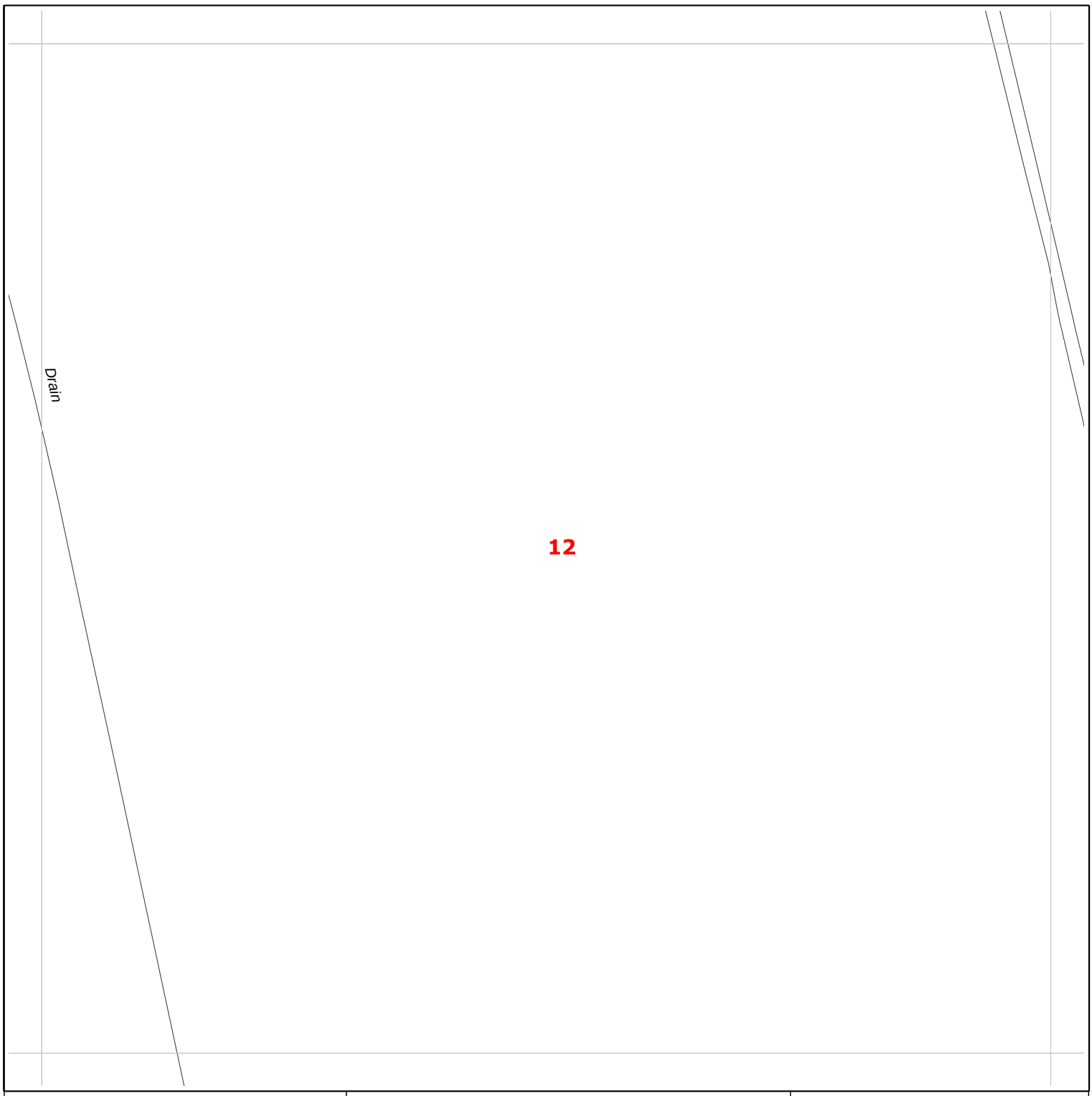

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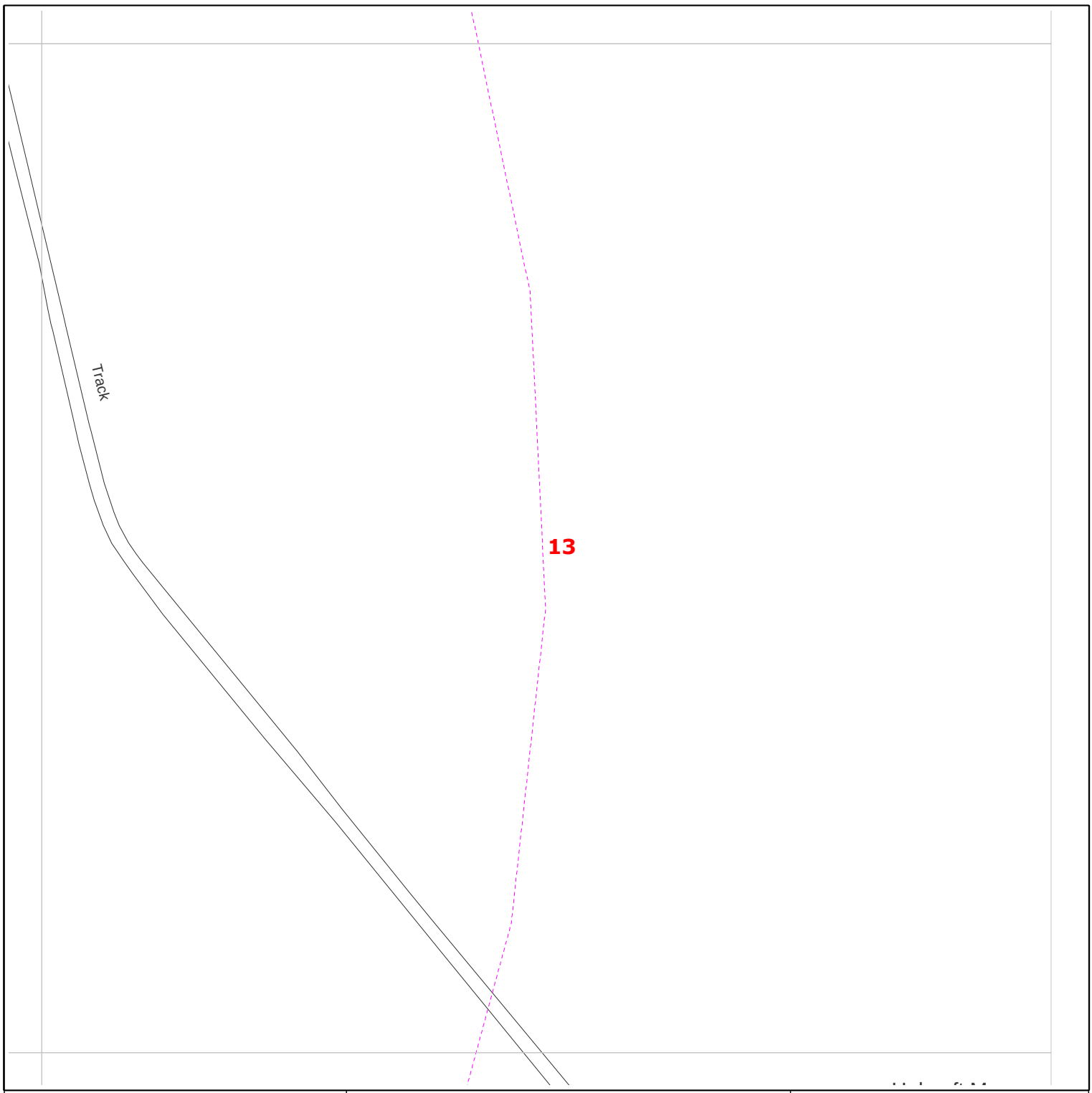

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electricity north west

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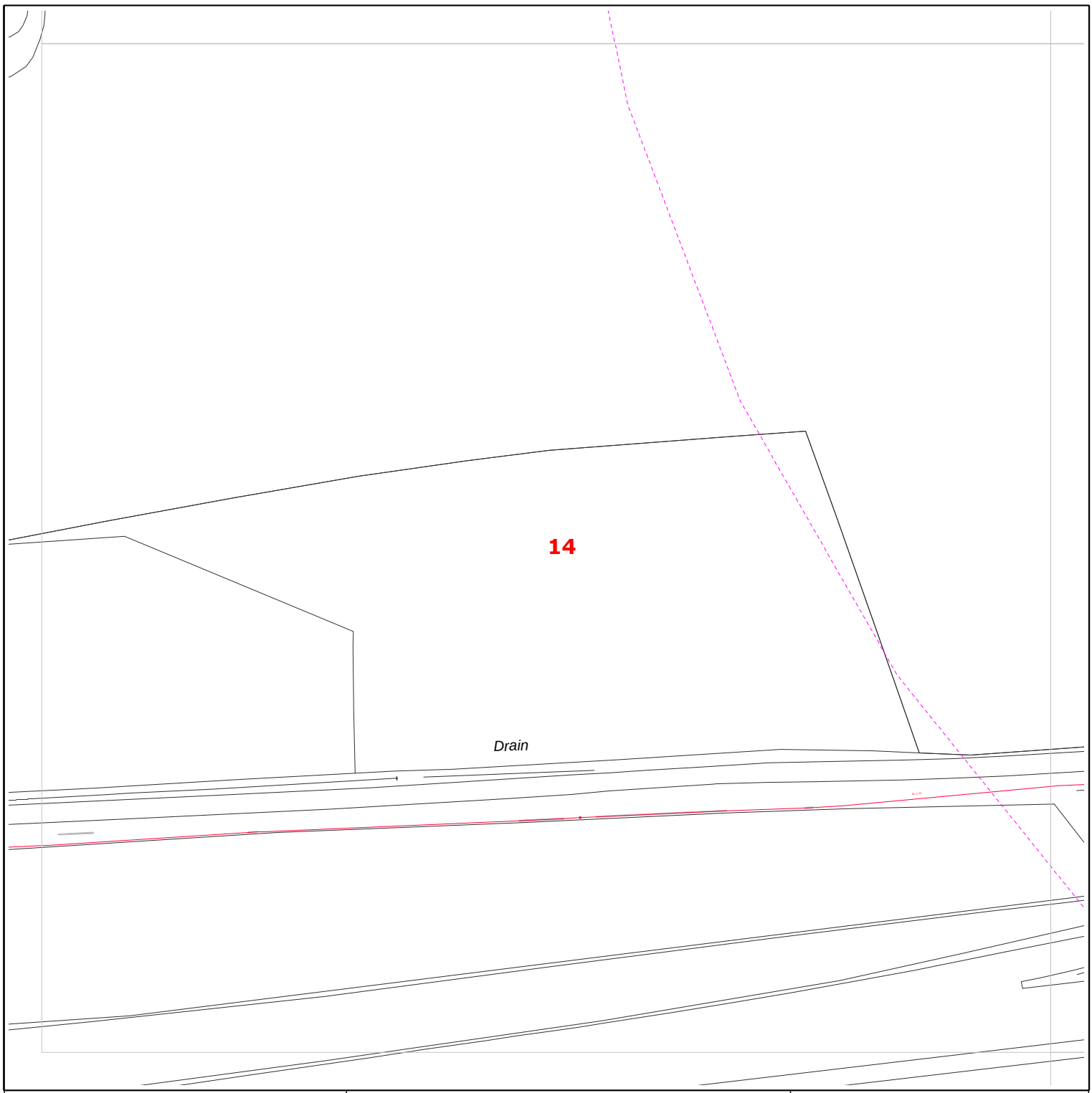

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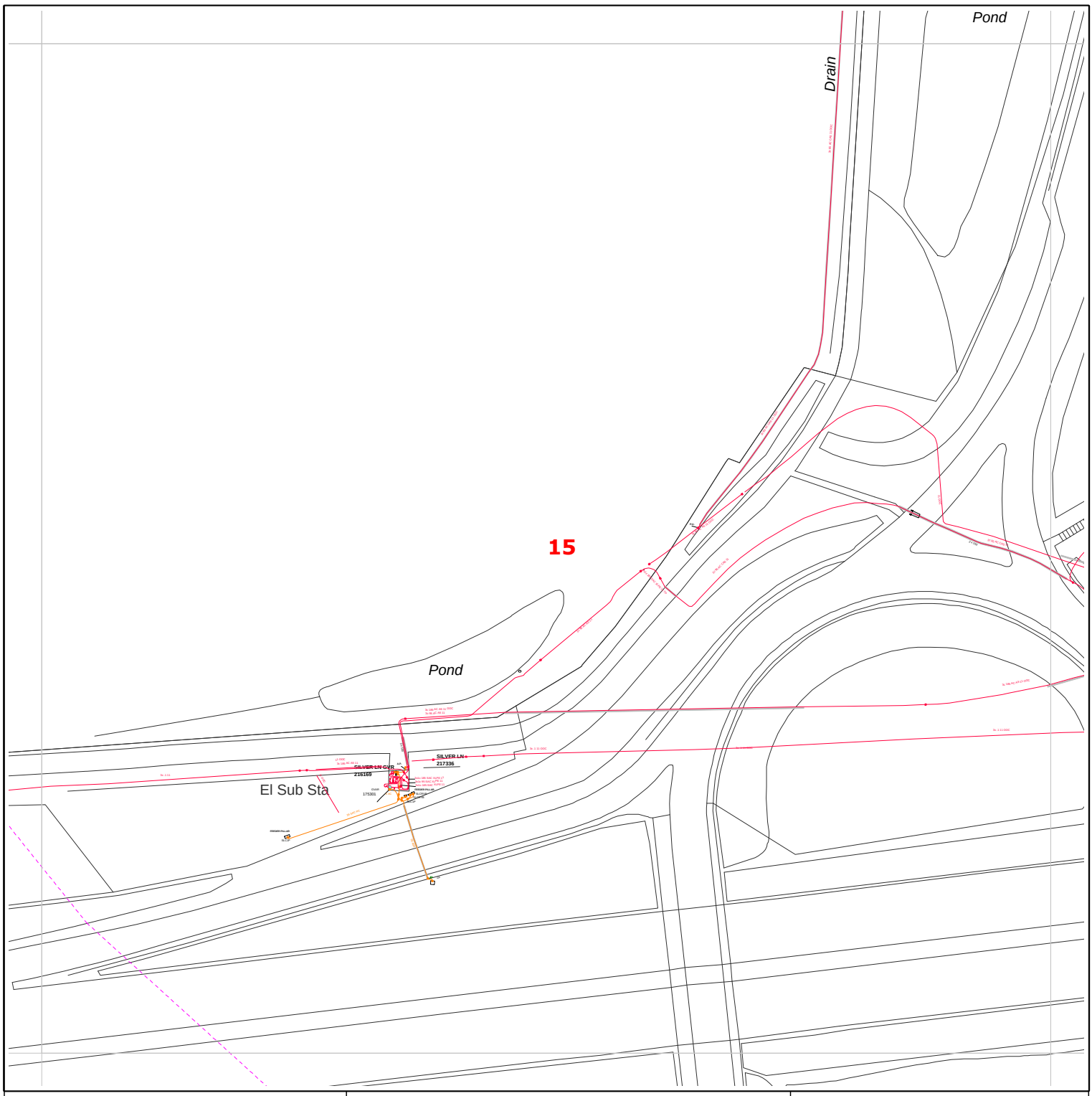

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electricity north west

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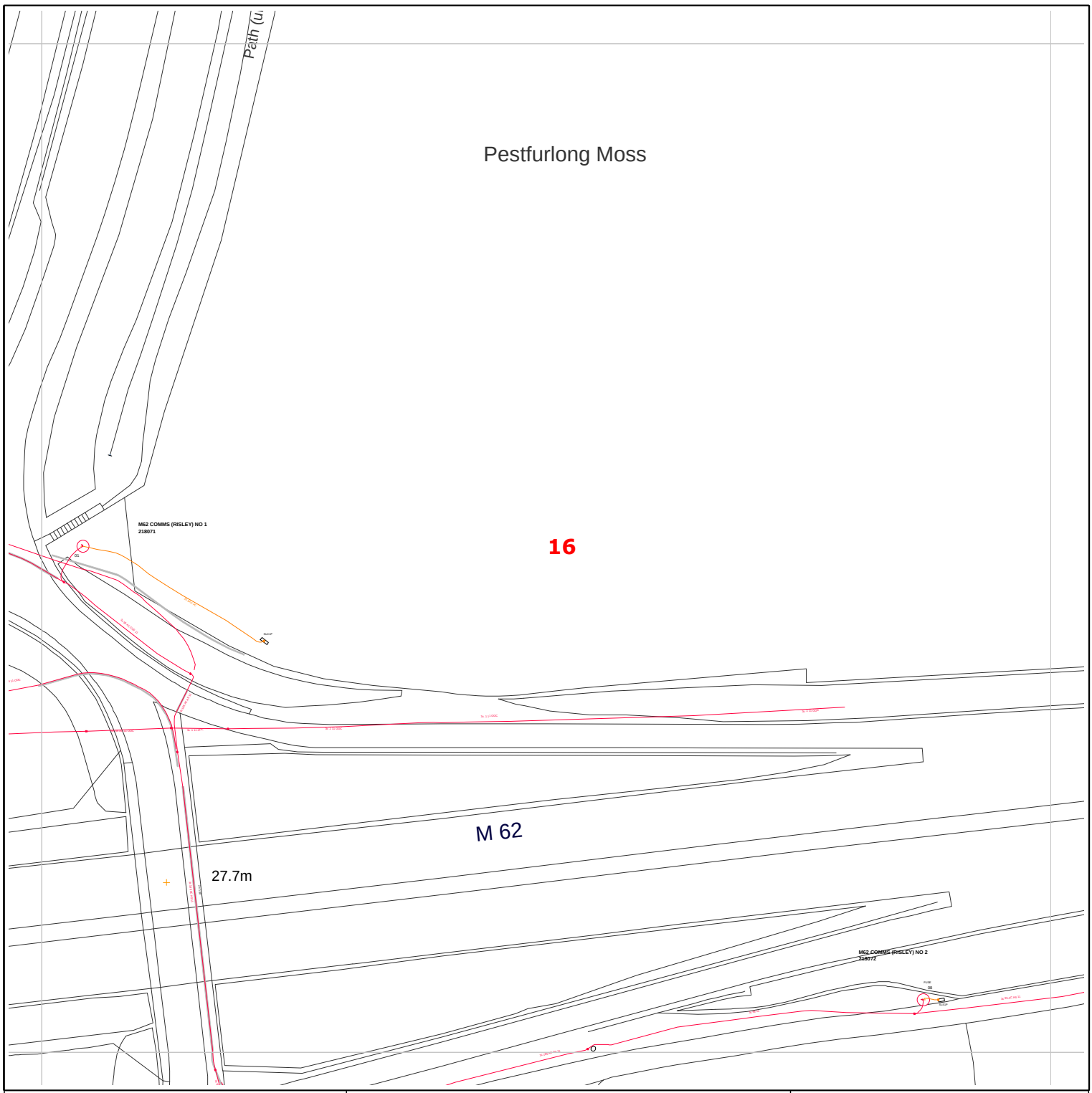

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electricity north west

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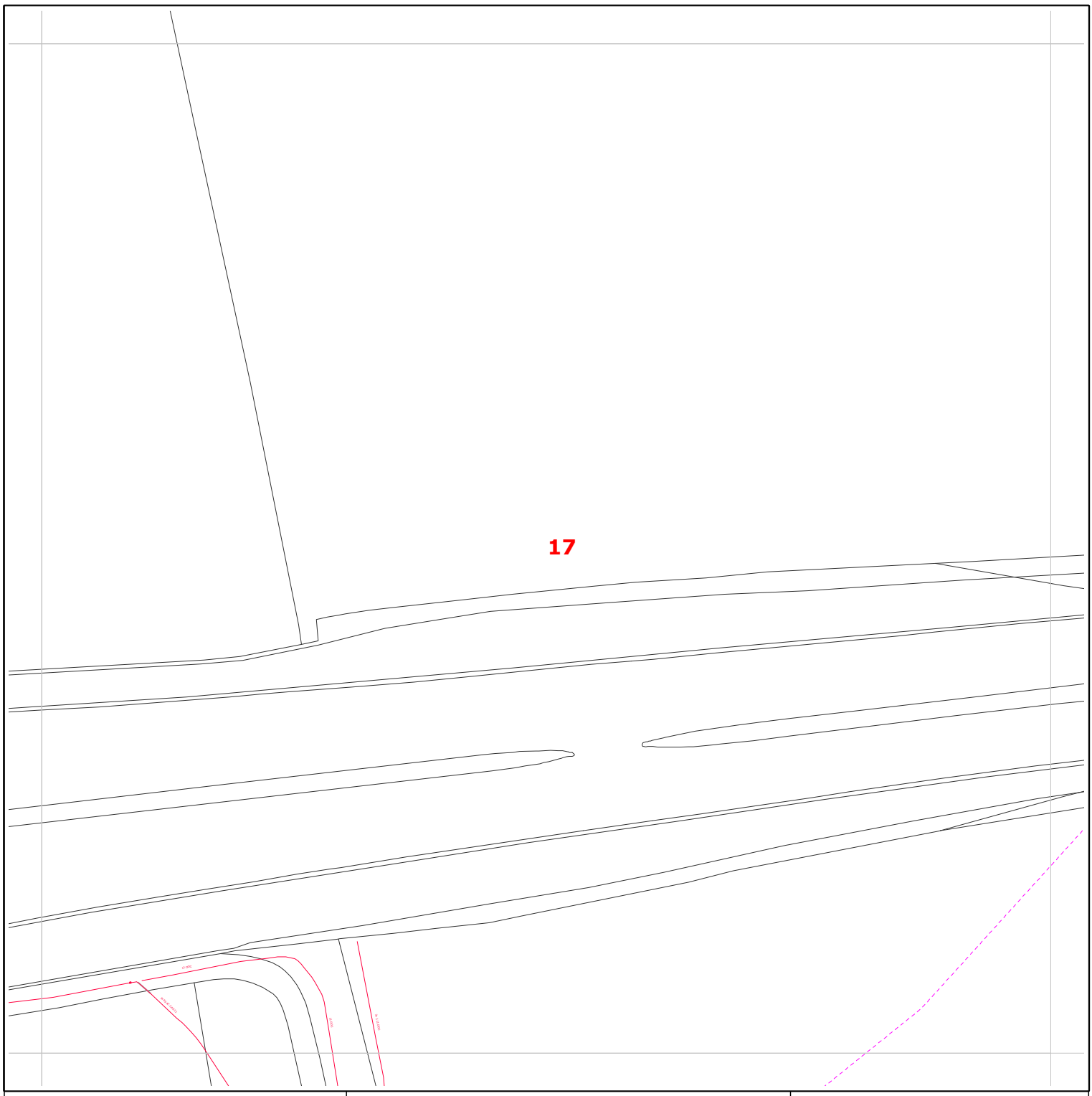

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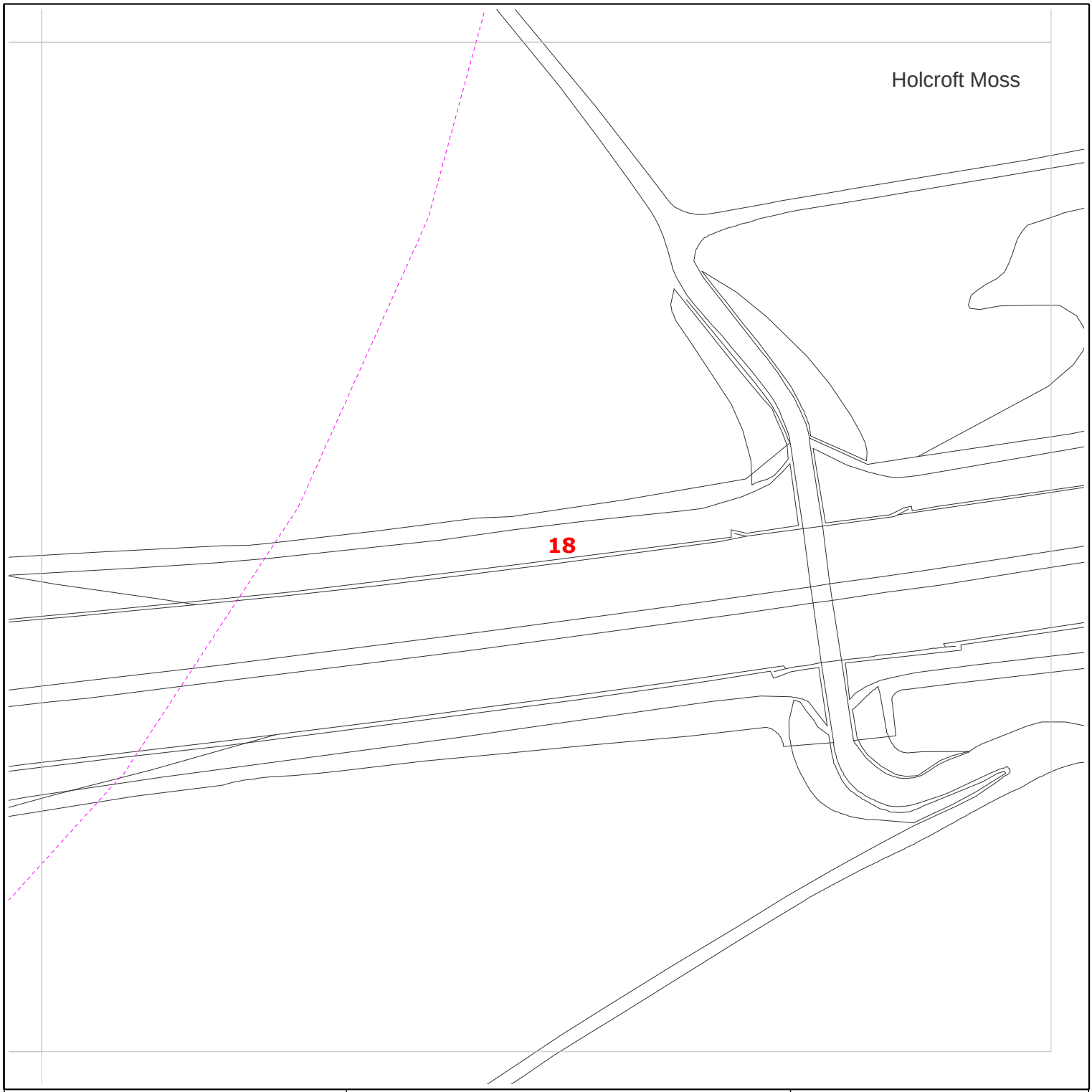

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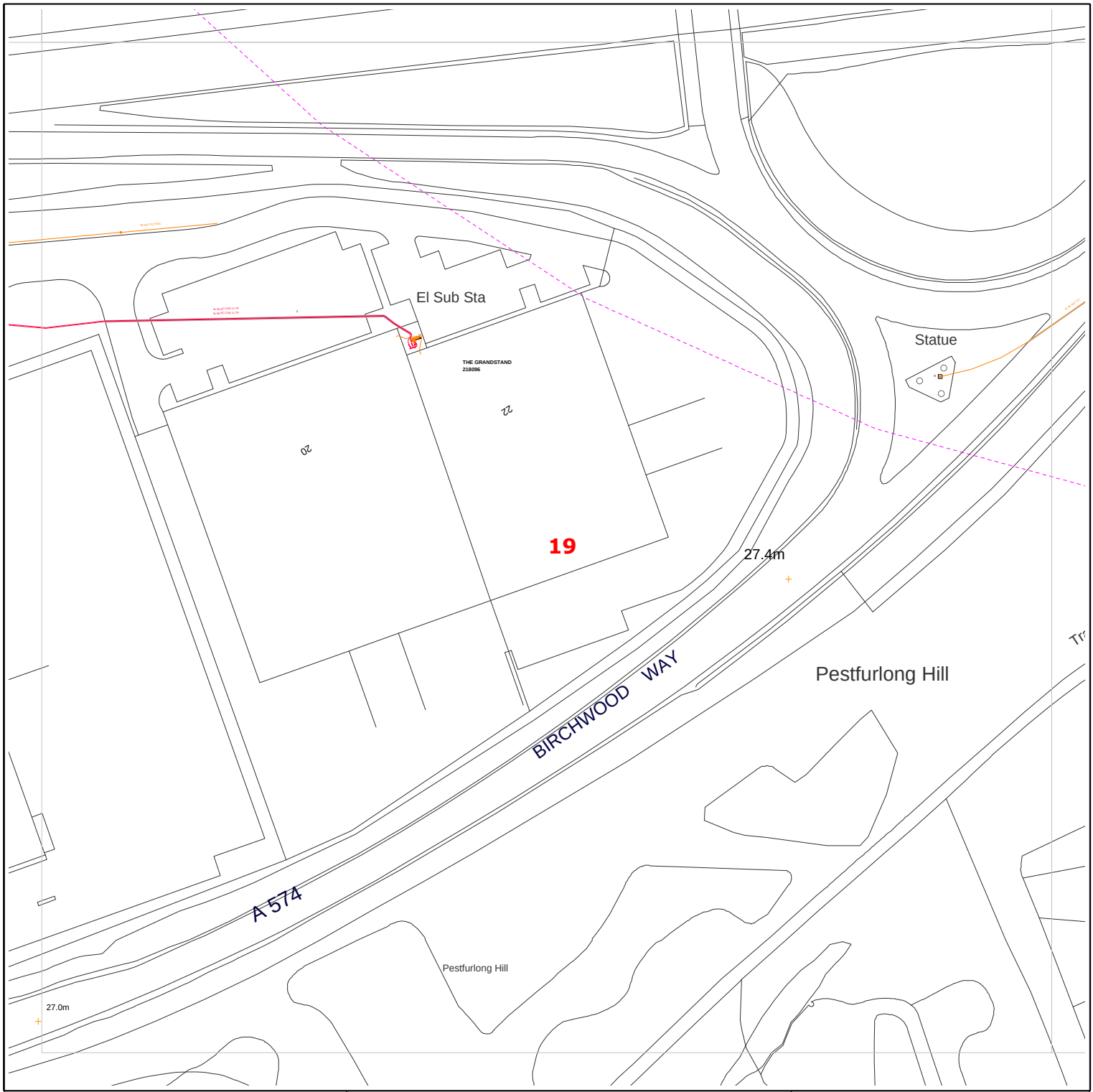

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electricity north west

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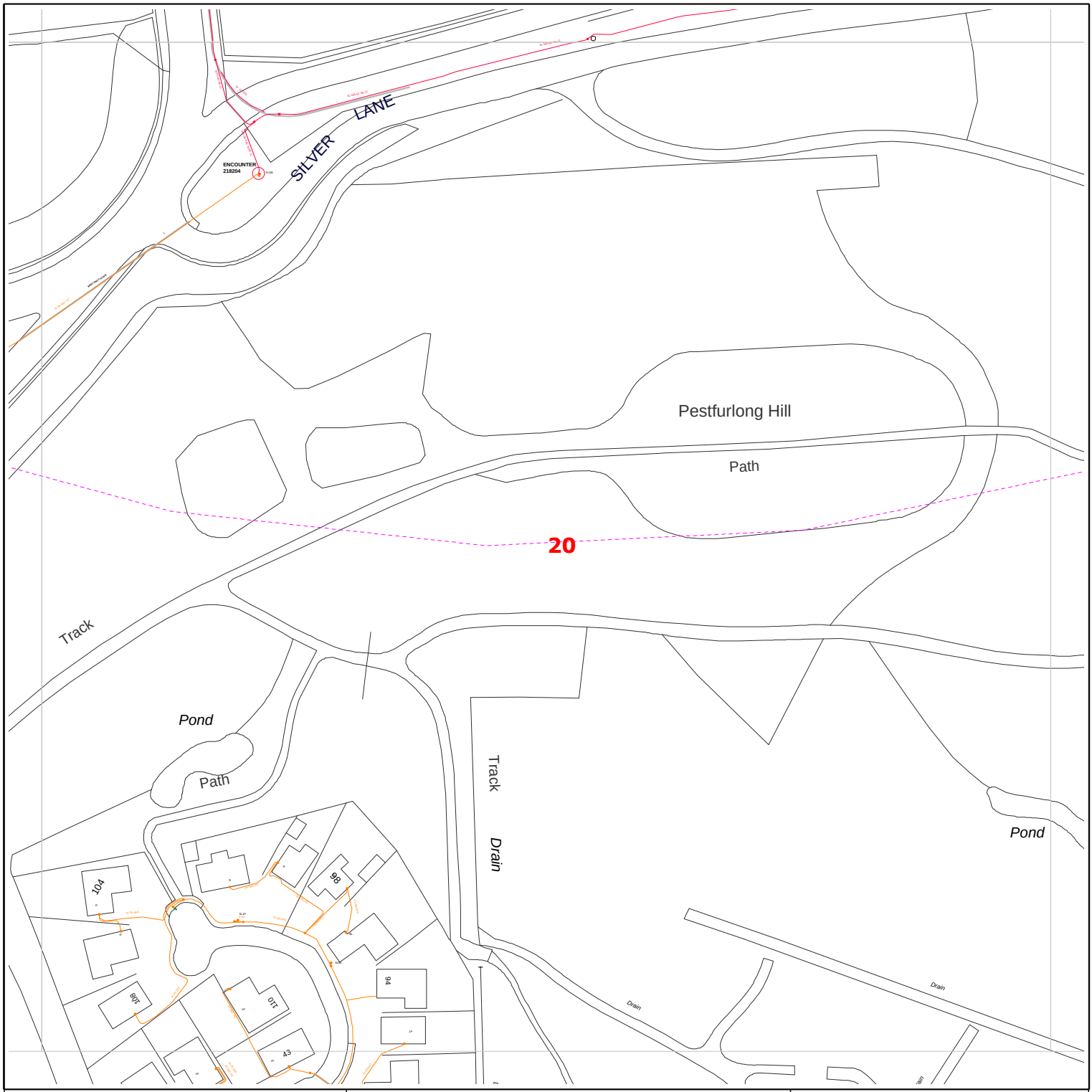

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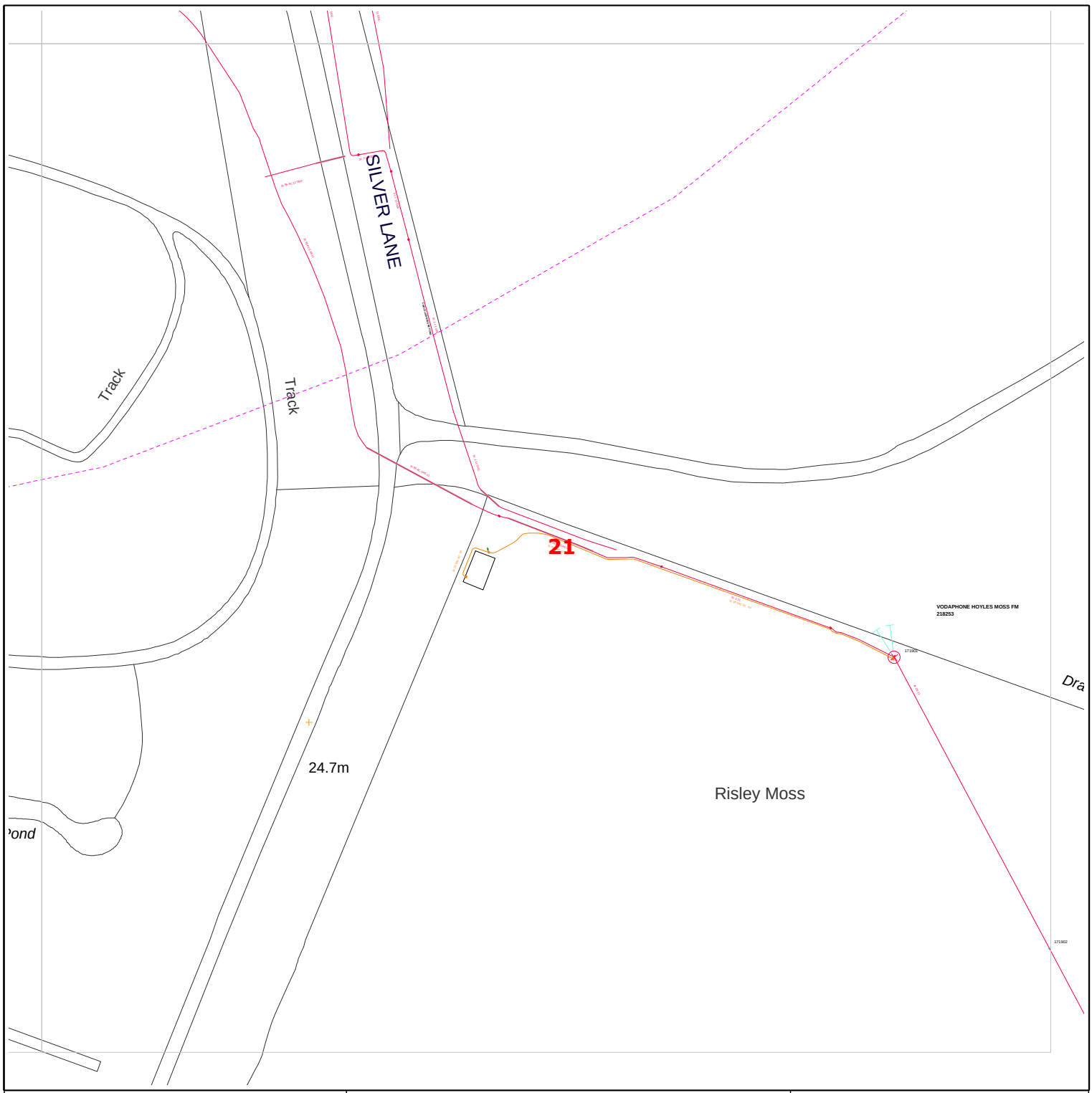

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electricity north west

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Conditions and information regarding electricity mains

These general conditions and precautions apply to the electricity distribution system of Electricity North West Limited.

Please ensure that a copy of these conditions is passed to your representative and contractor on site.

1. There may be other Electricity North West Limited apparatus in the vicinity, which is not indicated on the cable records. Other apparatus may also be present which a third party owns other than Electricity North West Limited

2. Before any machines are used all of Electricity North West's underground apparatus should be located by manual excavation taking the appropriate safety precautions in accordance with the **Health and Safety Executive Guidance note HS(G)47 "Avoiding danger from underground services"**. This contains advice to site personnel when working near underground services.

   Underground services, particularly electricity and gas, can be dangerous. Damage to electricity cables can cause a dangerous flash, leading to severe burns or even death. Gas leaks can cause fire or explosion.

   Damage can result from excavation or penetration of the ground, e.g. by a road pin.

   Underground services may be found in roads, footpaths and on sites. Always assume that they are present. Treat any services found anywhere as live.

   Accidents have happened because people have mistaken one service for another, e.g. black plastic covered electricity cables look like black plastic water pipes and cast iron gas and water mains look alike. Check before you act.

3. Before starting work you must:

   - Make sure you have plans of the underground services in the area. This may not always be possible for emergency or unforeseen works. **Remember that service connection cables and pipes from the main to building or streetlight may not be shown**.
   - Use a cable and pipe locator to trace electricity cables and metal pipes.
   - Look for signs of service connection cables or pipes, e.g. a gas meter or service connection entry into a house or a streetlight.
   - Hand dig trial holes (as many as necessary) to confirm the position of services in close proximity to the area of work.

4. When you start work:

   - Hand dig near buried services whenever possible. Spades and shovels are safer than picks, pins or forks.
   - Remember that cables may be embedded in concrete. Electricity cables embedded in concrete **must** either be made dead before the concrete is broken out or another safe way of working agreed with the cable owner.
   - Watch out for signs of services as work continues.
   - Report damage to a cable, pipe or pipe coating however slight.
   - Do not use hand held power tools within 0.5m of he marked position of an electricity cable, unless this is impracticable and the line of the cable has been identified by plans and positively confirmed by a locator.
   - Do not use hand held power tools directly over the marked line of cable unless:

     a) You have already found the cable at that position by careful hand digging beneath the surface and it is at a safe depth (at least 300mm) below the bottom of the surface to be broken, or

     b) Physical means have been used to prevent the tool striking it.

   - If an excavator is used near an electricity cable keep everyone clear of the bucket while it is digging. Buckets should not be used near cable – hand dig.
   - Do not use exposed services as a convenient step or handhold.
   - Do not handle or attempt to alter the position of an exposed service.
   - Do not install plant close to an existing service.
   - Do not build existing services into a manhole or other structure or encase them in concrete.

Would you also ensure that all site operators have this information and if any electrical apparatus is damaged, they/you should contact Electricity North West Limited fault desk on **0800 195 4141 (option 1)**

5. Overhead lines are not necessarily shown on the Electricity North West Limited cable records but may be present. In the event of work being carried out adjacent to overhead lines (including access, storage etc.) please always ensure strict adherence to the requirements of the **Health and Safety Executive's Document GS6 "Avoidance of Danger from Overhead Electric Lines"**.

   Extreme personal danger can result from contact, or near contact, with live conductors or overhead lines.

   Treat all overhead lines and other electrical apparatus as live. If in doubt, get advice.

6. Electricity North West Limited must be consulted if work is to take place within 15 metres of overhead lines on steel towers or 9 metres of overhead lines on wood, concrete or steel pylons. (All distances should be measure at ground level from a position estimated by eye to be vertically under the outermost conductor at a tower or pole position) Any person involved in work in the vicinity of overhead lines should:

   - Understand and follow the instructions given on safe working areas and methods of work.
   - Make sure that warning notices are in the cabs of machines working in the vicinity of an overhead line.
   - Make sure that barriers and warning notices are erected as required.
   - Not tip soil or stack material underneath overhead lines as this may reduce the clearance to an unsafe distance.
   - Make sure when handling or using platforms, scaffold, poles, piping, ladders, hand tools etc., that they are kept at a safe distance from overhead lines.
   - Not steady a suspended load, skip, hoist wire, slings etc., unless satisfied that there isn't any danger from overhead lines.
   - Remember that when mobile plant, such as a crane or excavator, is operating near overhead lines , the raising or slewing of the jib may introduce danger.
   - Always keep overhead lines in view when manoeuvring mobile plant.
   - Never operate a machine unless carefully guided by an experienced banksman.
   - Not approach or touch any broken or fallen conductors or any plant in contact with an overhead line before Electricity North West Limited confirms that conditions are safe. Warn others to keep well clear.

   Machine operators should note that: if a machine comes into contact with an overhead line and cannot be disentangled by backing off, remain seated in the cab and warn others to keep clear of the machine until Electricity North West Limited confirms that conditions are safe. If it is essential to leave the machine while it is in contact with the overhead line, for example if it catches fire, jump well clear – and **do not** attempt to climb down in the normal way nor touch any part of the machine when on the ground.

7. Electricity North West Limited provides approximate locations of its electricity mains or apparatus according to its records but these records are not necessarily accurate or complete and do not always show the position of private cables from mains to properties. No person or company shall be relieved from liability for any damage caused by reason of the actual positions and/or depths being different from those indicated.

8. Care should be taken when excavating near cables. Known road crossings are highlighted on the enclosed plans. Should any cable, or Electricity North West Limited apparatus indicated on the attached plans, be affected by your proposals please contact us as follows:

   Data Management
   Linley House
   Dickinson St
   Manchester
   M1 4LF

   Telephone: **0800 195 4141 (option 2)**

   Details of diversion costs, if any, will be provided on request once your firm proposals have been submitted.

9. Please note that service cables may be affected by some of the works being carried out on site.

   If any services do require temporary disconnection please phone **0800 195 4141 (option 2)** for domestic and commercial disconnection, so that arrangement can be made to disconnect before work commences on site.

10. For information regarding supplies please contact us on **0800 195 4141 (option 2)**.

11. Please note that cable records supplied may not be up to date, or may be incomplete, if the area concerned is a new site.

12. For information regarding wayleave or easement agreements contact:

Manchester	**08433 115157**
Preston	**08433 113969**
Kendal	**08433 115155**

13. The latest cable records are always available for inspection during normal working hours and you should satisfy yourself that the information you have is up to date at the time you commence work. This service is consistent with the requirement of Regulation 36 of the Electricity Supply Regulations and paragraph 79 of the New Road and Street Works Act.

    Please contact Data Management on **0800 195 4141 (option 2)** to arrange an appointment to view the records.

304 Bridgewater Place
Birchwood Park
Warrington
WA3 6XG

www.enwl.co.uk

APPENDIX B

Existing Services Plans – Potable Water – United Utilities

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Wardell Armstrong

2
Devon Way,
Birmingham,
B31 2TS

FAO:

Your Ref: Warrington MSA
Our Ref: UUPS-ORD-72378
Date: 26/11/2018

Dear Sirs

Location: Warrington MSA

I acknowledge with thanks your request dated 22/11/2018 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. http://www.unitedutilities.com/work-near-asset.aspx .

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

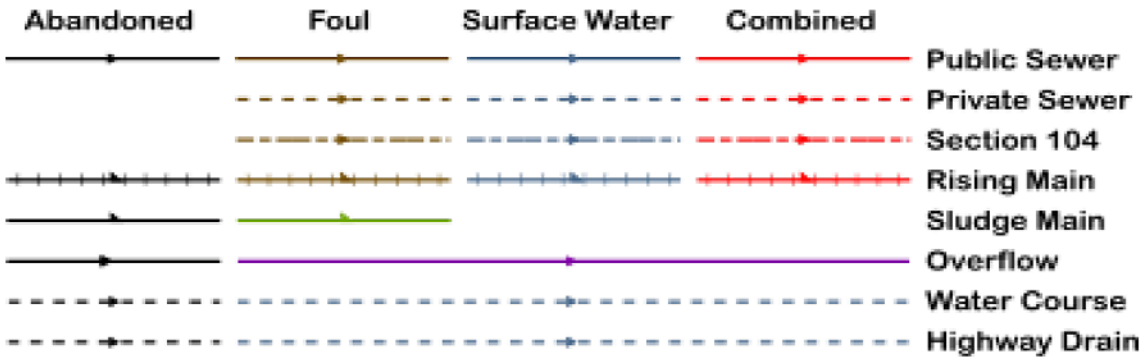
These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

Wastewater Symbology



All point assets follow the standard colour convention: red – combined, brown - foul, blue – surface water, purple - overflow

- Manhole
- HS Head of System
- ES Extent of Survey
- RE Rodding Eye
- IN Inlet
- DP Discharge Point
- HY Vortex
- PE Penstock
- WO Washout Chamber
- VA Valve
- AV Air Valve
- NRV Non Return Valve
- SO Soakaway
- GU Gully
- CA Cascade
- FM Flow Meter
- HA Hatch Box
- OI Oil Interceptor
- SM Summit
- DS Drop Shaft
- OP Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- IC Inspection Chamber
- Bifurcation Chamber
- LH Lamp Hole
- T Junction / Saddle
- CA Catchpit
- VC Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- T Network Storage Tank
- V Sewer Overflow
- WwTW Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- CK Control Kiosk
- Change of Characteristic

United Utilities
helping life flow smoothly

SEWER RECORDS

Address or Site Reference

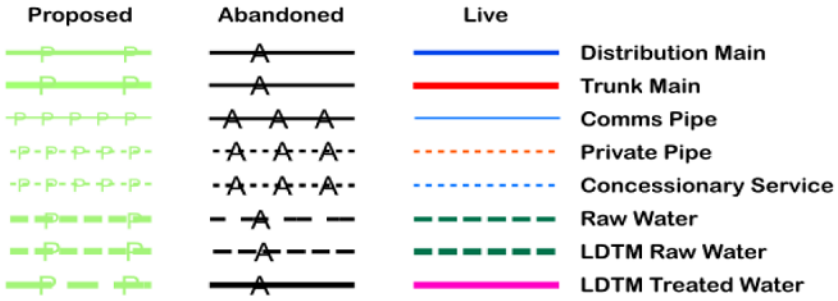
Warrington MSA,

Scale: 1:5000
Date: 26/11/2018

Printed by: Property Searches

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

Clean Water Symbology



Symbology for proposed assets is the same as above, but shown in green
Symbology for abandoned assets is the same as above, but shown in black

United Utilities
helping life flow smoothly

WATER MAIN RECORDS

Address or Site Reference

Warrington MSA,

Scale: 1:5000
Date: 26/11/2018

Printed by: Property Searches

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

APPENDIX C

Existing Services Plans – Foul & Surface Water – United Utilities

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Wardell Armstrong

2
Devon Way,
Birmingham,
B31 2TS

FAO:

Your Ref: Warrington MSA
Our Ref: UUPS-ORD-72378
Date: 26/11/2018

Dear Sirs

Location: Warrington MSA

I acknowledge with thanks your request dated 22/11/2018 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. http://www.unitedutilities.com/work-near-asset.aspx .

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

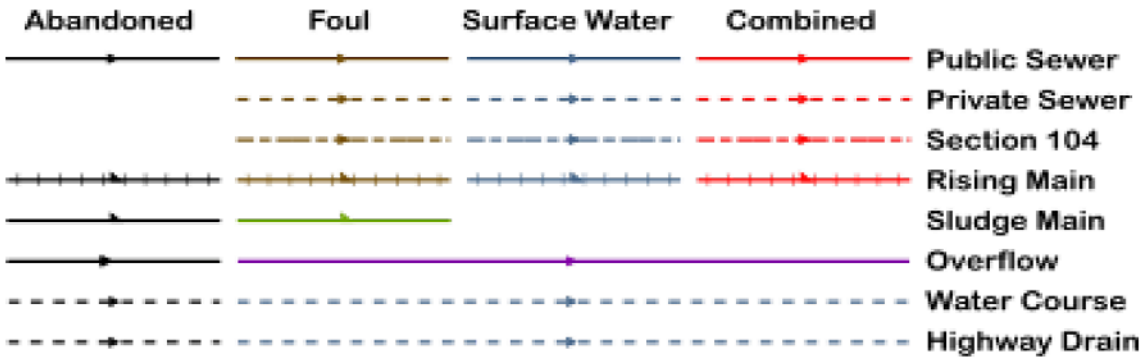
These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

Wastewater Symbology



All point assets follow the standard colour convention: red – combined, brown - foul, blue – surface water, purple - overflow

- Manhole
- HS Head of System
- ES Extent of Survey
- RE Rodding Eye
- IN Inlet
- DP Discharge Point
- HY Vortex
- PE Penstock
- WO Washout Chamber
- VA Valve
- AV Air Valve
- NRV Non Return Valve
- SO Soakaway
- GU Gully
- CA Cascade
- FM Flow Meter
- HA Hatch Box
- OI Oil Interceptor
- SM Summit
- DS Drop Shaft
- OP Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- IC Inspection Chamber
- Bifurcation Chamber
- LH Lamp Hole
- T Junction / Saddle
- CA Catchpit
- VC Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- T Network Storage Tank
- V Sewer Overflow
- WwTW Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- CK Control Kiosk
- Change of Characteristic

United Utilities
helping life flow smoothly

SEWER RECORDS

Address or Site Reference

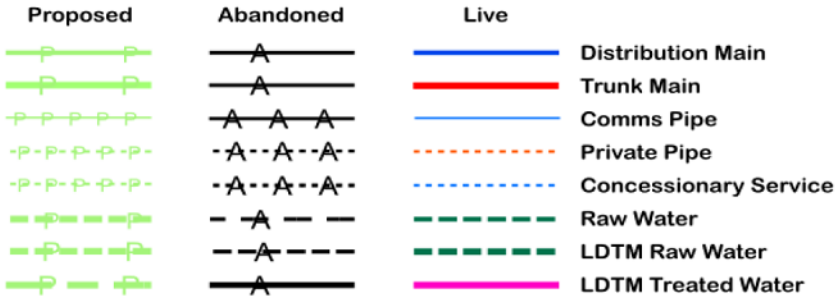
Warrington MSA,

Scale: 1:5000
Date: 26/11/2018

Printed by: Property Searches

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

Clean Water Symbology



Symbology for proposed assets is the same as above, but shown in green
Symbology for abandoned assets is the same as above, but shown in black

United Utilities
helping life flow smoothly

WATER MAIN RECORDS

Address or Site Reference

Warrington MSA,

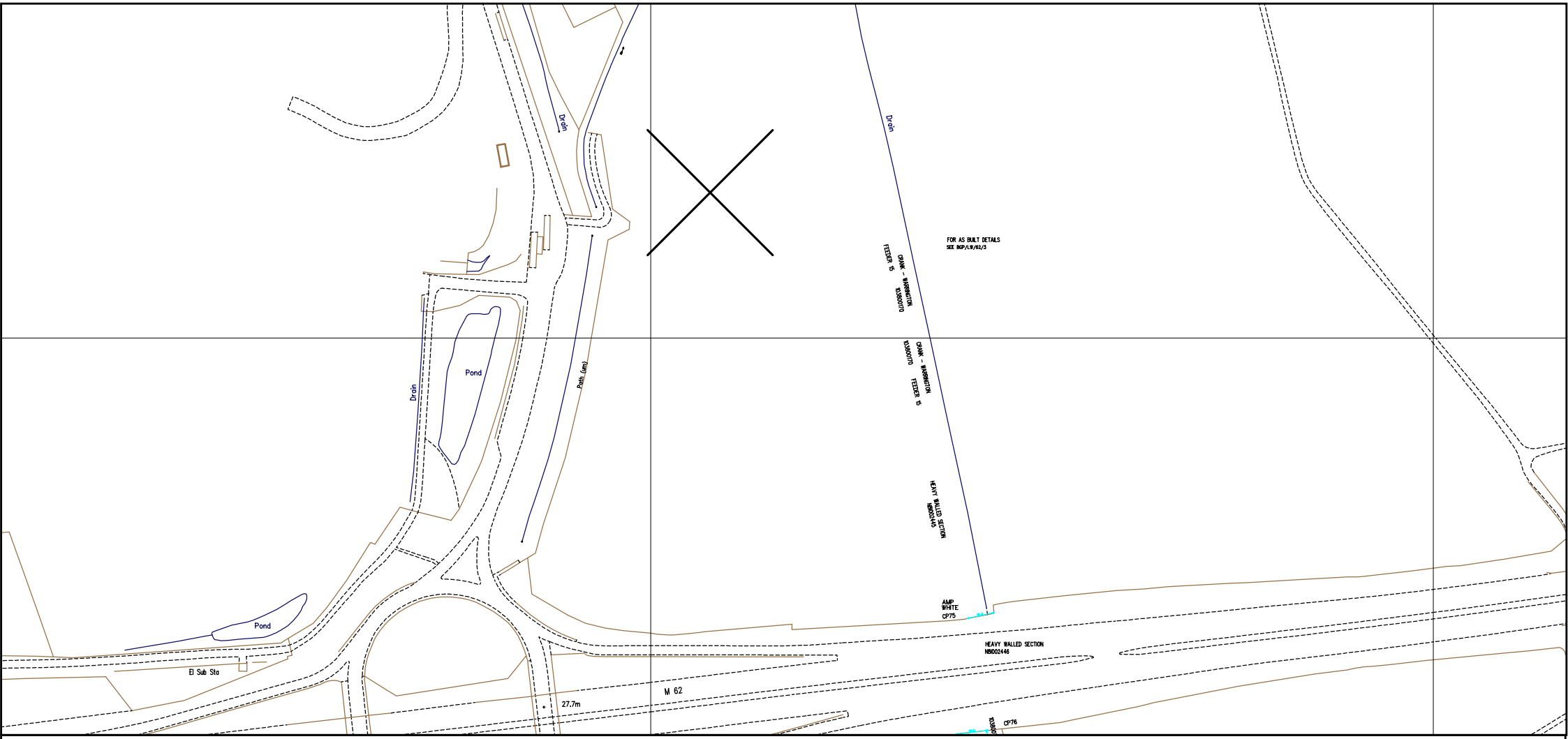
Scale: 1:5000
Date: 26/11/2018

Printed by: Property Searches

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

APPENDIX D

Existing Services Plans – Gas – Cadent Gas



SCALE: Not to scale

USER ID: aspiers

DATE: 27/11/2018

EXTRACT DATE: 31/08/2018

MAP REF: SJ6793

CENTRE: 367085, 393480

LP MAINS

MP MAINS

IP MAINS

LHP MAINS

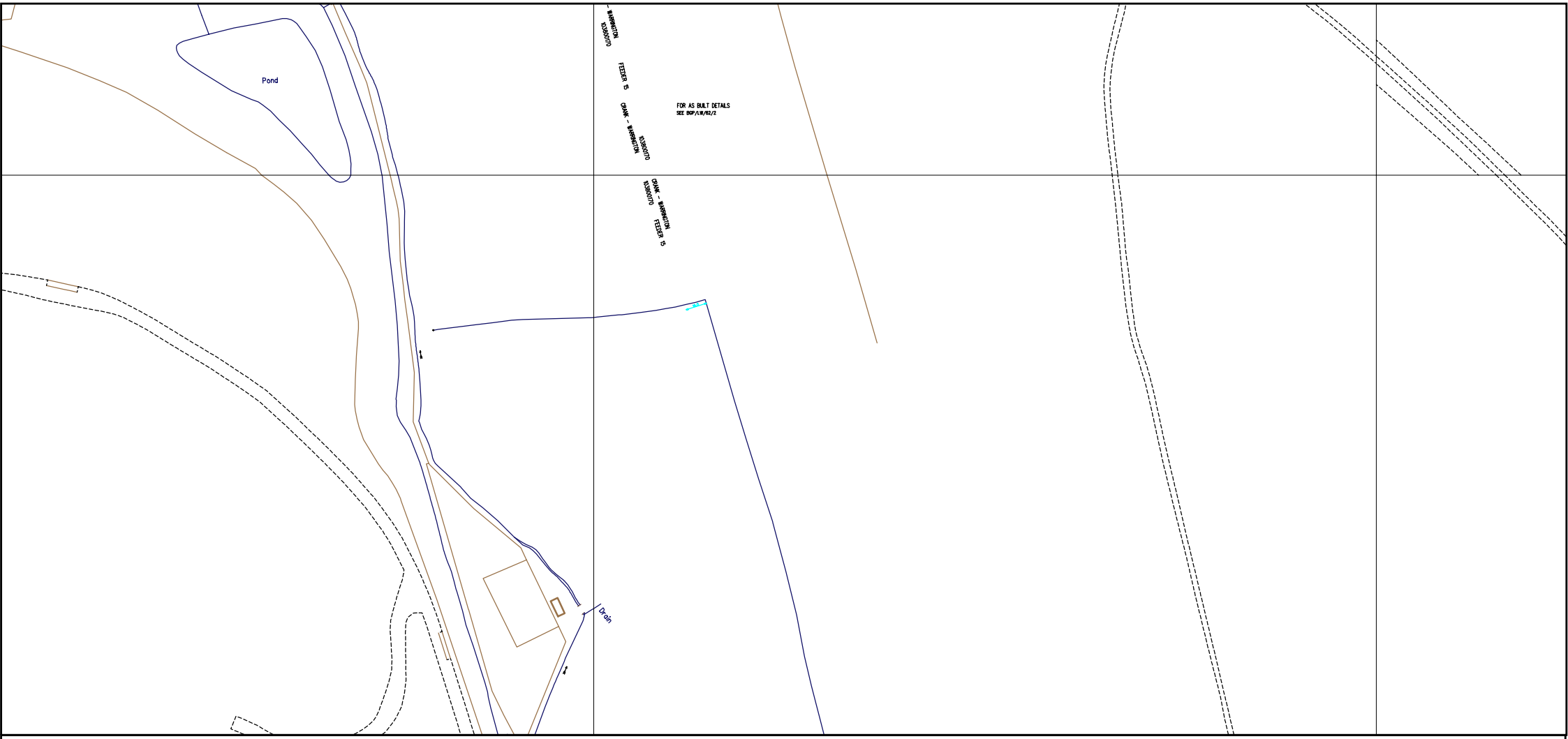
Some examples of Plant Items:

Valve | Depth of Cover | Syphon | Diameter Change | Material Change | Out of Standard Service

This plan shows those pipes owned by Cadent Gas Ltd in their role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Ltd or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue. Further information on all DR4s can be determined by calling the DR4 hotline on 01455 892426 (9am-5pm) A DR4 is where a potential error has been identified within the asset record and a process is currently underway to investigate and resolve the error as appropriate.

MAPS Viewer Version 5.8.0.1

Local Machine



SCALE: Not to scale

USER ID: aspiers

DATE: 27/11/2018

EXTRACT DATE: 31/08/2018

MAP REF: SJ6793

CENTRE: 367121, 393876

LP MAINS

MP MAINS

IP MAINS

LHP MAINS

Some examples of Plant Items:

Valve | Depth of Cover | Syphon | Diameter Change | Material Change | Out of Standard Service

This plan shows those pipes owned by Cadent Gas Ltd in their role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Ltd or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue. Further information on all DR4s can be determined by calling the DR4 hotline on 01455 892426 (9am-5pm) A DR4 is where a potential error has been identified within the asset record and a process is currently underway to investigate and resolve the error as appropriate.

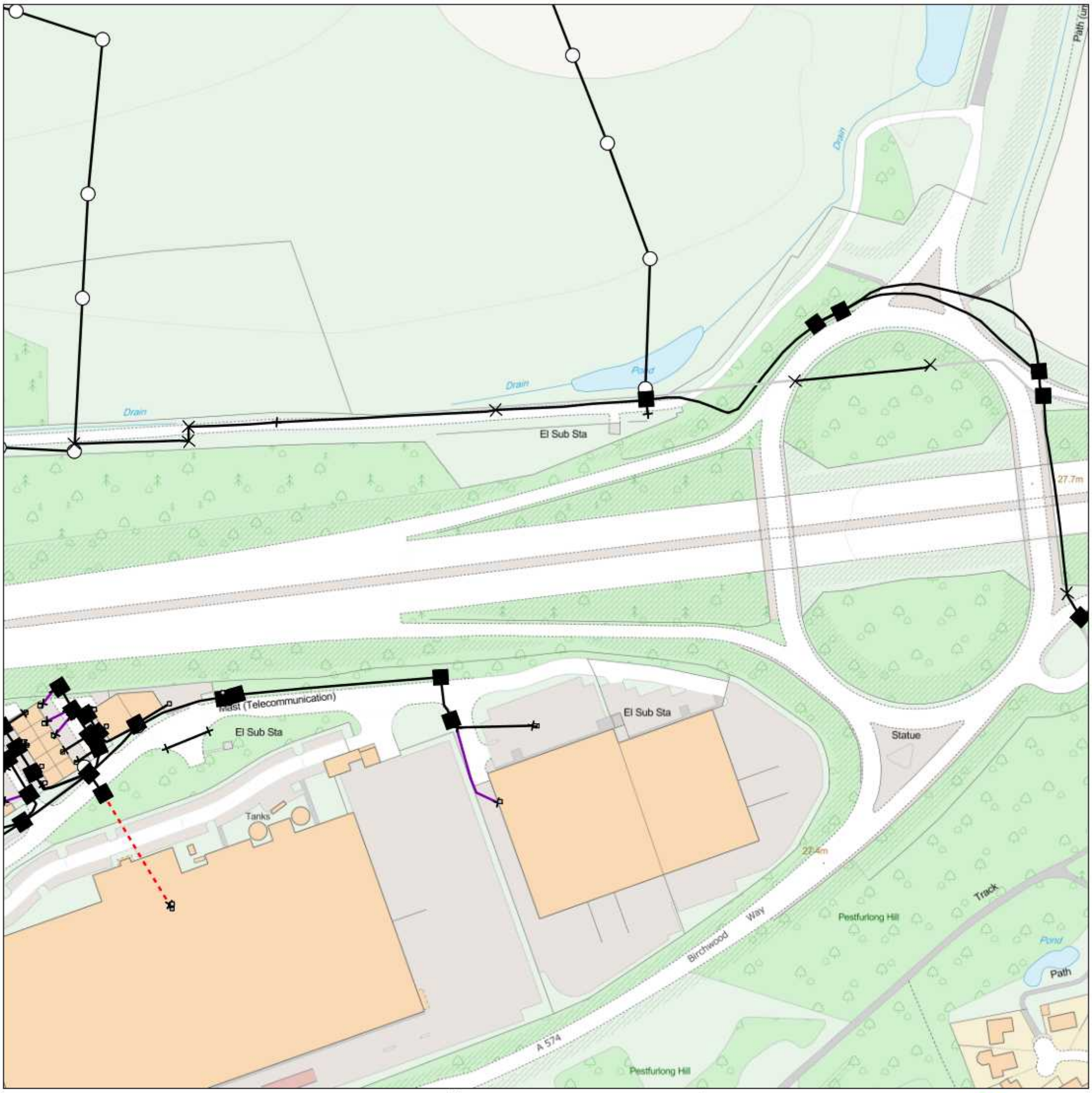
MAPS Viewer Version 5.8.0.1

Local Machine

APPENDIX E

Existing Services Plans – Telecoms – BT Openreach

Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

openreach

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

KEY TO BT SYMBOLS

	Planned	Live
PCP		
Pole		
Box		
Manhole		
Cabinet		

Change Of State	+	Hatchings	
Split Coupling	×	Built	
Duct Tee	▲	Planned	
Building		Inferred	
Kiosk	K	Duct	

Other proposed plant is shown using dashed lines.
BT Symbols not listed above may be disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.

	Pending Add	In Place	Pending Remove	Not In Use
Power Cable				
Power Duct				N/A

BT Ref : LAD01382Z
Map Reference : (centre) SJ6670893235
Easting/Northing : (centre) 366708,393235
Issued : 05/02/2019 13:38:35

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk

Maps by email Plant Information Reply

IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

openreach

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

KEY TO BT SYMBOLS

	Planned	*Live*
PCP		
Pole		
Box		
Manhole		
Cabinet		

Change Of State	+	Hatchings	
Split Coupling	×	Built	
Duct Tee	▲	Planned	
Building		Inferred	
Kiosk	K	Duct	

Other proposed plant is shown using dashed lines.
BT Symbols not listed above may be disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.

	Pending Add	*In Place*	*Pending Remove*	*Not In Use*
Power Cable				
Power Duct				N/A

BT Ref : QRO10014V
Map Reference : (centre) SJ6705393322
Easting/Northing : (centre) 367053,393322
Issued : 27/11/2018 10:01:29

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk

Maps by email Plant Information Reply

IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only.
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It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

openreach

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

KEY TO BT SYMBOLS

	Planned	*Live*
PCP		
Pole		
Box		
Manhole		
Cabinet		

Change Of State	+	Hatchings	
Split Coupling	×	Built	
Duct Tee	▲	Planned	
Building		Inferred	
Kiosk	K	Duct	

Other proposed plant is shown using dashed lines.
BT Symbols not listed above may be disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.

	Pending Add	*In Place*	*Pending Remove*	*Not In Use*
Power Cable				
Power Duct				N/A

BT Ref : WBQ09525P
Map Reference : (centre) SJ6703893593
Easting/Northing : (centre) 367038,393593
Issued : 27/11/2018 09:52:51

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk

Maps by email Plant Information Reply

IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only.
No guarantee is given of its accuracy.
It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

openreach

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

KEY TO BT SYMBOLS

	Planned	*Live*
PCP		
Pole		
Box		
Manhole		
Cabinet		

Change Of State	+	Hatchings	
Split Coupling	×	Built	
Duct Tee	▲	Planned	
Building		Inferred	
Kiosk	(K)	Duct	

Other proposed plant is shown using dashed lines.
BT Symbols not listed above may be disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.

	Pending Add	*In Place*	*Pending Remove*	*Not In Use*
Power Cable				
Power Duct				N/A

BT Ref : YCT10038P
Map Reference : (centre) SJ6698193849
Easting/Northing : (centre) 366981,393849
Issued : 27/11/2018 10:03:43

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk

APPENDIX F

Existing Services Plans – Telecoms – Virgin Media

Wardell Armstrong LLP
2 Devon Way
Longbridge
Birmingham
B31 2TS

Virgin Media
Field Services
Units 1-12
Broad Lane
Mayfair Business Park
Bradford
Yorkshire
BD4 8PW

Tel: 0870 888 3116 Opt 2

Plant Enquiry Ref:	VM.1122000
Letter Date	26.11.2018
Your Ref:	NA
Date:	28.11.2018

Dear Sir/Madam,

Enquiry Location:

Warrington WA3 7UD

Thank you for your enquiry regarding work at the above location.

Virgin Media and Viatel plant should not be affected by your proposed work and no strategic additions to our existing network are envisaged in the immediate future.

Should your request be in relation to a New Development and you require an estimate to be prepared for Virgin Media to service your proposed development, please submit this request for costs along with site drawings (scale 1:500) to:

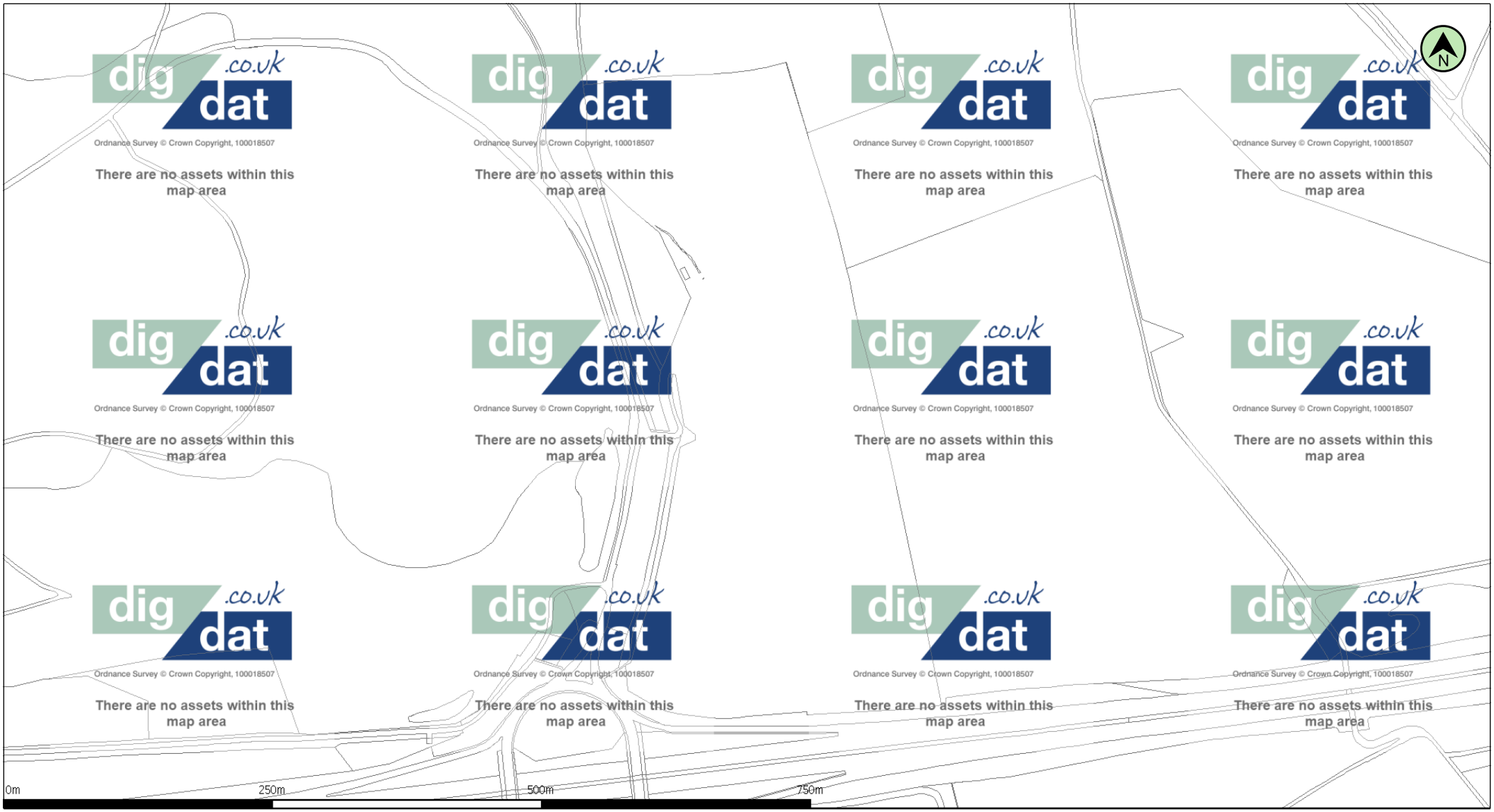
Virgin Media
New Build
Virgin Media
1 Dove Wynd
Strathclyde Business Park
Bellshill
ML4 3AL

This information is only valid on the date of issue. If your start date is 3 months or more from the date of this letter, please re-apply for updated information.

Yours faithfully,

National Plant Enquiries Team
email: plant.enquiries.team@virginmedia.co.uk

Please note: National Plant Enquiries Team (Bradford) cover and respond to plant enquiries for all ex ntl:Telewest franchise areas.



(c) Crown copyright and database rights 2018 Ordnance Survey 100019209 | Date: 28/11/18 | Scale: 1:4992 | Map Centre: 367035,393601 | Data updated: 01/11/18 | Telecoms Plan A4

Important Information - please read The purpose of this plan is to identify Virgin Media apparatus. We have tried to make it as accurate as possible but we cannot warrant its accuracy. In addition, we caution that within Virgin Media apparatus there may be instances where mains voltage power cables have been placed inside green, rather than black ducting. Further details can be found using the "Affected Postcodes.pdf", which can be downloaded from this website. Therefore, you must not rely solely on this plan if you are carrying out any excavation or other works in the vicinity of Virgin Media apparatus. The actual position of any underground service must be verified by cable detection equipment, etc. and established on site before any mechanical plant is used. Accordingly, unless it is due to the negligence of Virgin Media, its employees or agents, Virgin Media will not have any liability for any omissions or inaccuracies in the plan or for any loss or damage caused or arising from the use of and/or any reliance on this plan. This plan is produced by Virgin Media Limited (c) Crown copyright and database rights 2018 Ordnance Survey 100019209.

Duct, Trench | Chamber | Cabinet

roohi.zama@virginmedia.co.uk

VM.1122000

APPENDIX G

Existing Services Plans – Various – Linesearch

Enquiry Confirmation

LSBUD Ref: 14282994

Date of enquiry: 27/11/2018
Time of enquiry: 10:09

Enquirer

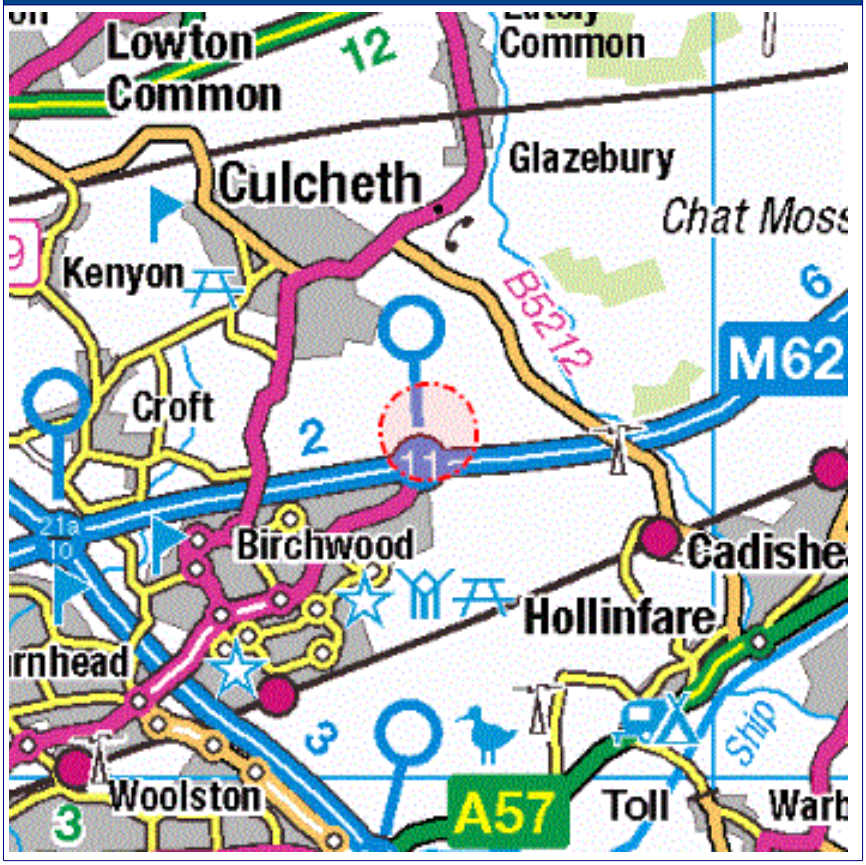
Name	Mr John Scullion	Phone	0121 580 0909
Company	Wardell Armstrong	Mobile	07341564338
Address	2 Devon Way Longbridge Birmingham West Midlands B31 2TS		
Email	jscullion@wardell-armstrong.com		

Enquiry Details

Scheme/Reference	Warrington MSA		
Enquiry type	Initial Enquiry	Work category	Development Projects
Start date	27/05/2019	Work type	Housing
End date	27/11/2019	Site size	1000 metres diameter
Searched location	XY= 367038, 393593	Work type buffer*	25 metres
Confirmed location	367026 393597		
Site Contact Name	Not Supplied	Site Phone No	Not Supplied
Description of Works	Not Supplied		

* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen.

Site Map



Enquiry Confirmation

LSBUD Ref: 14282994

Date of enquiry: 27/11/2018
Time of enquiry: 10:09

Asset Owners

Terms and Conditions. Please note that this enquiry is subject always to our standard terms and conditions available at www.linesearchbeforeudig.co.uk ("Terms of Use") and the disclaimer at the end of this document. Please note that in the event of any conflict or ambiguity between the terms of this Enquiry Confirmation and the Terms of Use, the Terms of Use shall take precedence.

Notes. Please ensure your contact details are correct and up to date on the system in case the LSBUD Members need to contact you.

Validity and search criteria. The results of this enquiry are based on the confirmed information you entered and are valid only as at the date of the enquiry. It is your responsibility to ensure that the Enquiry Details are correct, and LinesearchbeforeUdig accepts no responsibility for any errors or omissions in the Enquiry Details or any consequences thereof. LSBUD Members update their asset information on a regular basis so you are advised to consider this when undertaking any works. It is your responsibility to choose the period of time after which you need to resubmit any enquiry but the maximum time (after which your enquiry will no longer be dealt with by the LSBUD Helpdesk and LSBUD Members) is 28 days. If any details of the enquiry change, particularly including, but not limited to, the location of the work, then a further enquiry must be made.

Asset Owners & Responses. Please note the enquiry results include the following:

1. "LSBUD Members" who are asset owners who have registered their assets on the LSBUD service.
2. "Non LSBUD Members" are asset owners who have not registered their assets on the LSBUD service but LSBUD is aware of their existence. Please note that there could be other asset owners within your search area.

Below are three lists of asset owners:

1. LSBUD Members who have assets registered within your search area. ("Affected")
   a. These LSBUD Members will either:
      i. Ask for further information ("Email Additional Info" noted in status). The additional information includes: Site contact name and number, Location plan, Detailed plan (minimum scale 1:2500), Cross sectional drawings (if available), Work Specification.

      ii. Respond directly to you ("Await Response"). In this response they may either send plans directly to you or ask for further information before being able to do so, particularly if any payments or authorisations are required.

2. LSBUD Members who do not have assets registered within your search area. ("Not Affected")

3. Non LSBUD Members who may have assets within your search area. Please note that this list is not exhaustive and all details are provided as a guide only. It is your responsibility to identify and consult with all asset owners before proceeding.

National Grid. Please note that the LSBUD service only contains information on National Grid's Gas above 7 bar asset, all National Grid Electricity Transmission assets and National Grid's Gas Distribution Limited above 2 bar asset.

For National Grid Gas Distribution Ltd below 2 bar asset information please go to www.beforeyoudig.nationalgrid.com

Enquiry Confirmation

LSBUD Ref: 14282994

Date of enquiry: 27/11/2018
Time of enquiry: 10:09

LSBUD Members who have assets registered on the LSBUD service within the vicinity of your search area.

List of affected LSBUD members			
Asset Owner	**Phone/Email**	**Emergency Only**	**Status**
Electricity North West Limited	08001954141	08001954141	Await response
National Grid Gas (Above 7 bar), National Grid Gas Distribution Limited (Above 2 bar) and National Grid Electricity Transmission	0800688588	Gas 0800111999 Electricity 0800404090	Await response

LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area. Please be aware that LSBUD Members make regular changes to their assets and this list may vary for new enquiries in the same area.

List of not affected LSBUD members		
AWE Pipeline	Balfour Beatty Investments Limited	BOC Limited (A Member of the Linde Group)
BP Exploration Operating Company Limited	BPA	Carrington Gas Pipeline
CATS Pipeline c/o Wood Group PSN	Cemex	Centrica Storage Ltd
CLH Pipeline System Ltd	Concept Solutions People Ltd	ConocoPhillips (UK) Ltd
DIO (MOD Abandoned Pipelines)	E.ON UK CHP Limited	EirGrid
ENI & Himor c/o Penspen Ltd	EnQuest NNS Limited	EP Langage Limited
ESP Utilities Group	ESSAR	Esso Petroleum Company Limited
Fulcrum Pipelines Limited	Gamma	Gateshead Energy Company
Gigaclear PLC	Gtt	Hafren Dyfrdwy
Humbly Grove Energy	IGas Energy	INEOS FPS Pipelines
INEOS Manufacturing (Scotland and TSEP)	INOVYN Enterprises Limited	Intergen (Coryton Energy or Spalding Energy)
Mainline Pipelines Limited	Manchester Jetline Limited	Manx Cable Company
Marchwood Power Ltd (Gas Pipeline)	Melbourn Solar Limited	Northumbrian Water Group
NPower CHP Pipelines	Oikos Storage Limited	Ørsted
Perenco UK Limited (Purbeck Southampton Pipeline)	Petroineos	Phillips 66
Premier Transmission Ltd (SNIP)	Prysmian Cables & Systems Ltd (c/o Western Link)	Redundant Pipelines - LPDA
RWE - Great Yarmouth Pipeline (Bacton to Great Yarmouth Power Station)	RWEnpower (Little Barford and South Haven)	SABIC UK Petrochemicals
Scottish Power Generation	Seabank Power Ltd	Severn Trent (Chester area only)
SGN	Shell (St Fergus to Mossmorran)	Shell Pipelines
SSE (Peterhead Power Station)	Tata Communications (c/o JSM Construction Ltd)	Total (Colnbrook & Colwick Pipelines)
Total Finaline Pipelines	Transmission Capital	UK Power Networks
Uniper UK Ltd	Vattenfall	Veolia ES SELCHP Limited
Western Power Distribution	Westminster City Council	Wingas Storage UK Ltd
Zayo Group UK Ltd c/o JSM Group Ltd		

Enquiry Confirmation

LSBUD Ref: 14282994

Date of enquiry: 27/11/2018
Time of enquiry: 10:09

The following Non-LSBUD Members may have assets in your search area. It is YOUR RESPONSIBILITY to contact them before proceeding. Please be aware this list is not exhaustive and it is your responsibility to identify and contact all asset owners within your search area.

Non-LSBUD members (Asset owners not registered on LSBUD)			
Asset Owner	**Preferred contact method**	**Phone**	**Status**
BT	https://www.swns.bt.com/pls/mbe/welcome.home	08009173993	Not Notified
CenturyLink Communications UK Limited	plantenquiries@instalcom.co.uk	02087314613	Not Notified
CityFibre	asset.team@cityfibre.com	033 3150 7282	Not Notified
Colt	plantenquiries@catelecomuk.com	01227768427	Not Notified
Energetics Electricity	plantenquiries@energetics-uk.com	01698404646	Not Notified
ENGIE	nrswa@cofely-gdfsuez.com	01293 549944	Not Notified
GTC	https://pe.gtc-uk.co.uk/PlantEnqMembership	01359240363	Not Notified
Interoute	interoute.enquiries@plancast.co.uk	02070259000	Not Notified
KPN (c/-Instalcom)	kpn.plantenquiries@instalcom.co.uk	n/a	Not Notified
Mobile Broadband Network Limited	mbnl.plant.enquiries@turntown.com	01212 621 100	Not Notified
National Grid Gas Distribution (below 2 bar)	plantprotection@nationalgrid.com	0800688588	Not Notified
Sky UK Limited	nrswa@sky.uk	02070323234	Not Notified
Sota	SOTA.plantenquiries@instalcom.co.uk		Not Notified
Teliasonera	telenttelia.plantenquiries@telent.com	0800526015	Not Notified
United Utilities	WastewaterDeveloperServices@uuplc.co.uk	08707510101	Not Notified
Utility assets Ltd	assetrecords@utilityassets.co.uk		Not Notified
Verizon Business	osp-team@uk.verizonbusiness.com	01293611736	Not Notified
Virgin Media	http://www.digdat.co.uk	08708883116	Not Notified
Vodafone	osm.enquiries@atkinsglobal.com	01454662881	Not Notified
Vtesse Networks	https://plant.interoute.com/plant-enquiries/	01992532100	Not Notified

APPENDIX H

Correspondence – Electricity North West Limited

Electricity North West
Frederick Road
Salford
M6 6QH
Web: www.enwl.co.uk

Ms Abbigail Spiers
WARDELL ARMSTRONG
2 DEVON WAY
LONGBRIDGE
BIRMINGHAM
B31 2TS

Our Ref: 5500142582/A

T: 0800-195-4141
DD: 08433114378
E: michelle.range@enwl.co.uk

07 February 2019

Dear Ms Abbigail Spiers

Re: Indicative Cost for the New Supply for M62 CROFT, WARRINGTON, WA3 7UD

Thank you for your enquiry for the above information. As requested please find details of the indicative works and costs envisaged at this moment.

This letter is based upon the details submitted in your request for a maximum import power of 2,000 KVA.

The indicative cost for the provision of the new/modified connection including any diversion/reinforcement works is £691,000.00 plus VAT of £138,200.00 totalling £829,200.00.

A brief description of the indicative works to facilitate your proposal is detailed on the following page.

An assessment of the indicative contestable & non contestable charges can be obtained by referring to Electricity North West Limited's "Statement of Methodology & Charges for Connection to Electricity North West Limited's Electricity Distribution Network", available on our website www.enwl.co.uk.

This budget letter is provided in order to give an indication to your request for indicative costs and will enable you to assess the cost of the connection and any associated infrastructure reinforcement or diversion charges that might be applicable.

At this stage a full assessment of the network has not been undertaken and this letter is not a formal offer and is not open for acceptance.

A firm quotation will be provided when we are in receipt of a complete application, details of the information needed to provide a firm quotation can be found in Electricity North West Limited's "Statement of Methodology & Charges for Connection to Electricity North West Limited's Electricity Distribution Network".

We would like to thank you for your valued enquiry and look forward to working closely with you in due course. If you require any further assistance please do not hesitate to contact me.

Yours sincerely,

Michelle Range
Electricity North West

Brief Description of the indicative works:

The charges included are for the provision of a new or existing Electricity North West Distribution Substation and associated infrastructure:

- Only nominal costs for legal consents have been included
- Supply & Installation of substation HV/LV switchgear & earth mat.
- Installation of HV/LV infrastructure.
- Termination of incoming HV cable/s & outgoing LV cables.
- Supply and bolting down of the substation GRP kiosk.
- Remote LV metering panel & multicore cable.
- Install new low voltage mains service/s to modular metering panel/s.
- HV shutdown to commission substation.
- Associated HV &/or LV reinforcement works.

The charges do not include for:

- Land acquisition costs for legal consents etc
- Clearing the site of trees, vegetation etc for substation construction / access.
- Substation civil works e.g. Plinths / base for GRP enclosure.
- Provision of metering room.
- Damage to crops / land during operational access / work etc.
- The provision and installation of a cable entry duct for new service/s.
- The provision and the installation of your LV singles and earth cables, including termination lugs.
- Out of hours working.

Quotation price

The Indicative quotation price is provided based upon your application and the information you provided. The charges are based upon Electricity North West completing both the non contestable and contestable works.

Non Contestable Charges

If you require a full description of the non contestable charges these can be viewed on our website http://www.enwl.co.uk/our-services/connection-services/help-faqs/useful-information/common-charging-methodology. If you are unable to access the internet please contact us on 0800 048 1820 and we will post a copy to you.

Determinations

We hope you are satisfied with the service Electricity North West has provided and hope that any possible disputes have been resolved satisfactorily. However if a situation should arise and we are unable to reach a mutually acceptable solution, you can contact The Energy Ombudsman, who will assist in resolving the dispute. You can contact The Energy Ombudsman in writing to PO BOX 966, Warrington, WA4 9DF, by telephone on 0845 055 0760 or online at www.energy-ombudsman.org.uk

APPENDIX I

Correspondence – United Utilities Potable Water

Your guidance for your Pre-development enquiry

Wardell Armstrong
2 Devon Way
Longbridge
Birmingham
B31 2TS

United Utilities Water Limited
Developer Services Water
Water Connections
Second Floor Grasmere House
Lingley Mere Business Park
Lingley Green Avenue
Warrington WA5 3LP

Telephone: 0345 072 6067
Email: developerserviceswater@uuplc.co.uk

Our ref: **4100371825**
Date: **06.02.2019**

Dear Abbigail

Location**: M62, Croft, Warrington, WA3 7UD**

Based upon the information provided in your recent enquiry, I am pleased to tell you that based on the current and anticipated demands, our clean water network is able to supply the likely requirements for your development.

Point of connection

The point of connection for the water supply to your development is along a section of the existing 8" CI water main, located on Warrington Road., as shown on the attached drawing.

Existing United Utilities water assets

To help plan your development I have enclosed a copy of our asset records. This shows that we have no operational assets within the boundaries of your proposed development.

Important note

This copy of our asset records is only provided to help you assess the likely risks when planning your development at a desk top stage. It is not intended to be used for planning any actual excavation or construction work. You are reminded that a Health and Safety plan should include an up to date record of all underground equipment.

Infrastructure Charges

Based on the information you have given we wouldn't be able to provide you with infrastructure charges. In order for us to give you infrastructure charges we would require a list of all your fixtures & fittings for each of the units.

Infrastructure Credits

We have no record of any water or sewerage connections to previous premises on this site within the last 5 years. This means that we are unable to offer any infrastructure credits against new connections on your proposed development.

What to do next

If you decide to proceed with your development, you can choose between requisitioning your new clean water directly from us, or you can employ a contractor directly to self lay the new mains. A list of approved installers is available at Lloyds Register www.lr.org. If your development will be using water for domestic purposes we will often provide an allowance in respect of future water use toward the cost of your new main, this allowance is the same no matter who you choose to lay your development main.

We have a booklet "Obtaining water supplies for new developments - Guidance notes for developers" which is available on request or can be downloaded from our website unitedutilities.com, which has lots of useful information to help you make the right choice for your new water main or water connection.

Please do not hesitate to contact us should you need further assistance 0345 072 6067 or email to Developerserviceswater@uuplc.co.uk, always using our reference number provided on this letter.

Regards

Bradley Hollis
Design Engineer

Enc. UU assets plan
General Conditions and Precautions Leaflet

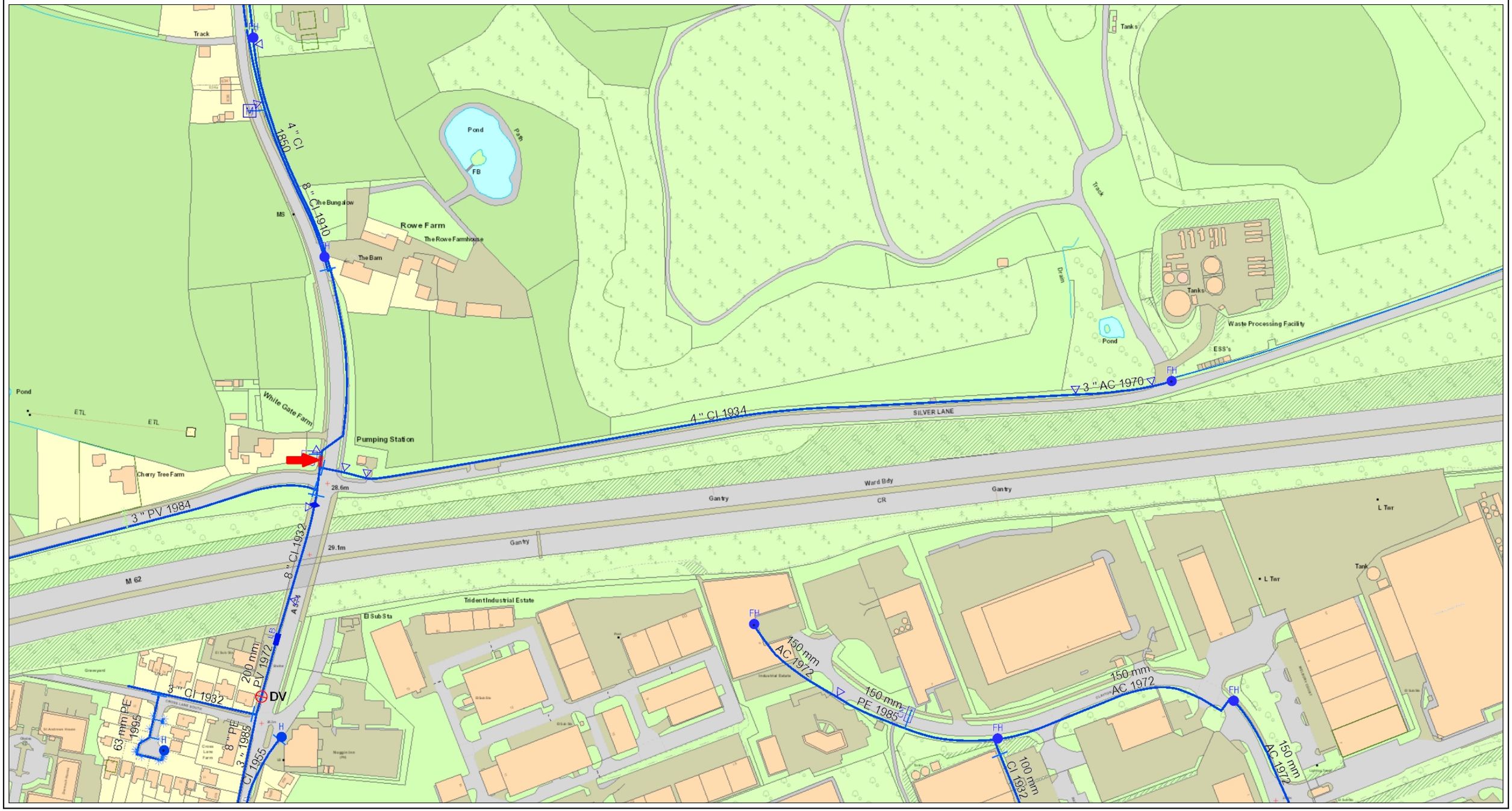
Water Industry Act Section 47(3) Counter Notice

Please note that in accordance with Section 47(3) of the Water Industry Act 1991, United Utilities Water requires compliance with the conditions below, prior to the connection of any service connection to any of United Utilities Water's mains that form part of your requisition application.

- Advance security may be required to be lodged with United Utilities Water equal to the total value of any connections and associated ancillary works. We will in due course estimate the cost of these works and provide you with the value of any security that may be required.
- Premises under separate occupation must be supplied by separate individual service pipes.
- Where it is deemed appropriate by United Utilities Water, a meter will be installed to determine the volumetric charge for the supply of water which can be connected by our contractor or by an approved third party in accordance with United Utilities Water's specification.
- Laying of the service pipe to a depth of no less than 750mm and no more than 1350mm below finished ground level, within the private land from the Street boundary into your premises. Service pipes must be installed to United Utilities Water's current specifications, and have a stopcock fitted. Standard connections (up to 25mm OD) shall consist of an un-jointed appropriate type and construction of pipe with marker tape laid no more than 400mm below finished ground level. Provision for volumetric metering must be installed fully in accordance with United Utilities Water's current specifications.
- If you are installing new plumbing or making alterations to existing internal plumbing arrangements, you must ensure that the plumbing complies with the Water Supply (Water Fittings) Regulations 1999 and with United Utilities Water's specification for the purposes of ensuring it will be reasonably practicable to install and connect a meter.
- Where your development or property requires water to be delivered at a height greater than 10.5 metres below the draw off point of the reservoir or tower supplying the area it is a requirement, in accordance with Section 66 of the Water Industry Act 1991, that you install a cold water storage cistern to cover twenty-four hours demand.
- Any outstanding charges payable as a result of a disconnection notice or any charges payable for any outstanding compliance requirement from any Section 75 notice that has been served (waste, contamination or misuse) have been paid in full.

In addition to the statutory conditions above, if you have yet to provide us with a full postal address for the property/s to be connected, please remember that we will need this information before we can make any service connection/s. If you have not yet obtained or agreed this information with your local planning authority, we strongly recommend that you contact your planning representative as soon as possible to prevent your connection being delayed later on in the process.

Centre :	X : 365441	Y : 393150	Date : 19/02/2019	Scale Approx : 2500



The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

United Utilities
helping life flow smoothly

Important information: Please read carefully

General conditions and precautions to be taken when carrying out work adjacent to United Utilities water distribution apparatus.

These general conditions and precautions apply to the water distribution system of United Utilities.

1. On request United Utilities will give approximate locations of mains according to our records. These records do not normally show the positions of service pipes from the mains to properties nor are they necessarily accurate or complete. No person or company shall be relieved from liability for damage caused by reason of the actual positions and/or depths being different from those shown on the plan. Any special requirements relative to our plant will be indicated. United Utilities employees will visit any site at reasonable notice to assist in the location of water plant and advise any precautions that may be required to obviate any damage.
2. In order to achieve safe working conditions adjacent to any apparatus the following should be observed:
   (a) All water apparatus should be located by hand digging prior to the use of mechanical excavation.
   (b) During construction work where heavy plant may have to cross the line of a water main, and the main is not under a carriageway of adequate standard of construction crossing points should be suitably reinforced with sleepers, steel plates or a specially constructed R.C. raft as necessary. These crossing points should be clearly indicated and crossing the line of the water main at other places should be prevented. United Utilities employees will advise on the type of reinforcement necessary. This is particularly important on agricultural or open land, where tiling or erosion may have reduced significantly the original cover.
   (c) No explosive to be used within 32 meters of any United Utilities water pipe without prior consultation with United Utilities.
   (d) Where it is proposed to carry out piling within 15 metres of any pipe United Utilities should be consulted so that affected pipes may be surveyed.
3. (a) Where excavation of trenches adjacent to any pipe affects its support, the pipe must be supported to the satisfaction of United Utilities.
   (b) Where a trench is excavated crossing or parallel to the line of the pipe, the backfill should be adequately compacted to prevent any settlement which could subsequently cause damage to the main. In special cases it may be necessary to provide permanent support to a pipe which has been exposed over the length of the excavation before backfilling and reinstatement is carried out. There should be no concrete backfilling contact with the pipe.
4. No apparatus should be laid over and along the line of a water pipe irrespective of clearance. A minimum clearance of 450 millimetres should be allowed between any plant being installed and an existing pipe, to facilitate repair, whether the adjacent plant be parallel to or crossing the water pipe. No manhole or chambers shall be built over or round a pipe.
5. Where a United Utilities pipe is coated with special wrapping and is damaged, even to a minor extent, United Utilities must be notified, leaving the trench open for ready access so that repairs can be made. In case of any material damage to the pipe itself causing leakage, or weakening of the mechanical strength of the pipe, the necessary remedial work will be charged.
6. If leakage is caused by a contractor or sub-contractor, inform the relevant United Utilities office.
7. Where proposals involve changing existing levels over our mains you will need to inform us. We will need specific locations to be identified together with precise details as to the magnitude of the proposed changes to existing ground levels. Changes to existing levels may require the diversion of our apparatus for which you will be charged. However, in certain circumstances we may wish to leave our apparatus where it is. On these occasions you will usually be required to protect our apparatus by means of a concrete raft and ensure that any surface boxes affected are either raised or lowered by yourselves. Under no circumstances should our surface boxes be either buried or left in a situation where they are raised above finished ground levels.

   If any damage to our apparatus occurs as a result of your works, repairs will be fully rechargeable to yourselves.
8. Where proposals involve resurfacing United Utilities must be notified if your excavation will be greater than 750mm in the highway and 300mm in a footpath, verge or other location.

Tree planting restrictions over water mains

Set out below are recommendations for tree planting in close proximity to water mains.

1. Both poplar and willow trees have extensive root systems and should not be planted within 10 metres of the water main.
2. The following trees and those of similar size, be they deciduous or evergreen, should not be planted within six metres of the pipeline eg ash, beech, birch, most conifers, elm, horse chestnut, lime, oak, sycamore, etc. Apple and pear trees also come into this category.
3. Bearing in mind that employees must have a clear path to conduct surveys, we recommend that no shrubs or bushes should be planted within one metre of the centre line of the pipeline.
4. There are bound to be cases where both the company and landowners wish to plant shrubs/ bushes in close proximity to the water main for screening purposes. We would suggest that the following which are shallow rooting are suitable for this purpose: blackthorn, broom, cotoneaster, elder, hazel, laurel privet, quickthorn, snowberry and most ornamental flowering shrubs.
5. In areas where soft fruit is grown, we see no reason why blackcurrant, raspberries, gooseberries, should not be planted on the easement, providing that a path is left clear for the surveys.

United Utilities
helping life flow smoothly

About us

United Utilities is the North West's water company. We keep the taps flowing and toilets flushing for seven million customers every day. From Crewe to Carlisle, we work hard behind the scenes to help your life flow smoothly.

United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Warrington WA5 3LP.
Registered in England and Wales. Registered Number 2366678.

12/14/SD/6509

APPENDIX J

Correspondence – United Utilities Foul Water

Archived: 05 August 2019 14:23:56
From: McDermott, Daniel
Sent: Tue, 5 Feb 2019 09:41:55 +0000Received: from VI1PR09CA0072.eurprd09.prod.outlook.com (2603:10a6:802:29::16) by VI1PR09MB2782.eurprd09.prod.outlook.com (2603:10a6:803:e1::11) with Microsoft SMTP Server (version=TLS1_2, cipher=TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384) id 15.20.1601.17; Tue, 5 Feb 2019 09:41:54 +0000Received: from HE1EUR01FT016.eop
To: Wastewater Developer Services; Spiers, Abbigail
Subject: RE: 4200024118 280119 customer email
Importance: Normal

Good Morning Abbigail,

We have carried out an assessment of your application which is based on the information provided; this pre development advice will be valid for 12 months.

Foul

The foul water flows emanating from this site will be allowed to drain freely in to the nearest available public foul combined sewerage system located within a public highway which is some considerable distance south of the M62. To fully understand the impact on the network I would ask calculations of potential foul flows be submitted in order to identify the best connection point.

Surface Water

The surface water flows generated from this site should drain via infiltration, United Utilities will require evidence that draining via infiltration is not feasible. If infiltration is not feasible connection can be made to the water course running through out the development. For the aviodance of doubt no flows should drain directly or indirectly to the public sewerage system.

Connection Application

Although we may discuss and agree discharge points & rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below

http://www.unitedutilities.com/connecting-public-sewer.aspx

Sewer Adoption Agreement

You may wish to offer the proposed new sewers for adoption. United Utilities assess adoption application based on Sewers adoption 6th Edition and for any pumping stations our company addenda document. Please refer to link below to obtain further guidance and application pack:

http://www.unitedutilities.com/sewer-adoption.aspx

Please be aware that on site drainage must be designed in accordance with Building Regulations, National Planning Policy, and local flood authority guidelines, we would recommend that you speak and make suitable agreements with the relevant statutory bodies.

Please note, if you intend to put forward your wastewater assets for adoption by United Utilities, the proposed detail design will be subject to a technical appraisal by an Adoption Engineer as we need to be sure that the proposals meets the requirements of Sewers for adoption and United Utilities Asset Standards. The proposed design should give consideration to long term operability and give United Utilities a cost effective proposal for the life of the assets. Therefore, further to this enquiry should you wish to progress a Section 104 agreement, we strongly recommend that no construction commences until the detailed drainage design, submitted as part of the Section 104 agreement, has been assessed and accepted in writing by United Utilities. Any works carried out prior to the technical assessment being approved is done entirely at the developers own risk and could be subject to change.

If I can be of any further assistance please don't hesitate to contact me.

Daniel McDermott
Developer Services Engineer
Developer Services and Planning
Operational Services
United Utilities
T: 01925679411
Unitedutilities.com

Lingleymere
Lingley Green Avenue
Warrington
WA5 3LP
Unitedutilities.com

From: Spiers, Abbigail [mailto:aspiers@wardell-armstrong.com]
Sent: 28 January 2019 11:58
To: Wastewater Developer Services
Cc: Scullion, John ; Alhashimi, Sohaib
Subject: Developer Enquiry - Warrington MSA

Good Morning,

We are assisting a client with a proposed development scheme at Warrington and require to understand if there is capacity in the network to support the proposed development. Please see the below site details.

Site location details:
Postcode: WA3 7UD
NGR X: 367038
NGR Y: 393593

Please see the attached masterplan for your reference, as well as the required application form.

The proposed land use is a Motorway Service Station comprising of MSA food outlets, fuel filling station and 100 bed hotel.

Please see below the breakdown of our foul water load calculations:

Development Zone	Land Use	No. of Units	Foul Water Flow (l/s)
Phase 1	Motorway Service Station comprising of MSA Food Outlets, fuel filling station and 100-bed Hotel	14	20.4
SITE WIDE TOTAL		14	20.4

If you require any further information, please do not hesitate to get in contact.

Kind regards,

Abbigail Spiers | Technician
Wardell Armstrong LLP
2 Devon Way, Longbridge, Birmingham, B31 2TS
t: 0121 580 0909 m:

APPENDIX K

Correspondence – Cadent Gas

Network Enquiry No : 180010834
Your Reference : WA3 7UD(2)

Cadent Gas Limited

National Gas Emergency Service - 0800 111 999* (24hrs)
***calls will be recorded and may be monitored**

Sohaib Alhashimi
Wardell Armstrong
2 LONG BRIDGE TECHNOLOGY PARK
DEVON WAY
LONGBRIDGE
BIRMINGHAM
B31 2TS

Date : 13th March 2019
Contact : Performance and Support
Direct Tel : 0845 3666758
Email : networkdesign@cadentgas.com

www.cadentgas.com

Dear Sohaib,

Re: Land Enquiry for Proposed Development Site at NEW SUPPLY, WARRINGTON, WA3 7UD.

Thank you for your enquiry which we received on 6th March 2019. I enclose details of Cadent Gas plant in the vicinity of your proposed supply.

The nearest main with sufficient capacity is 1770 metres from the site boundary and it is a Medium Pressure main.

This Developer Enquiry response is a reflection of the network at the time delivered and is not a guarantee of gas flow or capacity due to the changing dynamics of the gas distribution network.
If you wish to secure capacity and connect to the network please submit quotation Connections Request via the official connections route allowing for further analysis to verify the capability of the network again.

Plans attached: Yes

A copy of the Cadent Connections Charging Statement referenced in this letter can be found on Cadent's website:

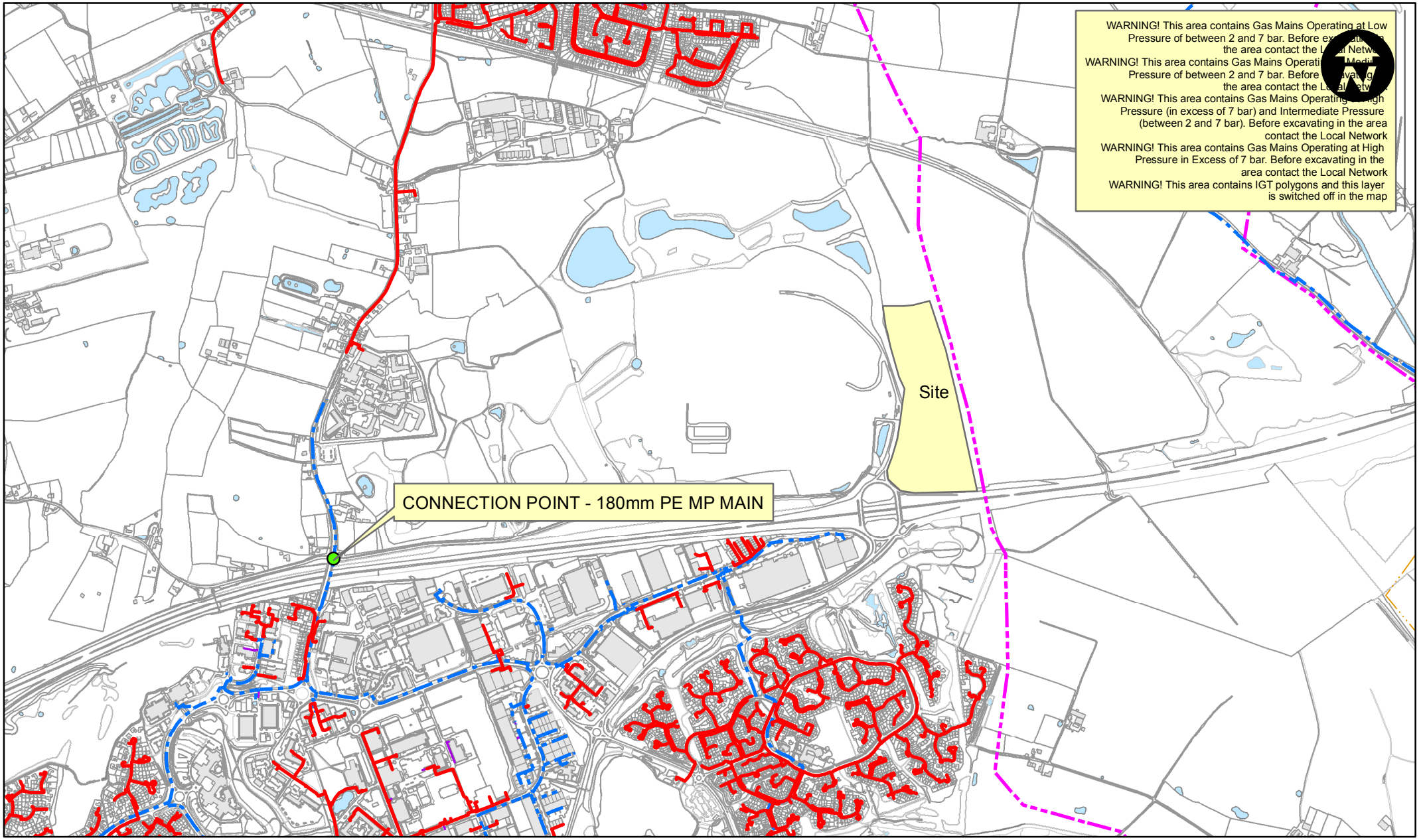
http://cadentgas.com/Get-connected

If you require a printed version please contact us on the details provided above.

I trust this meets with your requirements at this stage. If you have any queries please do not hesitate to contact Performance and Support on the above number.

Yours sincerely,

Claire Wilcox
Design Specialist



SCALE: 1:500 @A4

USER ID: joanne.bebbington

DATE: 13-Mar-2019 10:21:28

INTERNAL USE ONLY

OS Ref: 366336, 393534

CENTRE: <Centre>

L/P GAS MAIN
M/P GAS MAIN
I/P GAS MAIN
H/P GAS MAIN
N/H/P GAS MAIN
PROPOSED PIPE - LP
PROPOSED PIPE - MP
PROPOSED PIPE - IP
ABANDON - LP
ABANDON - MP
Out Of Standard Service

Some examples of Plant Items:

Valve Syphon Depth of Cover Change of Dia Change of Material

SCHEME: <NG GDFO Scheme Name>

DESIGN: <NG GDFO Design Number>

REVISION: <NG GDFO Revision>

This plan shows those pipes owned by Cadent in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area.Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plans given without warranty, the accuracy thereof cannot be iguranteed. Service pipes, valves, syphons, stub connections,etc., are not shown but their presence should be anticipated.No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any error oromission. Safe digging practices, inaccordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and any other apparatus on site before any mechanical plant is used. It is your responsability to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

180010834

Cadent

DRAWINGS

DO NOT SCALE FROM THIS DRAWING

REFERENCE

- SITE BOUNDARY
- ENW 11kV UNDERGROUND CABLE
- ENW LV UNDERGROUND CABLE
- ENW POLE MOUNTED TRANSFORMER
- ELECTRICAL SUB-STATION
- CG NATIONAL HIGH PRESSURE GAS MAIN (SURVEYED ACTUAL POSITION)
- CG NATIONAL HIGH PRESSURE GAS MAIN (RECORDED POSITION)
- BT UNDERGROUND CABLE
- BT OVERHEAD CABLE
- BT POLE
- BT JOINT BOX
- HSE INNER ZONE
- HSE MIDDLE ZONE
- HSE OUTER ZONE

NOTES

1. ALL SERVICES DRAWINGS TO BE READ IN CONJUNCTION WITH OTHER DISCIPLINE DRAWINGS, SCHEDULES AND SPECIFICATION.
2. DO NOT SCALE THE DRAWING.
3. SHOULD ANY DISCREPANCIES BE FOUND WITH THIS DRAWING AND ANY OTHER ASSOCIATED DRAWINGS/SPECIFICATIONS/REPORTS THIS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
4. THIS DRAWING SHALL ONLY BE USED FOR THE SPECIFIC SERVICES INTENDED.
5. UNLESS OTHERWISE STATED ALL DIMENSIONS ARE IN MILLIMETRES.
6. DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK IS PUT IN HAND OR PREFABRICATED.
7. FINAL ACCESS AND SETTING OUT OF SERVICES TO BE AGREED WITH ARCHITECT.
8. REFER TO STANDARD DETAILS.
9. BOTH SURVEYED AND RECORDED POSITIONS ARE SHOWED FOR THE CG NATIONAL HIGH PRESSURE GAS MAIN. PLEASE USE SURVEYED ACTUAL POSITION.
10. TOPOGRAPHICAL SURVEY UNDERTAKEN BY OTHERS. SURVEY STATION LOCATIONS AND CO-ORDINATES TO BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF SETTING OUT.
11. THE CONTRACTOR SHALL NOT BUILD TO THESE DRAWINGS. THE CONTRACTOR SHALL PRODUCE INSTALLATION DRAWINGS INCLUDING ALL NECESSARY INFORMATION AND DIMENSIONS REQUIRED FOR CONSTRUCTION.
12. THIS DRAWING IS NOT TO BE REPRODUCED IN ANY PART OR FORM WITHOUT CONSENT OF WARDELL ARMSTRONG LLP. ALL COPYRIGHT RESERVED.
13. PRIOR TO ANY WORKS ON SITE, THE CONTRACTOR SHALL REFER TO;
    - HSG47 - AVOIDING DANGER FROM UNDERGROUND SERVICES (BY HSE)
    - HSG185 - HEALTH & SAFETY IN EXCAVATIONS (BY HSE)
    - CONSTRUCTION INFORMATION SHEET (CIS) 8 - SAFETY IN EXCAVATIONS (BY HSE)
    - GENERAL SERIES (GS) 6 - AVOIDANCE OF DANGER FROM OVERHEAD ELECTRIC LINES (BY HSE)
14. HSE CONSULTATION ZONES
    - INNER ZONE: 96 METERS
    - MIDDLE ZONE: 190 METERS
    - OUTER ZONE: 335 METERS

    THESE DISTANCES APPLY ON EITHER SIDE OF THE PIPELINE. ALL DISTANCES SHOULD BE MEASURED FROM THE CENTRE OF THE PIPELINE. WHERE CONSULTATION DISTANCES COINCIDE, THE INNER-MOST ZONE IS USED TO DETERMINE HSE'S LAND USE PLANNING ADVICE.

0m 20m 40m 60m 80m 100m

SCALE 1:1000

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
C	BT underground cables, Cadent gas and site boundary updated	25/05/19	RA	JS	JS
B	BT underground cables updated	11/07/19	HRK	AS	JS
A	First Issue	15/04/19	HRK	JS	JS

EXTRA MSA GROUP

MOTORWAY SERVICE, WARRINGTON

EXISTING UTILITIES PLAN

DRG No.		REV
SH-11739-019		C
DRG SIZE	SCALE	DATE
A0	1:1000	15/04/19
EC	JS	APPROVED BY JS

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WASTE RESOURCE MANAGEMENT

EXTRA MSA GROUP

WARRINGTON MOTORWAY SERVICE AREA

APPENDIX 13.4: SUSTAINABILITY STATEMENT

JULY 2019

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EXTRA MSA GROUP

WARRINGTON MOTORWAY SERVICE AREA

APPENDIX 13.4: SUSTAINABILITY STATEMENT

JULY 2019

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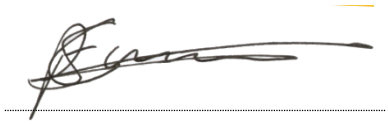
REVIEWED BY:

Paul Evans — Service Area Director

APPROVED BY:

Paul Evans — Service Area Director



CONTENTS

EXECUTIVE SUMMARY

The approach to sustainability for the Warrington MSA site has been undertaken through a desktop review process focused on gaining an understanding of the sustainability policy in the location of the site. The site was then evaluated in the context of nine topics and initiatives developed to ensure a holistic, sustainable design approach that meets policy. These are summarised below.

Energy and Carbon Emissions

An energy statement has been prepared to assess the energy demand for the site and to demonstrate how the Applicant will adhere to the energy hierarchy. Recommendations have been made for the utilisation of high quality fabric efficiency, energy efficient lighting and appliances as well as a recommendation for the use of ground source heat pumps to meet a minimum target of 10% site energy demand with renewable energy. These initiatives will be supported by an SBEM assessment, associated site management plans and ongoing monitoring.

Materials

The procurement of materials will prioritise utilisation of waste streams, such as for landscaping or secondary aggregate for hardstanding and roads, the use of sustainable sources, for example Forest Stewardship Council certified timber and finally the use of locally sourced material that aims to be in keeping with the local area. A Materials Management Plan will be developed to deliver these initiatives during construction.

Travel and Transport

A Framework Travel Plan has been submitted to support the application and aims to minimise staff vehicular traffic by encouraging car sharing and a potential shuttle bus from the nearest station. The Applicant will support low carbon vehicles having committed to the provision of rapid electric charging points. Additionally, improvements to existing footpaths and cycle ways have been suggested as well as connection of new routes to the local network, allowing an increase in pedestrian/cyclist accessibility to the site.

Waste and Recycling

The Applicant is aiming to minimise import and export of materials through a design which will utilise standard material sizes and prefabricated elements where possible. A Site Waste Management Plan will be prepared to improve efficiency, promote the waste hierarchy and maintain a full audit trail of waste on site. Recycling will be encouraged through the adequate supply of storage facilities and an annual waste audit will monitor the ongoing commitment to this.

Water Use and Flooding

Recommendations for water conservation such as grey water recovery, low flow taps and dual flush toilets have been put forward to minimise site consumption. Water treatment will take place on site before discharge to the Silver Lane Brook. A Sustainable Urban Drainage System (SuDS) has been incorporated into the site design for water management to aid in both water treatment and flood protection and will be maintained by an onsite team.

Air Quality and Environmental Pollution

Pollution through the construction and operation of the site will be minimised through a Dust Mitigation Plan and the Waste Management Plan. Water and soil protection initiatives include suitable transportation during material delivery e.g. enclosed tankers, correct storage on site e.g. bunded hard standing and sprinkler systems to prevent sand and aggregates drying out and the correct training of staff for the handling and disposal of toxic or contaminated material.

Effects on Ecology and Biodiversity

The site design has taken into consideration the minimal disruption of ecological habitats. The Habitat Management Plan will limit disruption to bird and bat populations through limited working hours and access strategies, includes habitat creation and management provisions and details the measures put forward for diversion of Silver Lane Brook. Further initiatives include an Ecological Clerk of Works, pre construction surveys, tree protection, accessibility to wildlife for the public and an ecologically sensitive lighting scheme.

Effects on Soil and Peat

Soil resources within the Site would be protected against damage by the adoption of industry standard soil and peat management measures, such as those set out in Defra's 2009 Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. The implementation of these standard measures, through a detailed site-specific Soil and Peat Management Plan (SPMP), will also ensure no loss of resource occurs and that upon replacement / reuse the soils and peat will be able to deliver a range of vital ecosystem services. This includes the creation of a purpose built Peat Habitat Zone.

Building Design and Layout

Careful consideration at the detailed design stage will ensure the operational phase of a building is energy efficient, sustainable and cost effective. Recommendations for this include the shape and orientation of the building to maximise sunlight benefits, shading and natural ventilation to reduce overheating risk, effective use of thermal mass and implementation of renewable technology. The indicative design work suggests a sinuous wall, constructed to reminiscent peat stacks, and series of linear pitched roof elements that as a cluster reflect the form of local buildings.

1 INTRODUCTION

1.1.1 Extra MSA Group ('the Applicant') is seeking to obtain planning permission for the erection of a Motorway Service Area including Facilities Building, up to 100 bedroom Hotel, service yard, Fuel Filling Station, Electric Charging Station, parking facilities for each category of vehicle, access and internal circulation roads, structured and natural landscaping with outside amenity space/picnic space and dog walking zone, pedestrian and cycle links, boundary fencing, surface water drainage areas, ecological mitigation, pumping station(s), substation(s), retaining structures and associated infrastructure and earthworks.

1.1.2 All matters, except for access, are reserved.

1.1.3 Wardell Armstrong LLP (WA) have been commissioned to prepare this Sustainability Statement, on behalf of the Applicant, to support the planning application. The report will describe the approach the Applicant has taken during the design process to address sustainability and consider the extent to which the development complies with the principles of sustainable development within national and local policy.

1.1.4 This Statement relies on data and information provided by the Applicant and third parties. WA accepts not responsibility for inaccuracies in third party information.

1.1.5 This Sustainability Statement, along with the Energy Statement, will inform and should be read in conjunction with the Climate Change Technical Paper (No.13) and all chapters within the ES Part 1 Report.

2 SITE DESCRIPTION

2.1 Location

2.1.1 The Site is located to the northeast of the urban area of Warrington, approximately 8.5km (5 miles) from the centre of Warrington. The centre of Manchester is located approximately 17.5km (11 miles) to the east of the Site and the centre of Liverpool, approximately 32 km (20 miles) to the west.

2.1.2 The Site is located within the administrative area of Warrington Borough Council (WBC).

2.2 Description

2.2.1 The Site itself, relates to an area of land of approximately 16.81 ha (including highway works) in extent. The Site is a greenfield site, currently within agricultural (arable) use. It is located within the Green Belt and is partially underlain with peat.

2.2.2 The Site is set at a lower level than the M62 Motorway Junction 11 and its associated slip roads but is higher than the M62 Motorway itself. The M62 Motorway Corridor and Junction 11 is lit in the vicinity of the Site. There are trees to the eastern, and part of the southern and south western boundaries. A post and rail fence marks the southern boundary. The Site is bounded to the east, north and part of the western boundary by a water course that is a non-main river. To the western boundary is another water course that is identified by the Environment Agency as a main river. The Site is within Flood Risk Zone 1 and as such at low risk of flooding.

2.2.3 There are multiple Public Right of Way (PROW) in the vicinity of the Site as well as the HS2 Safeguard Land corridor, a Motorway Air Quality Management Area and high pressure gas main. The Site lies within 5km of Manchester Mosses SAC and within 2km of Risley Moss SSSI and LNR and Holcroft Moss SSSI. Further details of these and other Site constraints are shown in the Constraints Plan.

3 PROPOSED DEVELOPMENT DESCRIPTION

3.1.1 Outline planning permission will be sought for the erection of a Motorway Service Area including Facilities Building, up to 100 bedroom Hotel, service yard, Fuel Filling Station, Electric Charging Station, parking facilities for each category of vehicle, access and internal circulation roads, structured and natural landscaping with outside amenity space/picnic space and dog walking zone, pedestrian and cycle links, boundary fencing, surface water drainage areas, ecological mitigation, pumping station(s), substation(s), retaining structures and associated infrastructure and earthworks. All matters, except for access, are reserved.

3.1.2 As EIA is an iterative process, it should be noted that the development proposals may evolve as the application progresses. However, during the evolution of the proposals a number of parameters were fixed, which have formed the basis of the environmental assessments. These are listed in full detail in ES Part 1 (Chapter 2: Project Description).

4 LEGISLATIVE CONTEXT

4.1.1 The concept of National Sustainable Development Strategies (NSDS) were proposed in 1992 in Agenda 21, the Rio Declaration on Environment and Development. Paragraph 7 of Chapter 8 calls on countries to adopt strategies for sustainable development.

4.1.2 In May 1999, the Government published a sustainable development strategy entitled 'A Better Quality of Life – A Strategy for Sustainable Development in the UK' which sets out the key issues, aims and priorities. Many definitions of sustainable development exist, although the common objective for all is the integration of economic, social and environmental issues to ensure a better quality of life for people today without compromising the needs for future generations.

4.1.3 During the 2002 World Summit on Sustainable Development in Johannesburg, Member States were urged to elaborate national strategies and begin implementation by 2005. Following this, the UK Government launched 'Securing the Future'[1] with 250 commitments in four main priority action areas surrounding sustainable consumption and production, climate change and energy, natural resource protection and sustainable communities.

4.1.4 The 2005 strategy also proposes a new code for sustainable buildings that establishes voluntary standards on key issues such as energy, waste, water and materials. The Code for Sustainable Homes was unfortunately later revoked in a ministerial statement[2] published by the Government in March 2015.

4.1.5 The UN Department of Social and Economic Affairs held an expert meeting in 2007 on 'Integrating Climate Change into NSDS' with the concept that sustainable development was the most effective framework to tackle climate change.

4.1.6 'The Future We Want'[3] was the outcome document of the UN Conference on Sustainable Development held in Rio de Janerio in 2012. This details the role of planning and decision making at national, regional and local levels in enabling effective integration and implementation of the three dimensions of sustainable development. There is also the recognition of need for improved energy efficiency and increased use

[1] HM Government, 2005. Securing the future – delivering UK sustainable development strategy. https://sustainabledevelopment.un.org/content/documents/1408uk.pdf
[2] Department for Communities and Local Government, 2015. Written Ministerial Statement: Planning Update https://www.gov.uk/government/speeches/planning-update-march-2015
[3] United Nations General Assembly, 2012. The future we want. Document A/RES/66/288*. Available online.

of renewable energy technologies to aid sustainable development and address climate change.

4.1.7 The New York UN meeting in 2015, marking the seventieth anniversary, resulted in 17 new sustainable development goals to form the 2030 Agenda[4]. These are promoted as universal goals, involving developed and developing countries alike, that are integrated, indivisible and balance the three dimensions of sustainable development. Of note is the goal surrounding sustainable urban development which states:

"We will reduce the negative impacts of urban activities and of chemicals which are hazardous for human health and the environment, including through the environmentally sound management and safe use of chemicals, the reduction and recycling of waste and more efficient use of water and energy. And we will work to minimize the impact of cities on the global climate system."

4.1.8 The Department for International Development issued the UK's approach to delivering the Agenda 2030 Global Goals for Sustainable Development in March 2017[5]. The document provides an on overview and examples of how the government is contributing towards the delivery of each goal, both around the world and at home.

4.1.9 In 2018 the UK also launched "A Green Future"[6] which is the government's 25-year Environment Plan. This details policies and actions to be taken across six key areas, including:

- Using and manging land sustainably;
- Recovering nature and enhancing the beauty of landscapes;
- Connecting people with the environment to improve health and wellbeing;
- Increasing resource efficiency and reducing pollution and waste;
- Securing clean, productive and biologically diverse seas and oceans; and
- Protecting and improving the global environment.

4.1.10 The UK is currently undertaking a Voluntary National Review[7] to assess its progress on the 17 sustainable development goals of Agenda 2030. This review will be presented at the ministerial meeting of the UN High Level Political Forum in July 2019, alongside 50 other member states.

[4] UN Sustainable Development Goals Knowledge Platform https://sustainabledevelopment.un.org/sdgs
[5] Department for International Development, 2017. Agenda 2030 The UK Government's approach to delivering the Global Goals for Sustainable Development - at home and around the world.
[6] HM Government, 2018. A Green Future: Our 25 Year Plan to Improve the Environment
[7] UK Voluntary Review: https://www.gov.uk/government/topical-events/uk-voluntary-national-review-of-progress-towards-the-sustainable-development-goals

5 PLANNING POLICY AND REGULATION

5.1.1 A short summary of the key policy is provided below. A comprehensive documentation of all relevant national and local planning policy associated with the Sustainability Statement is provided in Appendix 13.1 and should be consulted in conjunction with the main report.

5.2 National Policy

5.2.1 Sustainable development is at the forefront of many national planning policies, including:

- The Town and Country Planning (EIA) Regulations (2017);
- The National Planning Policy Framework (2018); and
- Part L of the Building Regulations

5.2.2 An additional relevant document is the Department for Transport guidance 'Circular 02/2013: The Strategic Road Network and the Delivery of Sustainable Development'.

Town and Country Planning (EIA) Regulations (2017)[8]

5.2.3 On the 16th May 2017, the European Commission Environmental Impact Assessment Directive (2014/52/EU) was incorporated into English law under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. The key text in relation to sustainability, energy and climate change can be found in Regulations Schedule 3 and 4.

The National Planning Policy Framework (2019)[9]

5.2.4 The National Planning Policy Framework ('the Framework' or NPPF) was published in July 2018 and updated in early 2019 with minor changes. The Framework replaced the majority of existing Planning Policy Statements which provided guidance prior to this. The Framework is a material consideration that must be taken into account in the determination of all planning applications.

5.2.5 The cornerstone of the Framework is the "presumption in favour of sustainable development" to ensure that sustainable development is pursued in a positive way.

[8] Statutory Instrument 2017 No. 571 (2017). Town and Country Planning (Environmental Impact Assessment) Regulations 2017. HMSO, London.
[9] Ministry of Housing, Communities and Local Government (2019). National Planning Policy Framework 2019. HMSO, London.

Part L of the Building Regulations[10]

5.2.6 Part L of the Building Regulations sets out the fabric energy efficiency standards and CO2 emission limits for dwellings and non-residential buildings. Compliance with these regulations is assessed against certain criteria, using the methodologies detailed in Pat L, before a development to can be validated by building control. These regulations are the government's key mechanism for reducing CO2 emissions in buildings.

Department for Transport Circular 02/2013: The Strategic Road Network and the Delivery of Sustainable Development[11]

5.2.7 The purpose of this document is to set out the Highways Agency will ensure sustainable development and economic growth whilst safeguarding the strategic road network. Annex B is for 'Roadside facilities for road users on motorways and all-purpose trunk roads in England'.

5.3 Local Policy

5.3.1 The site falls under the administrative boundary of Warrington Borough Council (WBC) of which the Local Planning Framework is underpinned by the overarching Local Plan Core Strategy. This document was adopted on 21st July 2014, replacing the existing Adopted Unitary Development Plan, and sets out guidance for the local and level of development within the borough up to 2027. The local policy which is reviewed in this Statement is listed below, with full details provided in Appendix 13.1 due to the extensive nature of the policy.

- Local Plan Core Strategy (Adopted 2014)
- Local Plan Review 'Preferred Development Option' 2017
- Planning Obligations Supplementary Planning Document (2017);
- Design and Construction Supplementary Planning Document (Amended 2016);
- Environmental Protection Supplementary Planning Document (2013);

5.3.2 A review of the Council's interactive policy map indicates the site location is privy to the following specific policies:

- Local Plan Core Strategy (CS5) Overall Spatial Strategy Green Belt

[10] Ministry of Housing, Communities and Local Government (2018). Approved Document L1A: conservation of fuel and power in new dwellings, 2013 edition with 2016 amendments.
[11] Department for Transport, 2013. The Strategic Road Network and the Delivery of Sustainable Development. DfT Circular 02/2013. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/237412/dft-circular-strategic-road.pdf

- Local Plan Core Strategy (MP3) Active Travel

6 SUSTAINABILITY STATEMENT APPROACH

6.1 Introduction

6.1.1 The Sustainability Statement has been undertaken through a desktop review process that focused on gaining an understanding of the sustainability policy in the location of the site.

6.2 Topics

6.2.1 Following a review of the national and local policy, detailed in Appendix 13.1, the Proposed Development has been evaluated in the context of this guidance and the following identified sustainability topics:

- Building Design & Layout
- Materials;
- Energy & Carbon Emissions;
- Waste & Recycling;
- Travel and Transport;
- Air Quality and Environmental Pollution;
- Water Use & Flooding;
- Effects on Ecology & Biodiversity; and
- Effects on Soil and Peat.

6.2.2 Wardell Armstrong have assessed the measures undertaken by the Applicant and advised, where necessary, on potential areas of improvement required to meet sustainability targets.

6.3 Assumptions

6.3.1 It is assumed that local and county policy are, by nature, aligned with the objectives of National Planning Policy and therefore in most cases these have not been repeated in each topic section on policy compliance. Exceptions include the reference to Department of Transport guidance in the Travel and Transport section.

6.3.2 This Statement relies on data and information provided by the Applicant and third parties. WA accepts not responsibility for inaccuracies in third party information.

7 BUILDING DESIGN & LAYOUT

7.1 Policy Context

- WBC Local Plan Core Strategy: CS1, QE1, QE7, CC2
- Planning Obligations SPD: 'Energy'
- Design and Construction SPD: 'Design and Layout', 'Energy Efficiency in Use', 'Landscaping in Development'

7.2 Developer Compliance

7.2.1 The design of a building can significantly impact upon the future sustainability of a site and its operations. Careful consideration at the detailed design stage will ensure that the operational phase of the building will be energy efficient, sustainable and cost effective. Several recommendations have been made within the Energy Statement in order to help achieve this.

Initiative Description	Commentary
BD1 Shape and Orientation	The shape of the building will ensure a maximum volume with a minimal building envelope. The orientation of a building should maximise the benefits of sunlight by allowing for passive heating through solar gains. The key to good design is ensuring that the coupled risk of overheating during summer is minimised through appropriate solar control measures.
BD2 Shading	External shading measures such as brise soleil or solar control glass to reduce overheating risk.
BD3 Ventilation	The use of site climatic conditions and topography to aid natural ventilation and air circulation of the building, reducing the requirement for mechanical ventilation such as air-conditioning.
BD4 Thermal Mass	The effective use of thermal mass in building design will even out daily temperature fluctuations and help maintain a 'thermal comfort environment' for building users, with minimum requirement for artificial heating/cooling.
BD5 Renewable Technology	Ensure renewable technology is taken into consideration at the design stage so that it can be incorporated into the building conceptual design. Ensure provisions for future connectivity to renewable technology and decentralised networks through the consideration of space, heating infrastructure and connectivity. See energy and carbon emissions section for further detail.
BD6 Infrastructure	A Utilities Assessment (Appendix 13.3) has been undertaken to ensure the capacity of the site for water, gas and electricity can be met.
BD7 Harmony with Local Area	The project description, paragraph 2.36, details indicative design work that features a sinuous wall, constructed to reminiscent peat stacks, and a series of linear pitched roof elements that as a cluster reflect the form and grouping of local farm buildings.
BD8 Design and Access Statement	A Design and Access Statement has been produced to detail the aspects of sustainable design.

8 MATERIALS

8.1 Policy Context

- WBC Local Plan Core Strategy: QE7, MP8, CC2
- Design and Construction SPD: 'Design and Layout', 'Recycling and Reuse of Buildings and Materials During Construction', 'Minimising Waste During Use', 'Waste Design Issues'

8.2 Developer Compliance

8.2.1 Materials can have an impact on the environment in a range of different ways and at different times during their life cycles. The UK construction industry uses more than 400 million tonnes of material every year, making it the UKs largest consumer of natural resources[12].

Initiative Description	Commentary
M1 Procurement of Materials	The procurement of materials for the development will prioritise renewable or sustainable sources with low energy impact, for example, where possible all timber will be sourced from Forest Stewardship Council (FSC) certified product suppliers or equivalent, were practicable. Materials should be locally sourced whenever possible and should aim to be in keeping with the local area.
M2 Reduced Waste Streams	The main contractor will be required to consider the options for utilising any waste materials produced during the construction works on the site. Specifically, this would include consideration of landscaping, secondary aggregate use for hardstanding and access roads and the potential building materials for construction of the new buildings. The Applicant intends to retain a portion of excavated peat on site within the landscaping as well as contributing to local restoration projects.
M3 Avoid toxic materials	Contractors will be required to avoid the use of environmentally toxic glues, solvents, treatments and coatings wherever possible. Where there is no appropriate alternative, only minimal amounts should use where absolutely required. Consideration should be given to surrounding environment during the application and movement of these materials.
M4 Materials Management Plan	A Materials Management Plan will be developed to detail the appropriate handling, treatment and re-use of material onsite and ensure good practise and sustainable procurement on site.

[12] WRAP, National Federation of Builders and Envirowise. 'Reducing your construction waste'.

9 ENERGY & CARBON EMISSIONS

9.1 Policy Context

- WBC Local Plan Core Strategy: CS1, SN7, QE1, QE7, MP10
- Planning Obligations SPD: 'Energy'
- Design and Construction SPD: 'Energy Efficiency in Use'

9.2 Developer Compliance

9.2.1 The total energy demand for the Warrington MSA has been estimated as 4,888,789 kWh/yr taking into account the facilities building, hotel, fuel filling station, external lighting and Electric Vehicle (EV) charging, which equates to 1,107 tonnes of CO_2e/yr.

9.2.2 The Energy Statement (Appendix 13.2) has demonstrated the recommendations for adhering to the energy hierarchy, as outlined in policy QE1, that the Applicant will take into consideration at the detailed design stage.

9.2.3 A feasibility study has also been undertaken to assess potential viable renewable technologies that could be integrated into the building design to meet a proportion of the energy demand.

Initiative Description	Commentary
ECE1 Energy efficiency in Construction	The construction process itself will be managed by the contractors appointed by the Applicant. Contractors will be required to operate in accordance with best practise guidance and in line with a CWMP to minimise waste and excessive use of energy in the form of electricity, heat and transport fuel.
ECE2 Energy efficiency in Building Design	Design evolution will take into consideration building layout and orientation to ensure maximum solar gain, minimised overheating and effective passive ventilation.
ECE3 Fabric Efficiency	A high quality fabric efficiency will be utilised in all materials, that meets or exceeds specification in Part L of the Building Regulations.
ECE4 Energy efficiency in Building Services	Energy efficient LED lighting will be installed throughout the development, which will be fitted with movement sensors to minimise unnecessary use. Exterior lighting will be installed to ensure adequate safety for users of the site, however these will also be LED fittings that will only be on from dusk to dawn. Water pipes will be lagged to minimise thermal losses and protect pipes from frost.
ECE5 Energy Use	The Energy Statement has made recommendations for a target of 10% of site energy demand to be met by ground source heat pumps, a source of renewable energy that will reduce the site's carbon emissions. Further reductions could be made if an integrated approach was taken, incorporating solar PV to meet additional electricity demand. The exact specification and implementation of renewables is being considered by the Applicant during current design iterations and there are no formal commitments to a specific technology at this stage.w
ECE6 Energy performance	Following the completion of final designs, the Applicant will required to undertake both a design stage and post construction SBEM assessment in order to comply with Building Control. The purpose is to estimate the energy performance at design stage, and then reassess the likely performance 'as built'.
ECE7 Monitoring	The Applicant should consider the monitoring of energy levels for the purpose of evaluating economic opportunities for reducing consumption during different periods of the year.

10 WASTE & RECYCLING

10.1 Policy Context

- WBC Local Plan Core Strategy: CS1, MP8
- Design and Construction SPD: 'Recycling and Reuse of Buildings and Materials During Construction', 'Site Waste Management Plan', 'Minimising Waste During Use', 'Waste Design Issues'

10.2 Developer Compliance

10.2.1 Waste arising from the proposed development could include inert materials, masonry, steel, wood, metals, earth, plasterboard, and glass; and non-construction waste including general waste, canteen waste, plastics and packaging. It has been estimated that construction waste will total 2,219 tonnes and commercial waste arising from the operational phase will total 1,082 tonnes per annum.

10.2.2 The Applicant is aiming to minimise material import and export through the design of the site and re-use of materials, which will be prioritised over additional materials.

Initiative Description	Commentary
W1 Design and Procurement	The proposed development will be designed to utilise standard material sizes and pre-fabricated elements where practical. There will be a commitment to ensure that precise material requirements are specified to avoid unnecessary waste and these are delivered on a 'as required' basis. This will prevent the loss of material to leaching and weather events. Where possible, the materials used within construction will comprise recycled content and will be sustainable sourced.
W2 Construction	The Applicant will seek to ensure that the contractor is obligated to develop and implement a site wide strategy for maximising the recovery of materials and reducing re-using and recycling construction waste on-site wherever possible. The main contractor should select materials and components that are able to be recycled at the end of their design life, wherever practicable. It is expected that a 'cut and fill' approach will be employed on site to ensure that any material excavated is reused whenever possible, minimising the volume of material to be imported or exported from site.
W3 Waste Management	A Site Waste Management Plan will be prepared to improve efficiency, promote the waste hierarchy, maintain a full audit trail of waste on site and improve environmental performance. This will include entering into a waste agreement with a registered carrier. On completion of the development, recycling will be encouraged through the adequate storage provision for recyclable materials. The layout of the development will take into consideration the need for recycling collection. Consideration will be given to the provision of composting facilities in addition to recycling storage. Any special or toxic waste will have separate storage facilities with appropriate collection arrangements.
W4 Waste Audit	A Waste Audit Statement will be prepared annually to demonstrate that the site waste is being managed efficiently and effectively with opportunities to reduce, reuse and recycle waste materials and promote best practice and environmental awareness.
W5 Training	Staff will be trained in the safe and effective use of the waste and recycling facilities both through initial site induction and through the subsequent site staff training programme.

11 TRAVEL AND TRANSPORT

11.1 Policy Context

- WBC Local Plan Core Strategy: CS1, CS4, SN7, MP1, MP3, MP6, MP7, MP10
- Planning Obligations SPD: 'Transport'
- Design and Construction SPD: 'Location and Transport', 'Transport Design Guidance', 'Car Parking'

11.2 Developer Compliance

11.2.1 Being located adjacent to the M62 means that the Site is easily accessible and well connected. Access to the M62 is at J11, between the M6 and the M60. There is a network of footpath and cycle routes located within close proximity to the site. A PRoW runs along the western boundary and a footpath that ultimately connects the Site with the roundabout for J11 of the M62 and Silver Lane, south of the M62 and beyond to further residential areas, is present. The Applicant will assess how this network of cycle and footpaths can be upgraded to enhance accessibility to the site.

11.2.2 A mitigative signalisation scheme has been suggested within the Transport Assessment that demonstrates the junction can operate within capacity when the MSA and surrounding committed developments are fully operational.

Initiative Description	Commentary
TT1 Sustainable Travel	A Framework Travel Plan has been submitted to support the development proposals. This travel plan will aim to minimise vehicular traffic associated with staff trips by encouraging car sharing and sustainable travel modes, including a potential shuttle bus from nearby Birchwood Railway Station. A travel plan coordinator is to be appointed.
T12 Low Carbon Vehicles	The Applicant has committed to electric vehicle charging points on site and may consider the implementation of provisions for other low carbon vehicles e.g. hydrogen.
TT3 Pedestrians and Cyclists	The Applicant will encourage the use of the surrounding network of footpaths, in addition to increasing pedestrian accessibility in the Site area. This could include: • Onsite footways, pedestrian/cyclist access; • Provision of secure cycle parking; • Encouraging staff to cycle to work through incentives such as bike user group, bike doctor surgery, cycle 2 work scheme • Signalisation of crossing points at 4 points; • Extension of the footway on the overbridge northwards, connecting the site to the existing cycling and walking network of the M62; and • Provision of pedestrian crossing and footways on eastern side of the M62J11 roundabout; and • Provision of improvements to the surrounding existing cycle and pedestrian pathways, connecting the site to several surrounding residential areas.
TT4 Car Parking	Car parking will meet all best practise guidance in terms of provision and space for all users and conscientious design to limit visual impacts. The concept will integrate into the wider site masterplan and form a material consideration during the design stage.

12 AIR QUALITY AND ENVIRONMENTAL POLLUTION

12.1 Policy Context

- WBC Local Plan Core Strategy: CS4, QE4, QE6
- Design and Construction SPD: 'Location and Transport;
- Environmental Protection SPD: 'Contaminated Land, 'Air Quality', 'Light Pollution', 'Noise'

12.2 Developer Compliance

12.2.1 Chemical pollution can have significant adverse health effects on humans, animals, plants and ecosystems. The reduction of pollution pathways and receptors is critical in ensuring sustainable development.

12.2.2 During the construction phase environmental pollution could occur from the mobilisation of contaminants from the historic Risley landfill site, increased traffic and other construction activities. These impacts will be short-term and have been assessed as no greater than minor adverse. Once completed the development could lead to the emission of pollutants due to visiting traffic.

Initiative Description	Commentary
AQ1 Pollution Management during Construction Phase	The Applicant is committed to reducing the emissions of pollutants from the development and will seek to ensure that the contractor is obligated, through the contract specification, to develop and implement a site-wide strategy for pollution reduction and dust and air quality control. Where appropriate measures will include: • Developing and implementing a best practice Dust Mitigation Plan (DMP); • Providing designated areas for re-fuelling on bunded hard standing; • Re-vegetate earthworks and exposed soil stockpiles to stabilise surfaces; • Ensure sand and aggregates are stored in bunded areas and not allowed to dry out; • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems; • Use water assisted dust sweepers on the access and local roads to remove, as necessary, any material tracked out of site; and • Ensure vehicles entering and leaving the sites are covered to prevent escape of materials during transport.
AQ2 Minimising Pollution from Transport	Pollution from transport during construction and operations will be reduced by a programme of actions which could include the following: • Encouraging all vehicles to be turned off when stationary; • Provision of an Electric Vehicle Charging Station; and • Preparation of a Travel Plan.
AQ3 Pollution Management during Operation Phase	During the building's operational phase guidelines to ensure the safe storage and disposal of potential pollutants and contaminants will be followed. Measures could include but not be limited to: • Appropriate storage and disposal of Municipal Solid Wastes; • Recycling of batteries; • Safe disposal of any medicines and/or medical waste generated; • Safe storage and disposal of detergents and cleaning solutions;

	• Regular servicing and maintenance of gas heating systems to avoid carbon monoxide risks; and • Ensure radon provisions are in place where appropriate.
EP1 Water Protection	During construction the Applicant, Contractors and all agents will be responsible for ensuring appropriate storage of chemicals and construction materials, within bunded facilities where necessary. Measures such as the inclusion of oil and fuel separators will also be included in the drainage design to ensure there will be no incidental pollution of aquatic features. All staff of operational site should receive training in the use of chemical and hazardous or non-environmentally products, particularly in regards to disposal and behaviour around drainage.
EP2 Soil Pollution	The Applicant and its agents will adopt a precautionary approach to soil contamination to ensure potentially harmful chemicals and materials are recycled/reused where possible, stored and managed securely while on site and ultimately disposed of safely at appropriately licensed facilities. Protection of the onsite soils is important to avoid any risk of harm to users of the site.
EP3 Noise Pollution	Construction activities will be restricted to only occur during set implemented working hours during the day and the Council will be contacted in advance of any night working. Temporary screens should be deployed to protect sensitive receptors. Due to the operational purpose of the site users will access 24hs a day. It is not anticipated for noise pollution to be a problem due to distance from residential areas and proximity to the motorway.
EP4 Light Pollution	External lighting will be limited to the hours of dusk to dawn. Placement of lighting will be used to ensure maximum safety of staff and site users without excessive placement.
EP5 Odour	The impact of odour were considered to be negligible and no mitigation measures have been recommended.

13 WATER USE & FLOODING

13.1 Policy Context

- WBC Local Plan Core Strategy: QE4, QE6
- Planning Obligations SPD: 'Flood Risk'
- Design and Construction SPD: 'Location and Transport', 'Minimising Waste During Use', 'Landscaping and the Natural Environment'

13.2 Developer Compliance

13.2.1 The impact on water resources is highly site specific and is dependent upon underlying geology, natural and made features, proximity of receptors and mitigation management. The effect of development can include compaction, soil stripping, vegetation removal, contaminant mobilisation/spillage/leakage and release of sediment and silt. The impact of these effects on water resources include but are by no means limited to increased run off, increased flood risk, degradation of water quality and contamination of abstractive aquifers.

13.2.2 Extreme weather patterns, most likely related to climate change, have potential to put additional pressures on both flood defences and water supply provision. During extreme winter storms, flooding issues could cause significant problems especially in places where the topography of the land renders them susceptible. The Application Site has been assessed as low risk of fluvial and groundwater flooding and zero risk of tidal flooding.

13.2.3 Conversely, during prolonged dry spells water can become an increasingly scarce resource especially as demand continues to grow with an increasing population. To satisfy the increase in demand, new sources of water and associated infrastructure may be required. The construction and operation of this infrastructure (reservoirs and treatment works) is expensive, energy intensive and damaging to the environment and therefore measures to help reduce water consumption should be undertaken where possible.

Initiative Description	Commentary
WF1 Water Conservation	The Applicant will consider opportunities for water saving measures such as grey water recovery, vacuum toilets and dual flush and low flow taps.
WF2 Flood Protection	The use of an infiltration discharge is considered to be inappropriate for the Site due to the presence of peat and Till superficial, and the fact that the site is within a Source Protection Zone III indicating that groundwater is extracted as a water supply. Watercourse discharge is considered to be a viable option and, subject to further site investigation being undertaken as part of the detailed planning application, the proposed surface water drainage strategy is to discharge to Silver Lane Brook, which is also proposed to be diverted as part of the development proposal. The diverted brook will be designed to ensure that there is sufficient capacity for the contributing catchment, including the Site area. The surface water storage will be sized to contain all storm events up to and including a 1 in 100 year storm event including an allowance of 20% for climate change. Modelling suggests that the restricted discharge all storm events up to the 1 in 100 year with a climate allowance will reduce the current existing discharge from the site by over 50% thereby providing flood risk betterment downstream of the Site. The levels design of the Site has been developed to ensure that should an extreme exceedance flood event occur then flows will route through the development and to the storage basin area, away from the buildings and the majority of carparking. Safe emergency access through the Site will be available at all times.
WF3 Sustainable Drainage	Consideration has been given to both pumped and gravity discharge into Silver Lane Brook. Gravity drainage would require a significant raising of Site levels to maintain sufficient gradients and pipe cover. The cost of the pumped option and the environmental benefits in terms of reducing material import and earthworks was considered to outweigh the benefits from the use of the gravity discharge option. The greenfield discharge from the Proposed Development's surface water drainage system will be pumped to the brook to reduce the need to raise the Site to allow a full gravity drainage system to be implemented. The surface water drainage system has been designed to serve the full Proposed Development layout and to transfer all surface water flows to the attenuation storage and pumped outfall. It is proposed that the main surface water storage will be provided by a mix of tank/crate storage, smaller discrete dry basins and swales.
WF4 Water Treatment	Further to the implementation of the above procedural controls, the surface water flows from the site will be taken through an on-site water treatment train prior to discharge to the diverted Silver Lane Brook. The first stage of the treatment will be a mix of pre-treatment, using swales, channel drainage and gullies, to collect the surface water at source and provide an initial level of treatment. The surface water from paved areas will then be taken through petrol interceptors/forecourt interceptors. The final level of treatment and storage would be provided by a mix of tank/crate storage, smaller discrete dry basins and swales. To reduce the risk to the surrounding water environment from a major onsite incident, the drainage outfall and overflow to the Silver Lane Brook would include a discharge shut down system. This would allow flows to be contained on the Site to allow treatment as appropriate.
WF5 Water Risk Management	All surface water drainage will be designed and constructed to meet Building Regulation and best practice drainage design guides/standards as appropriate. To reduce the risk to the surrounding water environment from a major on-site incident, the drainage outfall and overflow to the brook will include a discharge shut down system. This will allow flows to be contained on Site to allow treatment as appropriate. Subject to further site investigation, the open swales and the dry storage basin will be lined where appropriate to prevent risk of infiltration. In terms of the installation of any below ground tanks and interceptors, appropriate construction techniques, ground support and dewatering, and suitably selected proprietary products for the ground conditions identified will be used to minimise the risk of tank leakage. The MSA facility will have an operation and maintenance management team who, as part of their role, will ensure all drainage systems are fully maintained and managed in accordance with best practice/guidance. Full details of the drainage maintenance will be provided at reserved matters.

14 EFFECTS ON ECOLOGY AND BIODIVERSITY

14.1 Policy Context

- WBC Local Plan Core Strategy: CS1, CS5, CS6, SN7, QE3, QE5,
- Planning Obligations SPD: 'Biodiversity',
- Design and Construction SPD: 'Landscape and Natural Environment', 'Landscaping in Development'

14.2 Developer Compliance

14.2.1 In ecology, sustainability describes that state where an ecological system remains diverse and productive over an extended period of time. In their interaction with mankind, the presence of long-lived and healthy biological systems reflects inherently on sustainable practices being used in near proximity, or even direct management of that system. The purpose of the initiatives suggested below is to help achieve this state through wide-ranging approaches or interventions in relation to the Proposed Development to conserve natural resources, enhance the biodiversity and preserve habitat.

Initiative Description	Commentary
BIO1 Site Design	Throughout the design and construction phase the Applicant will identify habitats, which are considered ecological notable and, wherever possible, design the development to avoid direct losses.
BIO2 Construction Environmental Management Plan	A Construction Environmental Management Plan (CEMP) will be finalised and agreed with the Local Planning Authority prior to construction commencement. The CEMP will contain all measures required to mitigate identified adverse effects, especially with regard to the scheme drainage design, pollution/sediment prevention measures and excavation and relocation of excavated peat. The CEMP will also include specific measures required for species protection, including update survey and invasive species control. The CEMP would also include measures to mitigate for pollution, sediment and dust impacts during the construction period. For example, dust would be controlled by means of dust suppression measures such as dampening down of roads and covering of storage areas. These measures would protect adjacent habitat, which is important for invertebrate, breeding bird, wintering bird and bat populations. In addition, it will include dedicated offsite protected areas during construction, where on site workers will be informed that are 'no access' areas, to minimise the working footprint and disturbance issues where possible. The CEMP will also include a number of measures to control Himalayan Balsam as well as the necessary monitoring of any regrowth and remedial action. For the operational phase, the CEMP will include reference to the site drainage design, which includes a number of features to prevent flooding of adjacent land during extreme rainfall events. Measures such as the inclusion of oil and fuel separators will also be included in the drainage design to ensure there will be no incidental pollution of aquatic features.
BIO3 Habitat Management Plan	A Habitat Management Plan (HMP) will be developed to include measures to limit disturbance of breeding and wintering bird populations and extant bat populations, including no night working and limited access to surrounding habitats. The HMP will also include habitat creation and management provisions, including measures in mitigation for the loss and subsequent re-alignment of the Silver Lane Brook corridor. Its objectives will be as follows: • Design the channel profile with varied bank treatments and angles to provide a greater diversity of aquatic habitats, to include shallow berms, areas of dense marginal planting, alder and willow tree plantings. • Design the realigned section with range of features of conservation benefit including in channel features and diverse marginal habitats. These will include riffles, areas of slow/static flow, deep peaty sediment; • Design the route the realigned section of Brook to follow a more natural 'sinuous' form (where possible); • Include specific mitigation features for aquatic and terrestrial invertebrates (including dragonflies and damselflies), as well as enhancements for fish, kingfisher and other 'Priority' species such as water vole; • Create a wildlife corridor - linking habitats within the biodiverse landscaped areas on Site and Silver Lane Local Wildlife Site to the north and west; • Marshy (acid) grassland: habitats will be established where peat extracted from beneath the development area will be relocated at surface and kept in an inundated/saturated condition to ensure the growth of plant communities typical of lowland blanket bog. These habitats will be located within a mosaic of shallow (including temporary) pools, where this is feasible and in accordance with the overall drainage strategy. • The hydrological conditions on site will be enhanced to maintain a high water table within certain parts of the realigned Brook corridor. Within this area several pools of varying depth will be created with densely vegetated margins. This may form part of the overall SuDS proposals for the development.
BIO4 Planting & Vegetation Enhancement	Creation of new native tree planting and enhancement of retained vegetation within the Site. The landscape design for the Development will include a number of tree plantings around the eastern and northern boundaries of the site, this will mitigate for disturbance effects to faunal species occupying the arable farmland habitats to the north of the site, including the limited assemblage of wintering birds.

BIO5 Grassland Enhancement	Creation of species-rich grassland and scrub mosaic including along the route of the High Pressure Gas Main which follows the eastern boundary of the site.
BIO6 Ecological Clerk of Works	An Ecological Clerk of Works (ECoW) in the form of a suitably qualified ecologist, would oversee all activities during construction and to ensure that mitigation measures and procedures set out in the CEMP are implemented.
BIO7 Nesting Bird	Due to the likely presence of nesting bird within the development area, initial site clearance works will be undertaken outside of the usual bird breeding season (normally taken to be March – July inclusive) where possible. If such timescales cannot be accommodated, a check for the presence of active nests, and nesting birds would be undertaken by a suitably qualified ecologist prior to the commencement of works. Any active nests would be identified and protected subject to the relevant legal provisions until the nesting attempt is complete.
BIO8 Pre Construction Surveys	Pre-construction surveys of the proposed culverted section of Silver Lane Brook in order to ensure the baseline assessment for water vole remain accurate. Any modifications to the baseline assessments will be described and precautionary measures, such as translocation or habitat manipulation and hence avoiding impacts (including appropriate buffers) will be included within the CEMP and subject to the necessary prior consents.
BIO9 Tree Protection	To avoid soil compaction, and impact on tree root of retained trees; root protection measures, covering the Root Protection Area (RPA), together with barrier protection, should be provided for trees, which lie close to construction areas, both within and outside of site. If these areas cannot be avoided, either the trees due to be impacted should be removed to enable construction and replaced post-construction, given that all trees on site have a low retention value or any track sub-bases, which fall within an RPA, should comprise a geotextile layer overlain with clean angular lime-free stone.
BIO10 Access to Local Wildlife Site	In order to avoid increased public pressure to Silver Lane Local Wildlife Site (LWS) a new network of footpath signage within (and potentially outwith) the Development will be installed to direct visitors to the formalized paths already established around the LWS as well as providing optional routes within the Development landscaped areas.
BIO11 Lighting Scheme	Creation of a sensitive lighting scheme to ensure that the wildlife corridor created by the realigned Brook remains available to foraging and commuting bats. The lighting scheme will include lighting restrictions both during and post-construction, which may include the following methods, taken from the Bats & Lighting Guidance (Stone, 2013): • Avoidance of light spill using directional and or baffled lighting; • The addition of cowls to the fixed lighting installations to ensure the lighting is as directional as possible; • Variable lighting regimes (VLR) – switching off when human activity levels are low i.e. 21:00 to 05:30; • Avoid use of blue-white short wavelength lights and high UV content; or • Creating light barriers utilising tree planting.
BIO12 Vegetation Monitoring	It is proposed that a programme of vegetation monitoring is implemented to consider any necessary remedial actions to ensure the development of the wildlife corridor habitats along the route of the re-aligned Silver Lane Brook. This will include checks to assess the hydrological conditions of relocated peat deposits, to ensure these areas remain wet, and develop a typical peatland flora. In addition, the structural and species composition of newly created habitats will be monitored by vegetation survey and potentially by fixed point photography. Such monitoring measures will also be included with a Habitat Management Plan.

15 EFFECTS ON SOIL AND PEAT

15.1 Policy Context

- WBC Local Plan Core Strategy: CS1, CS2
- Design and Construction SPD: 'Landscaping and the Natural Environment', 'Landscaping in Development'

15.2 Developer Compliance

15.2.1 A significant peat resource is present within the Site and will be removed along with agricultural soils formed above it. The incorrect removal, handling and storage of soil and peat could result in a loss of soil resource. Potential adverse effects can include drying of peat leading to excess erosion, oxidation and loss of carbon, amongst others. If inappropriately managed, and mitigation is lacking, then permanent damage to peat and soil is possible. The potential impacts are most prevalent during the construction phase of the development.

15.2.2 The best management option for developments in which peat is present is to prevent the generation of peat spoil. However, where this is unavoidable the volume of the excavation should be reduced as far as practicable. In such situations, the peat should be managed using the peat hierarchy.

15.2.3 The strategy for correct management of soil and peat is detailed below.

Initiative Description	Commentary
SP1 Protection of Soil and Peat	The soil resources within the Site would be protected against damage by the adoption of industry standard soil and peat management measures, such as those set out in Defra's 2009 Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. These methods may include, but are not limited to: • Handling of topsoil resources only when sufficiently dry to prevent compaction and damage to soil structure • Handling and maintenance of deeper peats in a wet state to prevent drying and oxidation; and • The separate stripping, handling, storage and transportation of different soil layers (topsoils, subsoils and peat) and soil types if there is variation across the Site; • Appropriate seeding of soil storage mounds if required for a period of longer than six months to prevent erosion and to maintain soil structure, nutrient content and biological activity • Development of a site specific Soil and Peat Management Plan (SPMP).
SP2 Management of Peat	Through the iterative design and consultation process the Proposed Development has been designed to maximise the area of undisturbed (avoided) peat, with disturbed peat to be retained within the Site in situ, for beneficial reuse in the creation of peatland type habitat. The area of undisturbed peat equates to approximately 50.1% (22,700 m3) of the peat resource on site, including the deepest peat areas to the south east. The remaining 22,600 m3 (49.9 %) of peat which occurs within the development area will be directly transferred into a specially prepared area within the site (Peat Habitat Zone). The specialised design of the Peat Habitat Zone along with the direct transfer of peat from the development area minimises the potential for peat damage, drying or carbon loss and ensures that the Peat Habitat Zone will remain in a wettened state. As all topsoil would be stripped in advance of these works, the peat is placed directly over peat with no mixing of the degraded agricultural soils. The direct transfer of the peat from the development area to the specially prepared Peat Habitat Zone would ensure no double handling of the resource and minimise the potential for damage to the peat, peat drying or carbon loss.

16 CONCLUSION

16.1.1 This Sustainability Statement has been prepared to demonstrate the approach that has been taken to sustainability during the design process for the Proposed Development for a Motorway Services Area near Warrington, at Junction 11 of the M62, and considers the extent to which the development proposals meet with the principles of sustainable development.

16.1.2 Consideration has been given to where the development accords with National Planning Policy and local planning objectives including those outlined in the Warrington Borough Council policy.

16.1.3 Following the evaluation, additional strategies to improve the sustainability of the development have been suggested. Once incorporated, it is expected that the Proposed Development will meet national and local sustainability criteria.

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