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440 Hollinwood Avenue, Moston, Manchester

FLOOD RISK ASSESSMENT

Final Report for:



April 2025

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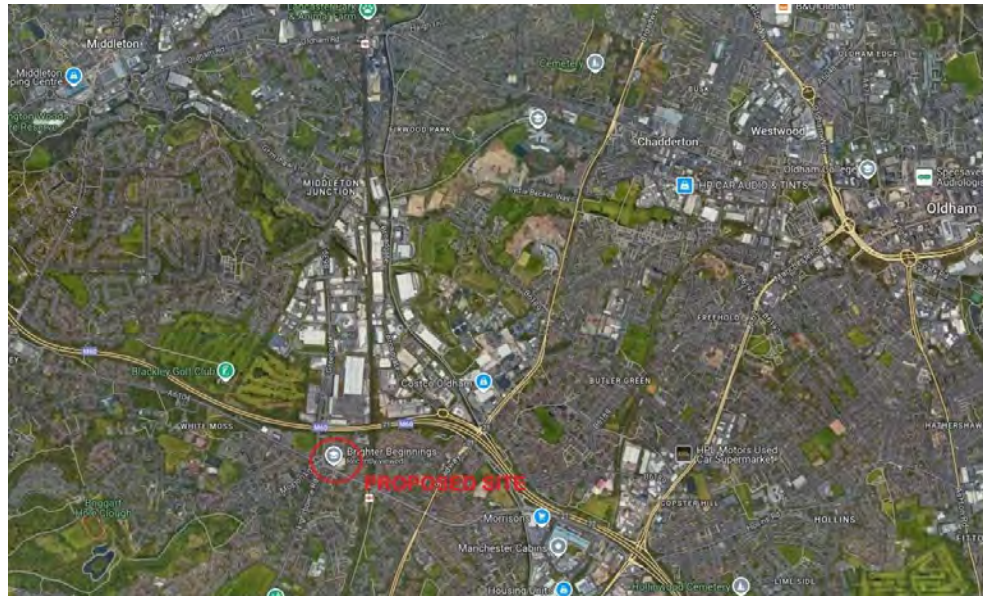
1.0 INTRODUCTION

1.1 Overview

- 1.1.1 Cora IHT have been instructed by Lidl GB Ltd and AG Barr Plc to prepare a Flood Risk Assessment [FRA] to support proposals for a new store located off Hollinwood Avenue, Manchester M40 OAE.

Figure 1.1 illustrates the site location.

Figure 1.1: Site Location



- 1.1.2 This report presents the findings of an FRA, which has been carried out in accordance with the National Planning Policy Framework (NPPF), Flood Risk and Coastal Change Technical Guidance, Environment Agency (EA) interactive maps and Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA (SFRA).
- 1.1.3 This FRA aims to identify and assess the risks of all forms of flooding to and from the site and demonstrate how these flood risks will be managed, taking climate change into account. The FRA also considers the management of surface water run-off and outlines the proposed drainage strategy.
- 1.1.4 As the proposed site resides within an area designated as flood zone 1 with an approximate site area within the application boundary of 0.787 hectares (7,870m²) an FRA is not strictly required see **figure 1.2** below.

Figure 1.2: Requirements within Flood zone 1

This location is in flood zone 1

What flood zone 1 means

Land within flood zone 1 has a low probability of flooding from rivers and the sea.

Most developments that are less than 1 hectare (ha) in flood zone 1 do not need a flood risk assessment (FRA) as part of the planning application. The site you have drawn is 0.8 ha.

- 1.1.5 Notwithstanding the above, the development should not increase the risk of flooding elsewhere and this FRA has therefore also been prepared to demonstrate that this has been achieved. Consideration has also been given to minimising the risk of pollution to controlled waters and the site conditions prior to, during and after development.
- 1.1.6 The content of the flood risk assessment will be delivered in line with the objectives contained within paragraph 20 of the Flood risk and coastal change guidance which indicates:
- *whether a proposed development is likely to be affected by current or future flooding from any source.*
 - *whether it will increase flood risk elsewhere.*
 - *whether the measures proposed to deal with these effects and risks are appropriate.*
 - *the evidence for the local planning authority to apply (if necessary) the Sequential Test, and.*
 - *whether the development will be safe and pass the Exception Test, if applicable.*
- 1.1.7 Although a flood risk assessment is necessary, following the guidance within Paragraph 21 of the Flood risk and coastal change guidance (Extract below):
- A flood risk assessment needs to be appropriate to the scale, nature and location of the development. For example, where the development is an extension to an existing house (for which an application for planning permission is required) which would not significantly increase the number of people present in an area at risk of flooding, the local planning authority would generally need a less detailed assessment to be able to reach an informed decision on the planning application.*

2.0 SITE DESCRIPTION AND EXISTING CONDITIONS

2.1 Site Description

- 2.1.1 The site forms circa 0.787 hectares of Brownfield land previously occupied by the Barr Soft Drinks. The site is located approximately 6.9km to the Northeast of Manchester centre. National Grid reference 388580, 403232 is located at the central point of the proposed site area with the nearest postcode is identified as M40 OAE.
- 2.1.2 A proposed site layout plan drawing reference 3607 P404 by HTC architects is presented in **Appendix A**.
- 2.1.3 The Rochdale Canal is located approximately 1.1km to the east of the proposed site with the Moston Brook 1.3km to the south and the Boggart Hole Brook 1.3km to the west.
- 2.1.4 Due to the site's previous use, the existing site is understood to be serviced by a comprehensive network of manholes and inspection chambers providing positive discharge for both foul and surface water flows.
- 2.1.5 A number of existing manholes are located within the external hard standing areas of the existing site, which have been highlighted on drawing reference 16-3060-100 shown in **Appendix B**, both the foul and surface water networks appear to remain separate throughout the site before combining at chamber reference MH01 prior to discharge into the offsite United Utilities public combined system.
- 2.1.6 Existing asset records report is included within **Appendix C**.
- 2.1.7 Prior to detailed design commencing a comprehensive CCTV survey should be completed to establish the current depth and condition of the existing assets, to establish current discharge position and suitability for reuse.
- 2.1.8 Although no records have been identified the presence of underground culverts, should any culverts be identified at detailed design a detailed condition and connectivity survey should be completed to establish the exact routes and confirm condition for reuse.

2.2 Proposed Future Use

- 2.2.1 It is proposed to develop the site for food retail purposes. The scheme layout is shown on drawing reference 3607 P404 by HTC architects.

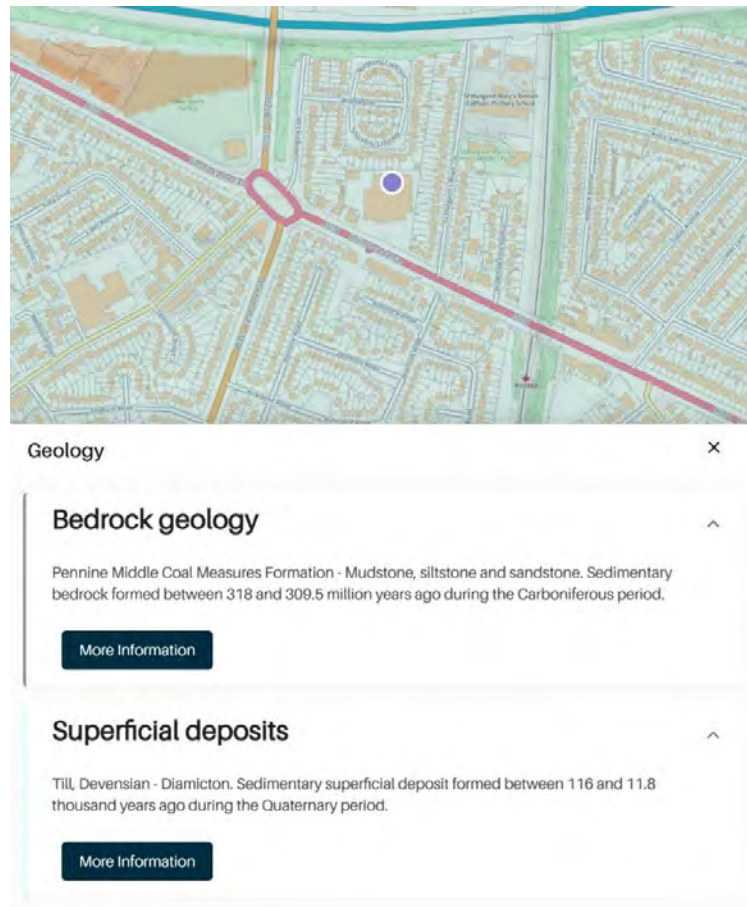
2.3 Site Levels

- 2.3.1 Following assessment of the topographical survey, the site appears to be generally flat with a nominal fall from north to south of approximately 200mm which generates a gradient of around 1 in 370.

2.4 Underlying Ground

- 2.4.1 Review of British Geological Survey (BGS) geology mapping records indicates that the bedrock geology through the site is underlain by Pennine Middle Coal Measures – Mudstone, siltstone and sandstone sedimentary bedrock, with superficial deposits of Till Devensian, Extract of the BGS information is shown in **Figure 2.1**.

Figure 2.1: BGS Information



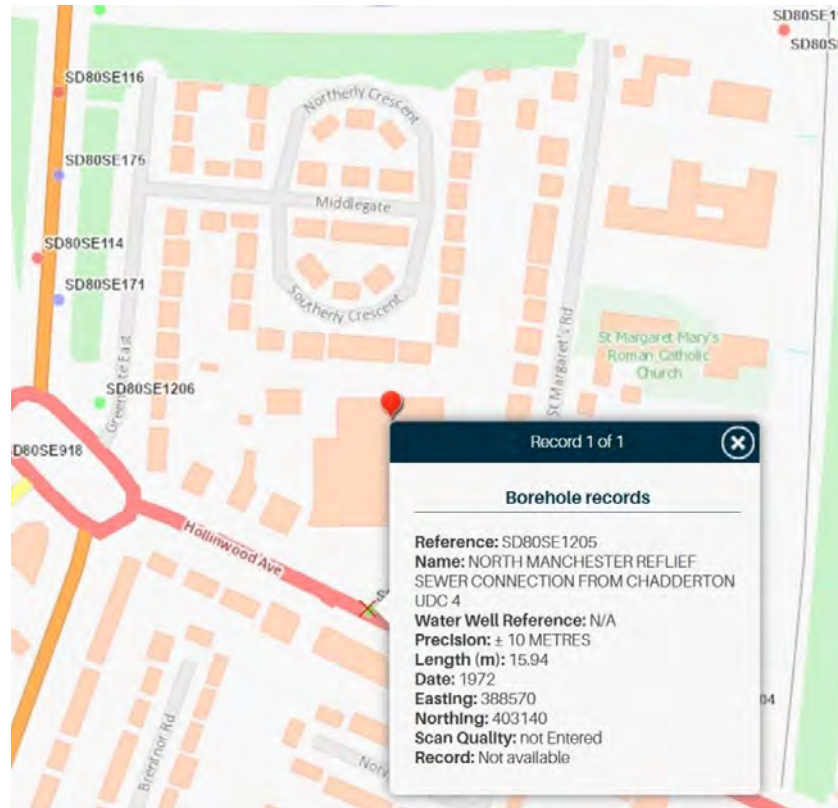
2.4.2 The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

- *Igneous rocks - are derived from molten magma in the Earth's crust. They may, for example, be extruded at the surface by volcanic activity to form lavas and tuffs (ash) or intruded into other rocks to form large masses of granite and gabbro at depth or minor, cross-cutting basalt dykes near the surface.*
- *Metamorphic rocks - such as schist and gneiss are those that have been changed from one rock type to another in the solid state by the recrystallisation of minerals, often at high temperatures and pressures when buried deep in the Earth's crust.*
- *Sedimentary rocks - are formed when grains and fragments of existing rocks are eroded away by ice, water and wind action, transported elsewhere and redeposited as a sediment. These sediments are often laid down in layers or strata of loose particles of gravel, sand, silt and clay. Over time they may be buried by later sediments and consolidated or cemented to form stratified or bedded rocks such as conglomerate, sandstone, siltstone and claystone. Other sedimentary rocks such as ironstone and limestone are created by chemical or biogenic (life) action.*

2.4.3 Although the online BGS records does not include any boreholes located within the proposed site, an existing borehole log has been identified close to the existing site access reference SD80SE1205, location shown in **Figure 2.2** below.

2.4.4 Unfortunately, the borehole record is not available.

Figure 2.2: BGS Borehole Locations



3.0 FLOOD RISK and FLOOD ZONES

3.1 Brief

3.1.1 The vulnerability of the site to flooding from rivers, sea and other sources has been considered, along with the potential to increase flooding elsewhere through the addition of impermeable areas and the effect on surface water run-off. Typical sources of flooding include fluvial, tidal, surface water, groundwater, sewers and anthropogenic sources; these are considered below.

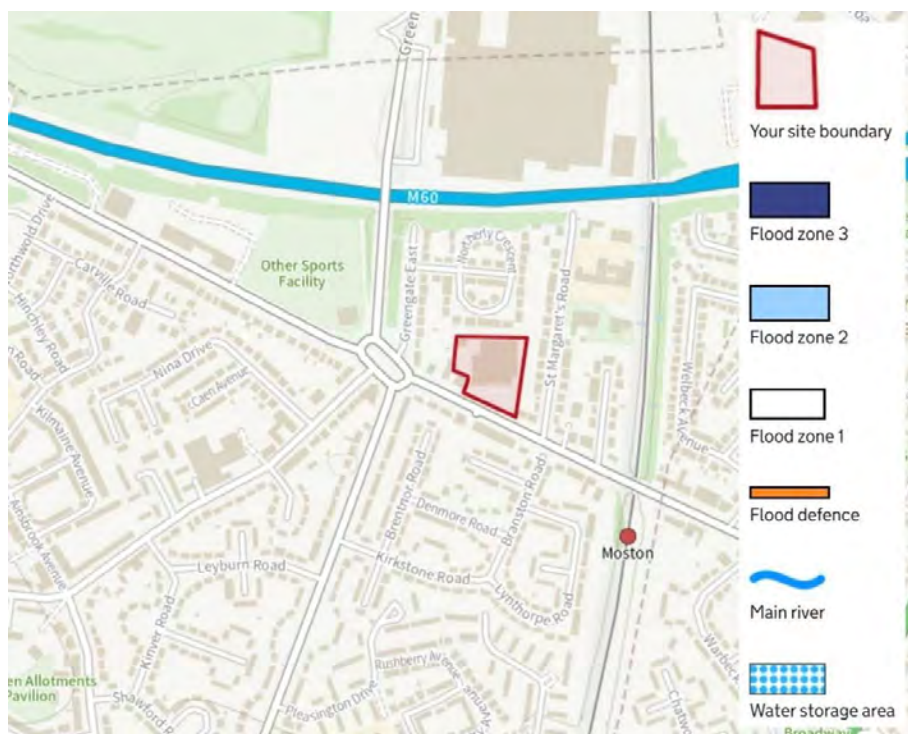
3.1.2 The local SFRA has also been consulted.

3.2 Fluvial, Tidal

3.2.1 Flood maps are produced by the EA for the whole of the UK to highlight areas at particular risk of flooding by categorising them into different Zones. These maps are based on a broad assessment of areas using digital mapping techniques and extracts from the EA flood maps for the site and its surroundings are included in the figures below.

3.2.2 The EA flood map for planning shows river and sea flooding data only, extract in **Figure 3.1**, full report provided in **Appendix D**, shows that the development area and its immediate surroundings are wholly located within EA Flood Zone 1 (unshaded areas).

Figure 3.1: Flood Map for Rivers and Sea



3.2.3 Areas located in flood zone 1 are defined as having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b).

3.2.4 The risk of flooding from Rivers and Sea has been identified as Very Low.

Figure 3.2: Flood Map for Rivers and Sea Description

Rivers and the sea
[More about your rivers and sea flood risk](#)

Yearly chance of flooding

Very low

Low

Medium

High

What makes rivers and sea flooding more likely

Low-lying areas that are close to rivers or the sea are more likely to flood when water levels rise.

This information takes into account any flood defences.

► [Why flood defences cannot completely prevent flooding](#)

3.2.5 All uses are considered appropriate in both Flood Zone 1 as shown in Table 2 of the NPPF shown in **Figure 3.3**.

Figure 3.3: NPPF Table 2

Table 2: Flood risk vulnerability and flood zone 'incompatibility'

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

Key:

✓ Exception test is not required

X Development should not be permitted

- 3.2.6 Inspection of Annex 3 of the NPPF shown in **Figure 3.4**, indicates buildings used for shops are classified as Less Vulnerable as such the proposed use is acceptable in the identified flood zone.

Figure 3.4: Annex 3: Flood risk vulnerability classification

Less vulnerable

- Police, ambulance and fire stations which are not required to be operational during flooding.
- Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure.
- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill* and hazardous waste facilities).
- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do not need to remain operational during times of flood.
- Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.
- Car parks.

3.3 Surface Water

- 3.3.1 The EA's surface water flood map shown in **Figures 3.5** identifies the surface water flood risk for the proposed site. The surface water flood category for the site has been identified as being very low, with no areas of flooding identified.

Figure 3.5 Surface Water flood Map

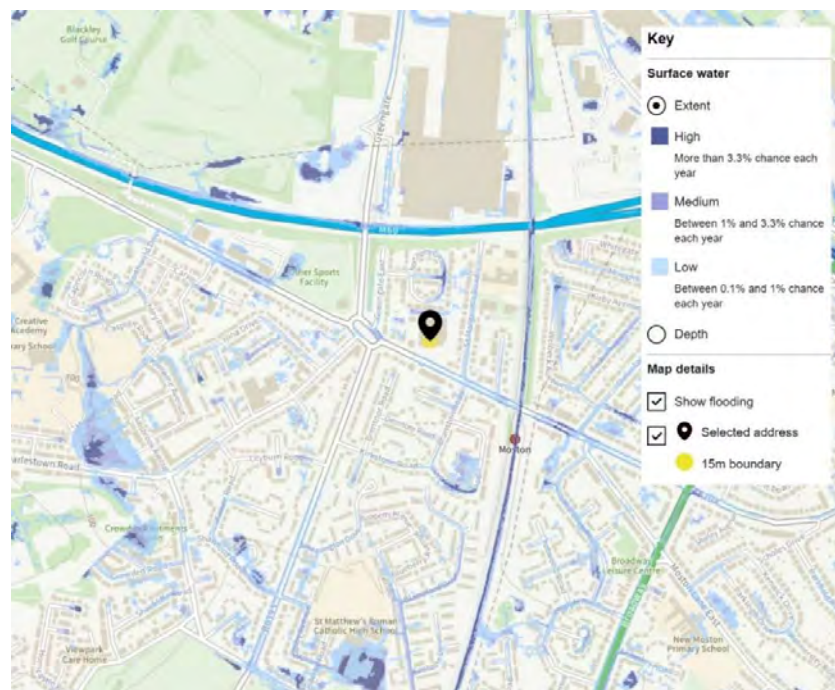
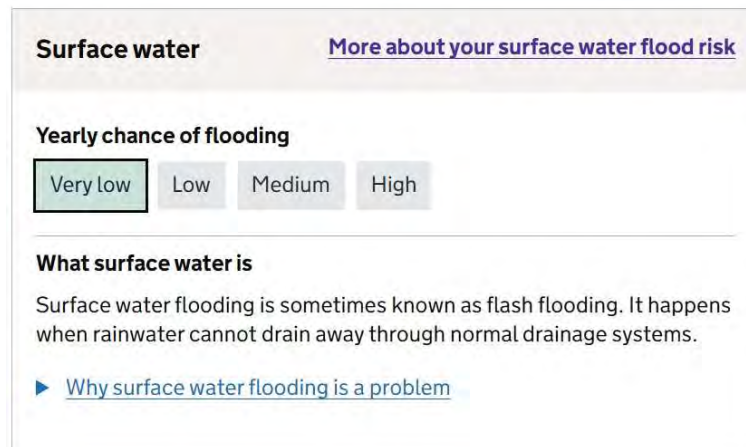
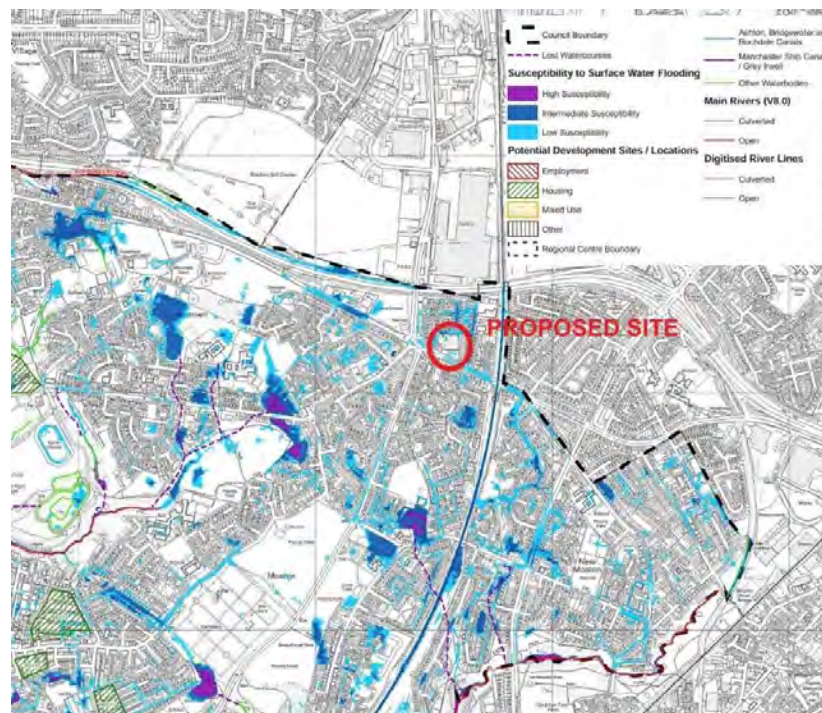


Figure 3.6 Surface Water Flood Map Description



- 3.3.2 Surface water flooding occurs when rainwater does not drain away through normal drainage systems or soak into the ground but lies on or flows over the ground instead.
- 3.3.3 The Manchester City, Salford City and Trafford Councils Level 2 SFRA includes mapping which identifies areas susceptible to surface water flooding for both current and future scenarios, which identifies the number of properties to the north of the proposed site along Middelgate, Northerly Crescent and South Crescent that are at an intermediate and low susceptibility of flooding extract shown in **Figure 3.7** below with the full drawing shown in **Appendix E**.
- 3.3.4 The proposed site is clear of any shaded areas as such it is considered not to be at risk from both current and future flooding scenarios.

Figure 3.7 EA Summary – Surface Water



- 3.3.5 Post development the introduction of buildings and roadways across the site will result in interception of rainfall via the building roofs and road surfaces. Management of surface water is being considered as part of the development proposals and a preliminary drainage strategy is outlined within Section 7 of this FRA report.

3.4 *Other Sources*

- 3.4.1 The EA also identifies the potential for flooding from both reservoir and groundwater flooding. The extract below shown in **Figures 3.8** indicates that the proposed site is unaffected from both sources of flooding.
- 3.4.2 Groundwater flooding typically results from heavy/prolonged rainfall causing the level of the groundwater table to rise, which may lead to emergence of groundwater at the surface or into underground features such as basements. Low lying areas of land with permeable underlying strata may be particularly susceptible.
- 3.4.3 **Figure 3.8** below shows the site to not be affected from either reservoir or groundwater flooding.

Figure 3.8 Flood Map Other Sources

Groundwater Flooding from groundwater is unlikely in this area.	
What groundwater is	Groundwater is the water that is usually held in rocks and soil underground. Groundwater flooding happens when this water rises and flows above the surface.
How we check an area's risk	We use flood alert data to check the risk of flooding from groundwater.

Reservoirs Flooding from reservoirs is unlikely in this area.	
What a reservoir is	A reservoir is a large natural or artificial lake that is designed to collect and store water.
How we check an area's risk	We use predicted scenarios to understand the risk of flooding from reservoirs. Flooding from reservoirs is extremely unlikely. An area is considered at risk if people's lives could be threatened in the event of a dam or reservoir failure.

3.5 *Internal Drainage Board*

- 3.5.1 The Internal Drainage Board is a public body that manage water levels within defined areas, the proposed site is not located within an area under the control of the IDB.

3.6 Critical Drainage Area

3.6.1 Paragraph 5.3 of the SFRA states:

The Town and Country Planning Order 2006¹¹ defines Critical Drainage Areas as “an area within Flood Zone 1 which has critical drainage problems, and which has been notified...[to]...the local planning authority by the Environment Agency”. However, the Environment Agency Standing Advice¹² also recognises the part that SFRAs play in identifying areas with drainage problems and in doing so highlighting areas that need an FRA to consider drainage in detail.

3.6.2 The proposed site is located within the Conurbation Core Critical Drainage Area which is defined within Table 5-1of the SFRA as:

Conurbation Core	Manchester, Trafford, Salford, Tameside, Oldham, Rochdale, Bury, Bolton.	<ul style="list-style-type: none"> • Localised flooding problems in central Manchester and Salford. • Includes Lower Broughton which was focus of Defra Making Space for Water IUD pilot. • Focus of major regeneration and redevelopment that could have a significant impact on surface water runoff to local watercourses and the sewer network. • Many lost watercourses that are interconnected with the sewers, canals and open channel watercourses that pose a significant risk. • SFRA analysis shows significant surface water flooding hotspots between the Irk and Medlock and in Crumpsall, Cheetham Hill, Clifton Green, Newtown, Charlestown and Broughton. • 5 postcode areas with over 10 properties affected in the DG5 register.
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3.6.3 Paragraph 5.46 of the Local Flood Risk Management Strategy document and states:

Within Critical Drainage Areas, and consistent with Core Strategy policy EN14 Flood Risk, developers should aim to minimise surface water runoff from developments, and achieve at least the following runoff rates:

- *Greenfield runoff on Greenfield sites up to a 1 in 100-year storm event, including consideration of climate change*
- *A 50% runoff rate reduction for Brownfield sites, with an aim of reducing runoff to Greenfield rates up to a 1 in 100-year storm event, including consideration of climate change.*

4.0 SUMMARY

- 4.1.1 The site is designated as Brownfield.
- 4.1.2 The proposed site lies wholly within an area designated as flood zone 1 and is categorised as less vulnerable use.
- 4.1.3 All Land uses including less vulnerable are acceptable within flood zone 1 areas.
- 4.1.4 Both the Surface Water and Rivers and Sea flood risk for the site has been identified as being Very low.
- 4.1.5 The site is not considered to suffer from either reservoir or groundwater flooding.
- 4.1.6 The proposed site lies within the conurbation critical drainage area, as such restriction on surface water discharge will be imposed.
- 4.1.7 In line with the conurbation core critical drainage area guidance reported in paragraph 3.6.3 the proposed flow for the site should be restricted to greenfield discharge rates.
- 4.1.8 The existing connection should be surveyed to confirm the suitability for reuse.
- 4.1.9 A preliminary drainage strategy is discussed in Section 7 which shows that post-development flood risks will not be increased due to the development plans.

5.0 MANAGING SURFACE WATER

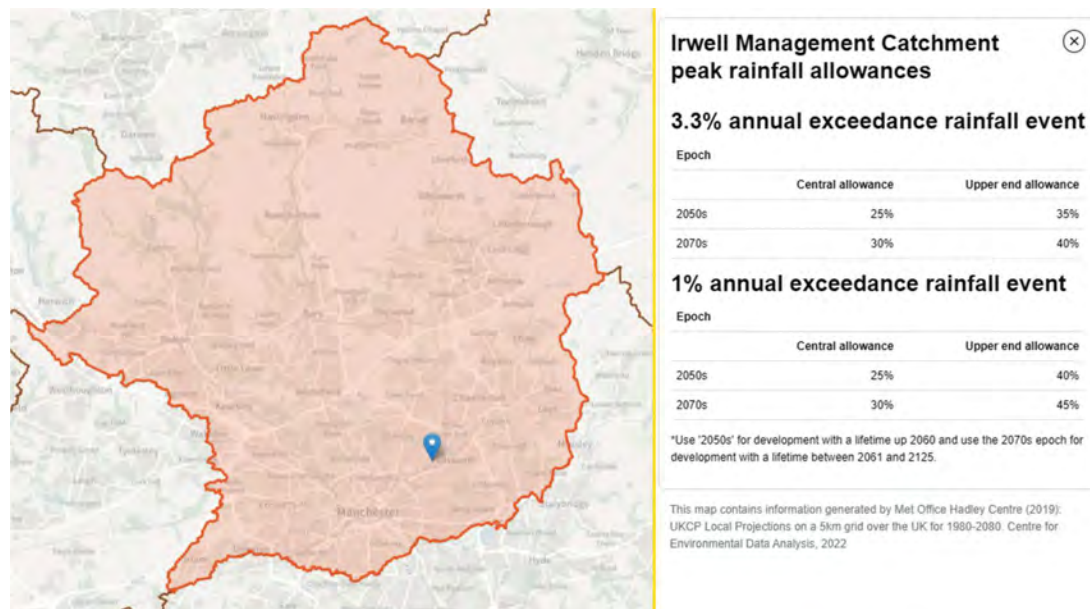
5.1 Brief

- 5.1.1 In accordance with the NPPF and SFRA, consideration should be given to natural water flows at the site. The development should not adversely affect flow or increase flood risk elsewhere, including increasing run-off rates. The disposal of surface water should be dealt with in a sustainable way and climate change should also be accounted for. The site drainage strategy is discussed in Section 7.

5.2 Climate Change

- 5.2.1 There is evidence to suggest that the climate is changing with sea levels predicted to continue to rise along with more frequent short-duration, high-intensity rainfall and more frequent periods of long-duration rainfall. The NPPF recommends that the effects of climate change be accounted for in FRA, with consideration of the EA flood maps and local authority SFRA.

Figure 5.1 Climate Change Allowances

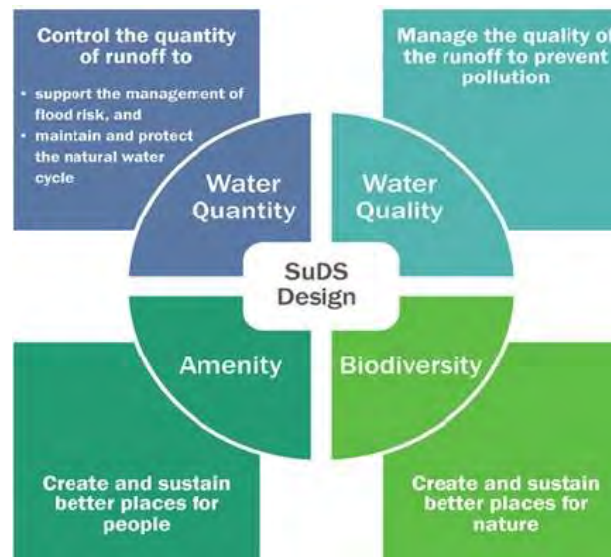


- 5.2.2 Increased rainfall or higher intensity short-duration rainfall may increase as a result of climate change. The .GOV website states that for the [Irwell Management Catchment peak rainfall allowances](#) – that the upper allowance for the 3.3% annual exceedance rainfall event a 40% allowance for climate change should be applied and 45% for the 1% annual exceedance rainfall event is therefore being allowed for within the new surface water drainage design to take account of climate change.
- 5.2.3 Climate change may also lead to variations in groundwater level which will also be considered during the drainage design.

5.3 Sustainable Drainage Systems (SUDS)

- 5.3.1 SUDS are a desirable way to manage surface water disposal within new developments and SUDS methods for surface water drainage management are discussed further within the SUDS Manual. When designing surface water drainage strategies priority should be given to disposal of surface water via infiltration drainage systems over (first) discharge to watercourses (second) prior to identifying a possible discharge to sewers.

Figure 5.2 Four Pillars of SuDS



- 5.3.2 The proposed development will address the above 4 pillars of SuDS design criteria with the inclusion of a range of sustainable features through a comprehensive treatment train.

- **Water Quantity** Although the existing site has been identified as Brownfield, due to the site being located within the conurbation core critical drainage area, all flows will be strictly controlled to greenfield run off rates, with the HR Wallingford estimation tool indicating that the existing site area of 0.787 hectares currently generates a greenfield run off rate of 0.2 l/s (Qbar) shown in **Appendix F**.

Although a maximum flow rate from the existing has been established as 0.2 l/s it is currently impossible with modern flow control devices to restrict flows to such a rate, as such in line with note 2 in the Wallingford estimation tool which states:

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible.

All flows will be strictly limited to no more than 5 l/s for the 1 in 100-year storm plus 45% allowance for climate change, through both sustainable and traditional flow control features.

- **Water Quality** will be provided with the inclusion of a number of both proprietary and sustainable features from a bypass separator installed to treat all flows generated from the car park areas to the introduction of a rain garden to not only attenuate but also treat the proposed flows from both the building and car parking areas, prior to outfall.

The simple index approach tool has been used shown in **Appendix F**, for both commercial roofing and external car parking, the spreadsheets have been included to confirm that the proposed treatment train is sufficient to achieve pollution mitigation indices for the selected SuDS components.

The proposed treatment train has been deemed sufficient to achieve an acceptable level of water quality prior to discharge from the site.

- **Biodiversity** will be provided with the introduction of a bioretention / raingarden areas to be developed in conjunction with the landscape architect at detailed design stage, creating a better environment for nature to thrive.
- **Amenity** connecting people with water has been proven to improve the well-being of people that work in or visit the proposed store. Although we do not anticipate the sustainable features proposed to create destination for the visitor, The design has taken the opportunity to create visually attractive areas which can connect people to water during their visit.

- 5.3.3 It is assumed at this time that the current site benefits from a combined outfall to United Utilities adopted assets, in line with the SuDS hierarchy infiltration is not considered suitable due to the potential presence of made ground and clay, together with no watercourses in the immediate vicinity of the proposed site, It is proposed to discharge all surface water flows generated by the proposed development, at an attenuated rate, into the United Utilities asset potentially via the existing connection once condition and suitability for reuse has been established.
- 5.3.4 The proposed drainage strategy will reduce discharge from the site to no more than 5 l/s inclusive of an allowance for climate change.

6.0 NON-STATUTORY TECHNICAL STANDARDS FOR SUSTAINABLE DRAINAGE SYSTEMS

6.1 *Flood risk outside the development*

S1 Where the drainage system discharges to a surface water body that can accommodate uncontrolled surface water discharges without any impact on flood risk from that surface water body (e.g. the sea or a large estuary) the peak flow control standards (S2 and S3 below) and volume control technical standards (S4 and S6 below) need not apply.

- 6.1.1 The proposed discharge position cannot accept uncontrolled discharge therefore references S2, S3, S4 and S6 apply.

6.2 *Peak flow control*

S2 For greenfield developments, the peak runoff rate from the development to any highway drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100-year rainfall event should never exceed the peak greenfield runoff rate for the same event.

- 6.2.1 Proposed site is identified as brownfield as such S2 is not applicable.

S3 For developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.

- 6.2.2 The proposed discharge rate will be restricted to 5 l/s.

6.3 *Volume control*

S4 Where reasonably practicable, for greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100-year, 6-hour rainfall event should never exceed the greenfield runoff volume for the same event.

- 6.3.1 Proposed site is identified as brownfield a such S4 is not applicable.

S5 Where reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event, but should never exceed the runoff volume from the development site prior to redevelopment for that event.

The proposed discharge rate will be restricted to 5 l/s

S6 Where it is not reasonably practicable to constrain the volume of runoff to any drain, sewer or surface water body in accordance with S4 or S5 above, the runoff volume must be discharged at a rate that does not adversely affect flood risk.

- 6.3.2 The proposed drainage system has been designed to accommodate for the runoff volumes noted in section S4.

6.4 Flood risk within the development

S7 The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the site for a 1 in 30-year rainfall event.

- 6.4.1 The proposed system has been designed to avoid any exceedance from the system indicating all flows will be held within the storage areas/layers designed, for all storms including the 1 in 30-year storm.

S8 The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur during a 1 in 100 year rainfall event in any part of: a building (including a basement); or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development.

- 6.4.2 The proposed system has been designed to avoid any exceedance from the system for all storms including the 1 in 100-year storm.

S9 The design of the site must ensure that, so far as is reasonably practicable, flows resulting from rainfall in excess of a 1 in 100-year rainfall event are managed in exceedance routes that minimise the risks to people and property.

- 6.4.3 Any rainfall in excess of the 1 in 100-year storm will be contained within the proposed car parking areas.

6.5 Structural integrity

S10 Components must be designed to ensure structural integrity of the drainage system and any adjacent structures or infrastructure under anticipated loading conditions over the design life of the development taking into account the requirement for reasonable levels of maintenance.

- 6.5.1 All features through the proposed drainage system have been specifically chosen using detailed manufactures specifications as well as current technical guidance to accommodate for the anticipated sites use and associated loadings across the design life of the site.

S11 The materials, including products, components, fittings or naturally occurring materials, which are specified by the designer must be of a suitable nature and quality for their intended use.

- 6.5.2 All materials through the proposed drainage system have been specifically chosen using detailed manufactures specifications as well as current technical guidance to make sure they are of sufficient quality for their intended use.

6.6 Designing for maintenance considerations

S12 Pumping should only be used to facilitate drainage for those parts of the site where it is not reasonably practicable to drain water by gravity.

- 6.6.1 A pump to the proposed loading bay is anticipated.

6.7 Construction

S13 The mode of construction of any communication with an existing sewer or drainage system must be such that the making of the communication would not be prejudicial to the structural integrity and functionality of the sewerage or drainage system.

- 6.7.1 Considerate construction practices should be employed by the nominated civils contractor when forming the proposed connection.

S14 Damage to the drainage system resulting from associated construction activities must be minimised and must be rectified before the drainage system is considered to be completed.

- 6.7.2 Continuous checks both during and post construction should be completed by the nominated contractor and supervising agent. Completion of the continuous inspections should limit the potential opportunity for damage/defects. All surveys should be made available to the design team subsequent approval or issue of appropriate remedial actions.

7.0 DRAINAGE STRATEGY

7.1 *Surface Water Drainage Strategy*

- 7.1.1 Infiltration testing should be completed prior to detailed design.
- 7.1.2 With both infiltration and discharge to watercourse not considered possible, and due to the presence of existing connection off site, in accordance with the SUDS hierarchy, it is proposed that all surface water flows arising from the proposed development are to discharge at an attenuated rate into the offsite adopted united utilities network potentially via an existing connection.
- 7.1.3 A CCTV survey must be completed prior to detailed design to confirm existing connectivity to the offsite adopted network or other discharge position together with depths and condition.
- 7.1.4 The site area inclusive of the proposed access road extends to an area of approximately 0.787 hectare (7,870m²), However following the introduction of the proposed development the impermeable area will subsequently decrease to 0.684 ha (6,849m²) Following the inclusion of vegetated spaces.
- 7.1.5 With the above in mind the post scheme impermeable area to inform the storage estimate is currently assumed as 0.684 ha.
- 7.1.6 The anticipated volume of storage required we have based the calculation shown in **Figure 7.1** on an impermeable of 0.58ha (5832m²).

Figure 7.1 Storage Estimate

Storage Estimate

Return Period (years)	<input type="text" value="100"/>	<input type="button" value="OK"/> <input type="button" value="Cancel"/>
Climate Change (%)	<input type="text" value="45"/>	
Impermeable Area (ha)	<input type="text" value="0.684"/>	<input type="button" value="Update"/>
Peak Discharge (l/s)	<input type="text" value="5.000"/>	<input type="button" value="Calc"/>
Infiltration Coefficient (m/hr) (leave blank if no infiltration)	<input type="text"/>	
Required Storage (m ³)	<input type="button" value="Calc"/>	
	from <input type="text" value="402"/>	
	to <input type="text" value="475"/>	
With infiltration (m ³)	from <input type="text"/>	
	to <input type="text"/>	

- 7.1.7 The estimated volume of storage required is 402m³ to 475m³.
- 7.1.8 Attenuation will be provided on the site to ensure that the flow rate of 5 l/s is not exceeded during a 1 in 100-year storm event, inclusive of a 45% allowance for climate change.
- 7.1.9 The Rain Garden area will provide an approximate volume of storage currently estimated as 60.25m³ for an assumed construction depth of 2.4m, with the cellular storage area providing an additional volume of storage of 346m³ at a depth of 1.2m.

- 7.1.10 The available void ratio throughout the rain garden is understood to be a maximum of only 35%, as such the actual available volume within the storage layer has been reduced to 21m³.
- 7.1.11 As the cellular storage area includes an improved void ratio of 95%, when the storage features are combined, this represents a total storage volume of 474.6m³ which is equivalent to the maximum estimated storage volume required.
- 7.1.12 The .GOV website states that for the Irwell Management Catchment Peak Rainfall Allowances – that the upper allowance for the 3.3% annual exceedance rainfall event a 40% allowance for climate change should be applied and 45% for the 1% annual exceedance rainfall event.
- 7.1.13 The site drainage network will be designed in accordance with current best practice to have sufficient capacity not to flood during the critical 1 in 30-year storm (plus 40% allowance for climate change) and also to constrain within the site the flood water generated for the critical 1 in 100-year storm event (plus 45% allowance for climate change). In this way the risk of off-site flooding, which could result in damage to other buildings and essential services, will be minimised and the risk of flooding elsewhere should not be increased as a result of the development proposals.
- 7.1.14 Using Sustainable drainage techniques, it will be possible to avoid any exceedance occurring at the site for all storms up to and significantly beyond the 1 in 100-year storm plus 45% climate change allowance
- 7.1.15 Although it is not considered to be a problem, to reduce the potential impact of flood water entering the building and to ensure no permanent damage is caused, the following flood mitigation proposals should be considered:
- *Electrical circuitry installed at a higher level with power cables being carried down from the ceiling rather than up from the floor level.*
 - *Water-resistant materials for floors, walls and fixtures such as tiled floors, with waterproof adhesive and grout.*
 - *Front doors that reduce ingress of water all the time with no further installation required. Such methods must consider hydrostatic pressure, and that water may still come in through the floor. Such methods offer time and reduce damage but may not remove flood water from entering the building completely.*
- 7.1.16 An indicative drainage strategy is shown in **Appendix H**.
- 7.1.17 Further discussions with the appropriate approving bodies are required to agree the proposed drainage strategy.

7.2 Foul Flows

- 7.2.1 The existing site is assumed to benefit from an existing connection to the offsite public United Utilities Network, once identified through the site CCTV survey, it is proposed that all foul flows will be discharged through the existing connection.

8.0 MAINTENANCE STRATEGY

8.1.1 SuDS components require good maintenance including inspections to identify performance issues and plan appropriate maintenance needs, checks on the operation and maintenance of the drainage system and landscape management. Therefore, it is intended that those responsible for the drainage within a development will be provided with an Operation and Maintenance Manual as part of the documentation provided under the Construction (Design and Management) regulations 2015 at the end of the construction works. Maintenance requirements that would be appropriate for this development, to be included in the document are outlined below.

8.1.2 All maintenance necessary will be undertaken, appointed and/or suitably managed by Lidl Great Britain Limited.

8.1.3 The Drainage network and inherent SuDS have been designed with minimal maintenance in mind. The maintenance is generally of a 'common sense' approach and is to comprise:

- Regular day to day care: - litter collection, grass cutting and checking the inlets and outlets where water enters or leaves a drainage feature.
- Occasional tasks: - managing vegetation in wet areas (ponds, swales, etc.) and removing any silt that builds up in the drainage features.
- Remedial work: -repairing damage when, and where, necessary.

Specific recommendations for each feature are provided in the following sections and should be referred to in the first instance if there are any issues.

Manholes and PPICs

8.1.4 Manholes are typically sized in accordance with Sewers for Adoption, which relates to the incoming and outgoing pipe diameters. However, as the system is not Adopted, PPICs have been used where manufacturer's limitations permit. Typically, PPICs can be used for depths up to 3m and for pipe diameters up to 150mm.

Personnel access into PPIC chambers is not possible, and therefore rodding/jetting should be carried out from ground level. This is generally accepted as good practice and in accordance with good health and safety procedures. Where larger manholes, which could accommodate man access, have been included maintenance should also take place from ground level. Man, access should be resisted and only used as a last resort.

Maintenance schedule	Required action	Frequency
Occasional Maintenance and Monitoring	Covers should be lifted and inspected for litter and debris to ensure that the runs are free flowing.	3 Monthly (or as required).

Rain Garden

8.1.5 A Rain Garden / Biodiversity area is proposed as part of a comprehensive treatment train to remove contaminants prior to discharge

Maintenance Schedule	Required Action	Frequency
Regular maintenance	Litter and debris removal.	Monthly (or as required).
	Grass cutting – to retain grass height within specified design range (refer to landscape architects recommendations).	Monthly (during growing season), or as required.
	Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required).
Occasional maintenance	Check for poor vegetation growth due to lack of sunlight or dropping of leaf litter, and cut back adjacent vegetation where possible.	Annually.
	Re-seed areas of poor vegetation growth. Alter plant types to better suit conditions, if required.	Annually, or if bare soil is exposed over 10% or more of the swale.
Remedial actions	Repair erosion or other damage by re-turfing or reseeding.	As required.
	Re-level uneven surfaces and reinstate design levels.	As required.
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface.	As required.
Monitoring	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly.
	Inspect infiltration surfaces for ponding, compaction, and silt accumulation. Record areas where water is ponding for > 48hours.	Monthly, or when required. Advise BKPL if ponding is occurring as noted.

Flow Control Device

8.1.6 The surface water flow off site is limited to no more than 5 l/s. The flow is limited by a Hydrobrake Optimum flow control. These are proprietary systems and will be installed in line with the manufacturers written instructions. Operation and Maintenance guidance is provided within the manufacturers' standard documentation.

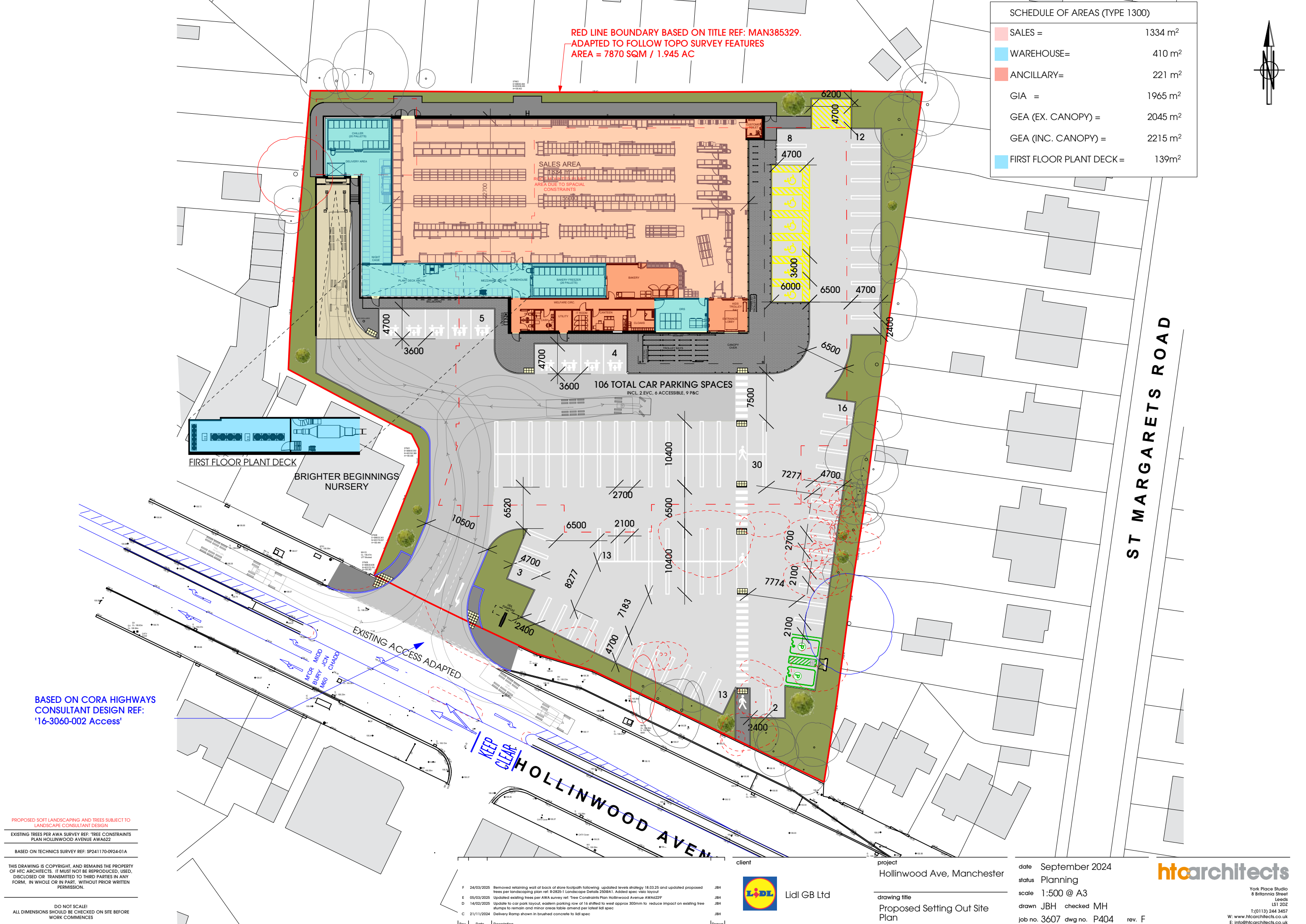
Pumping Station

8.1.7 This is a proprietary system and will be installed in line with the manufacturers written instructions. Operation and Maintenance guidance is provided within the manufacturers' standard documentation.

9.0 CONCLUSIONS

- 9.1.1 The site is Wholly contained within in Environment Agency (EA) Flood Zone 1. Reference to NPPF Table 3 shows that an Exception Test is not required as buildings used for shops are classified as less vulnerable and this use is acceptable in areas categorised as Zones 1.
- 9.1.2 Infiltration tests are not considered appropriate due the presence of made ground and clay.
- 9.1.3 The risk of flooding elsewhere should not be increased as a result of the development.
- 9.1.4 A maximum permissible discharge rate of 5 l/s for the 1 in 100-year storm event plus 45% allowance for climate change will be used to inform the proposed design.
- 9.1.5 Attenuation will be provided on the site to ensure that the reduction to only 5 l/s which is significantly below the calculated brownfield run off rate is not exceeded during a 1 in 100-year storm event, inclusive of a 45% allowance for climate change.
- 9.1.6 The new site drainage will be designed with sufficient capacity not to flood during a 1 in 30-year storm event as well as to contain flood water generated from a 1 in 100 year plus climate change storm event (+45%) within the site. The risk of off-site flooding would not increase as a result of the development and safe access and egress will be maintained.
- 9.1.7 Although not specifically required, the use of Flood resilient measures should be considered to reduce the effect of any flooding that may be experienced over the design life of the development.
- 9.1.8 Foul flows are anticipated to communicate with the adopted United Utilities network within the following identification of the existing connection.
- 9.1.9 Discharge restrictions/charges may apply for connections to the public drainage network and for discharge of surface waters into the adjacent watercourse.
- 9.1.10 The potential for pollution of controlled waters is considered to be low provided best practice procedures are following during development. Drainage systems should be maintained to ensure that they do not become blocked and unable to discharge.

Appendix A



SCHEDULE OF AREAS (TYPE 1300)	
SALES =	1334 m ²
WAREHOUSE=	410 m ²
ANCILLARY=	221 m ²
GIA =	1965 m ²
GEA (EX. CANOPY) =	2045 m ²
GEA (INC. CANOPY) =	2215 m ²
FIRST FLOOR PLANT DECK =	139m ²

BASED ON CORA HIGHWAYS
CONSULTANT DESIGN REF:
'16-3060-002 Access'

PROPOSED SOFT LANDSCAPING AND TREES SUBJECT TO
LANDSCAPE CONSULTANT DESIGN
EXISTING TREES PER AWA SURVEY REF: TREE CONSTRAINTS
PLAN HOLLINWOOD AVENUE AWA222
BASED ON TECHNICS SURVEY REF: SP241170-0924-01A

THIS DRAWING IS COPYRIGHT, AND REMAINS THE PROPERTY
OF HTC ARCHITECTS. IT MUST NOT BE REPRODUCED, USED,
DISCLOSED OR TRANSMITTED TO THIRD PARTIES IN ANY
FORM, IN WHOLE OR IN PART, WITHOUT PRIOR WRITTEN
PERMISSION.

DO NOT SCALE!
ALL DIMENSIONS SHOULD BE CHECKED ON SITE BEFORE
WORK COMMENCES

Rev.	Date	Description	Drawn
F	24/03/2025	Removed retaining wall at back of store footpath following updated levels strategy 18.03.25 and updated proposed trees per landscaping plan ref: 8-2825-1 Landscape Details 2508A1. Added spec via layout	JBH
E	05/03/2025	Updated existing trees per AWA survey ref: Tree Constraints Plan Hollinwood Avenue AWA222	JBH
D	14/02/2025	Update to car park layout, eastern parking row of 16 shifted to west approx 300mm to reduce impact on existing tree stumps to remain and minor areas table amend per latest lid spec	JBH
C	21/11/2024	Delivery Ramp shown in brushed concrete to lid spec	JBH

client

 Lidl GB Ltd

project

Hollinwood Ave, Manchester

drawing title

Proposed Setting Out Site Plan

date September 2024
status Planning
scale 1:500 @ A3
drawn JBH checked MH
job no. 3607 dwg no. P404 rev. F



York Place Studio
8 Britannia Street
Leeds
LS1 2DZ
T: (0113) 244 3457
W: www.htcarchitects.co.uk
E: info@htcarchitects.co.uk

Appendix B

FEATURES
AREA = 7870 SQM / 1.945 AC

KEY

- EXISTING SURFACE WATER NETWORK
- EXISTING FOUL WATER NETWORK
- EXISTING UNITED UTILITIES COMBINED WATER NETWORK
- EXISTING CHAMBER LOCATIONS TO BE SURVEYED TO ESTABLISH EXISTING OFFSITE CONNECTION AND CONDITION FOR REUSE

BRIGHTER BEGINNINGS NURSERY

SALES AREA
1334 m²
ROOF MOUNTED PLANT
AREA DUE TO SPACIAL
CONSTRAINTS

108 TOTAL CAR PARKING SPACES
INCL. 2 EV, 6 ACCESSIBLE, 9 P&C

PROPOSED FOUL AND SURFACE CONNECTION TO REUSE EXISTING TO AVOID DISRUPTION TO PARK LANE

ALL UTILITIES ARE SSUMED TO HAVE BEEN PREVIOUSLY DISCONNECTED AND ISOLATED AS PART OF DEMOLITION PROCESS

ALL EXISTING UTILITIES HAVE BEEN TAKEN FROM EXTERNAL SOURCES, AND THEIR ACCURACY CANNOT BE GUARANTEED, THE PRECISE LOCATIONS, DEPTHS AND SIZES OF EXISTING UNDERGROUND UTILITIES WILL NEED TO BE CONFIRMED BEFORE ANY WORK IS STARTED ON-SITE. EXTERNAL DRAWINGS ARE PROVIDED FOR INFORMATION ONLY AND NOT FOR CONSTRUCTION.

P1	Nov 24	FIRST ISSUE	GRE
Rev	Date	Revision Details	By ChkdAppr

Cora^{iHt}

Client	LIDL GREAT BRITAIN Ltd
Project	HOLLINWOOD AVENUE, MOSTON
Title	EXISTING DRAINAGE ARRANGEMENT

Drawing No.	16-3060-100	Revision	P1
Scale	1:200 @ A1	Date	November 2024
Drawn	GRE	Chk	App

Appendix C

GROUNDWISE

Groundwise Searches Ltd



Groundwise Searches Limited

Suite 6, Princess Caroline House
1 High Street
Southend-on-Sea
Essex, SS1 1JE

Telephone 01702 615566
Email mail@groundwise.com
Website www.groundwise.com

Registered Office Address:
Matrix House, 12-16 Lionel Road
Canvey Island, Essex, England, SS8 9DE

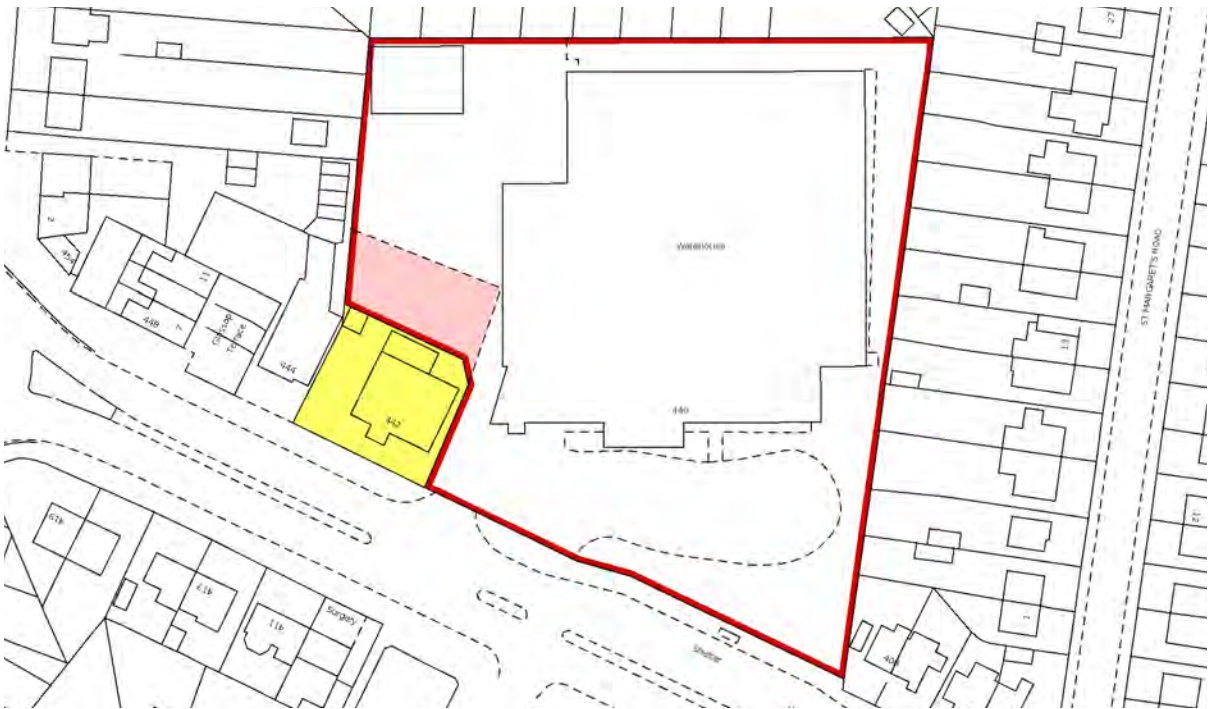


GROUNDWISE

Groundwise Searches Ltd

Product	Desktop Utility Search
Scope	PAS 128 – Level D

Groundwise Reference	35185DM-GWS
Site	440 Hollinwood Avenue, Manchester, M40 0AE
Easting/Northing	388581,403213
Client	Robert Lawton
Company	Lidl GB Ltd
Client Reference	Hollinwood Road
Purchase Order	200098554

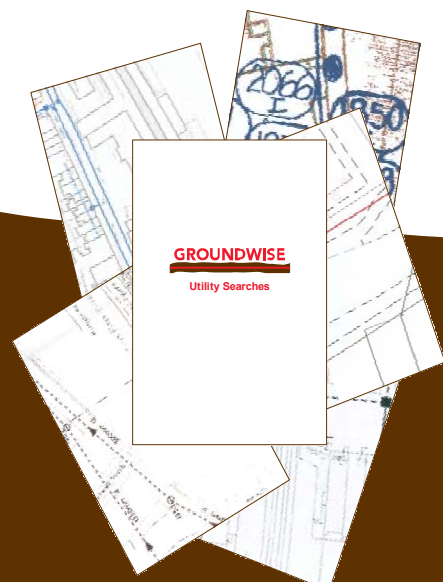


Researcher	Debbie Miller dmiller@groundwise.com
Quality Check	Rebecca Bennett rbennett@groundwise.com

Groundwise Searches Limited
Suite 6, Princess Caroline House
1 High Street
Southend-on-Sea
Essex, SS1 1JE

Telephone 01702 615566
Email mail@groundwise.com
Website www.groundwise.com

Registered Office Address:
Matrix House, 12-16 Lionel Road
Canvey Island, Essex, England, SS8 9DE



GROUNDWISE

Groundwise Searches Ltd

Groundwise Reference

35185DM-GWS

Site

440 Hollinwood Avenue, Manchester, M40 0AE

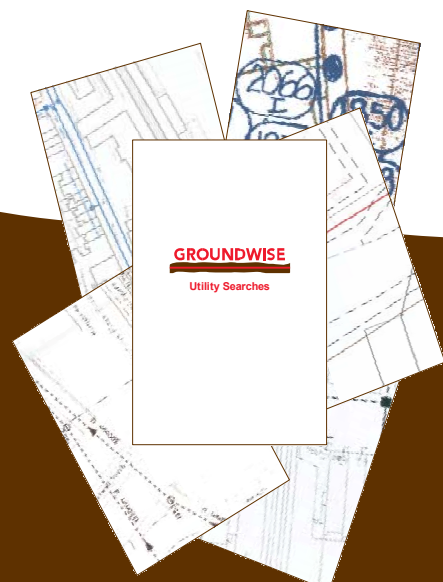
Version	Date Issued	Researcher	Notes
#1	02/04/2024	Debbie Miller	Utility Report issued – complete (no results outstanding)

Groundwise Searches Limited

Suite 6, Princess Caroline House
1 High Street
Southend-on-Sea
Essex, SS1 1JE

Telephone 01702 615566
Email mail@groundwise.com
Website www.groundwise.com

Registered Office Address:
Matrix House, 12-16 Lionel Road
Canvey Island, Essex, England, SS8 9DE



GROUNDWISE



Groundwise Searches Ltd

Groundwise Reference

35185DM-GWS

Site

440 Hollinwood Avenue, Manchester, M40 0AE

Click on a Data Supplier to view their response.

Type	Data Supplier	Date Sent	Assets in Area
Electricity	ENWL	2/4	X
Electricity	Eclipse Power	2/4	
Electricity	NGET	2/4	
Electricity	Utility Assets Ltd	2/4	
Gas	Cadent	2/4	X
Mobile Phone Masts	Mast Data	2/4	
Telecom	C.A. Telecom - Colt	2/4	
Telecom	CityFibre	2/4	
Telecom	MBNL	2/4	
Telecom	NRTS Telent	2/4	
Telecom	OCU Group (Lumen Technologies)	2/4	
Telecom	Openreach	2/4	X
Telecom	Sky UK Ltd	2/4	
Telecom	Verizon	2/4	
Telecom	Virgin Media	2/4	X
Telecom	Vodafone	2/4	
Transport	Network Rail	2/4	
Various	GTC	2/4	
Various	HSE	2/4	
Various	Leep Utilities	2/4	
Various	LinesearchbeforeUdig	2/4	
Water Mains	United Utilities	2/4	X
Sewers	United Utilities	2/4	X
Street Lighting	Manchester City Council (Amey)	2/4	X

Debbie Miller

From: planrequest@enwl.co.uk
Sent: 21 March 2024 11:51
To: Sales
Subject: Plant Enquiry Ref Job No. 32864735
Attachments: 32864735_Electricity North West.pdf; ENW Conditions and Information regarding electricity mains.pdf



21/03/2024

LinesearchbeforeUdig ref: 32864735

Your ref: 35185

Dear Sir/Madam,

Thank you for contacting us.

Please see attached information specific to your enquiry:

1. Plan (please print in colour):
2. Conditions and information regarding electricity mains.

I acknowledge with thanks your request dated above for information on the location of our services.

You must ensure safe digging practices, in accordance with HSE publication HSG47 "Avoiding Danger from Underground Services". You must 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 relevant people (direct labour or contractors) working for you on or near assets.

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.

The attached files are in PDF format, to view them you will need Adobe Acrobat Reader(R). You can download it free of charge from <http://get.adobe.com/reader>

Yours sincerely,
Data Management

Contact Us

Mapping Enquiries:

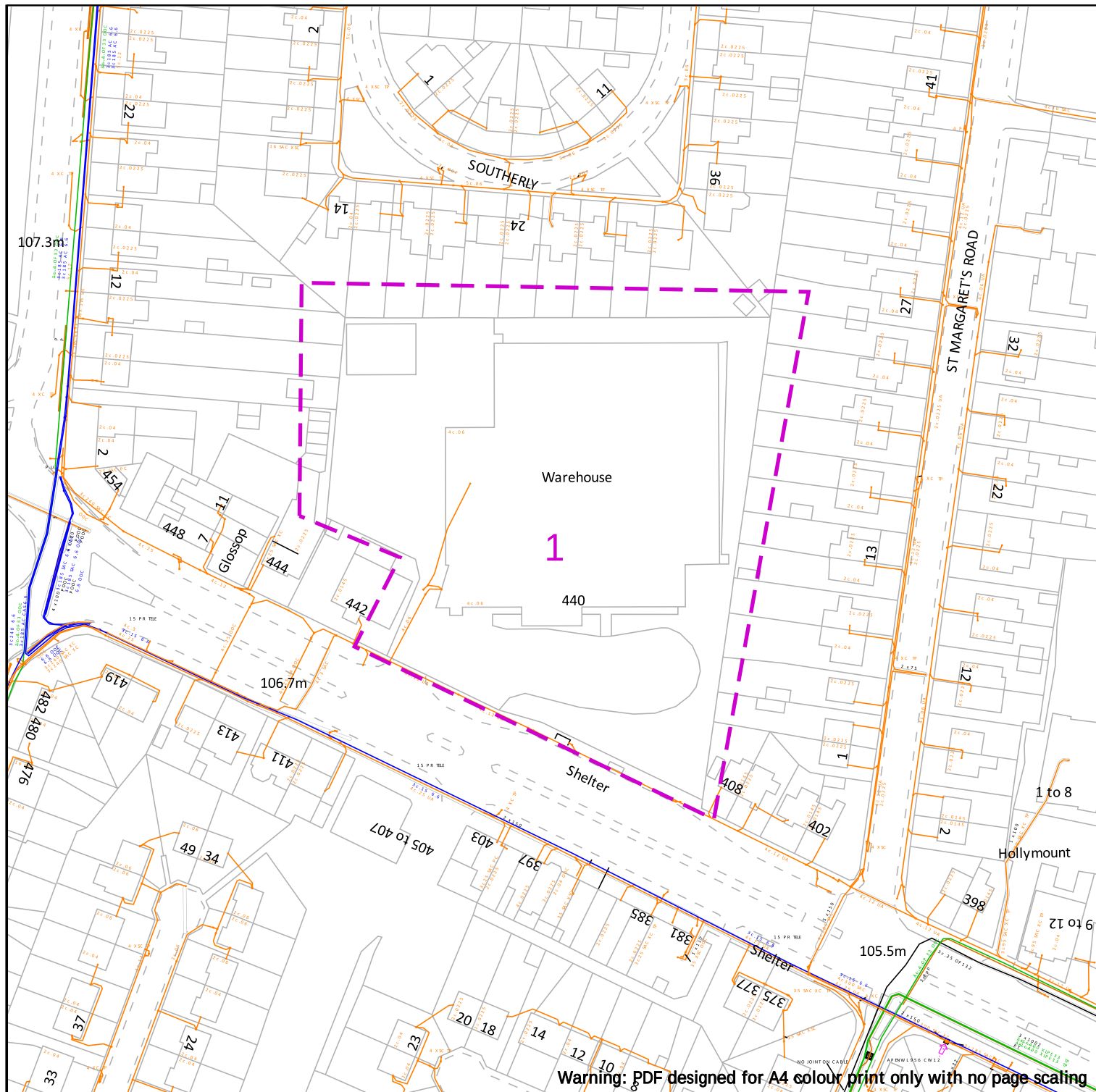
If you have an enquiry relating to this letter or the attached map plan, please contact us using the following information:

Telephone: 0800 195 4141
Email: planrequest@enwl.co.uk

LinesearchbeforeUdig:

If you have an enquiry relating to the use of the LSBUD website, please contact LSBUD using the following information:

Telephone: 0345 437 7365
Email: enquiries@lsbud.co.uk
Website: www.lsbud.co.uk



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 the 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.

Please ensure that all site operators have this information and if any electrical apparatus is damaged, they/you should contact Electricity North West Limited 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 "Avoiding Danger from Overhead Power 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:

Electricity North west Limited
Borron Street
Portwood, Stockport
Cheshire
SK1 2JD

Telephone: **0800 195 4141 (option 4)**

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

11. For information regarding wayleave or easement agreements contact WayleaveEnquiries@enwl.co.uk

12. 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.



Electricity North West Limited
Borron Street, Portwood
Stockport
SK1 2JD

www.enwl.co.uk

Registered in England and Wales
Registered Number 2366949

Debbie Miller

From: Networks Enquiries <assetenquiries@eclipsepower.co.uk>
Sent: 26 March 2024 11:54
To: Debbie Miller
Subject: RE: Urgent Asap Please - Ref: 35185DM-GWS - Site: 440 Hollinwood Avenue, Manchester, M40 0AE

Dear Sir/ Madam,

Thank you for your email. I can confirm that we have no present projects in the illustrated area as demonstrated in your email.

This response is valid for 3 months, after this time has commenced, we request you submit another email demonstrating the location of your plans.

If you have any further queries, do not hesitate to contact me.

Kindest regards,
Harry Constantine
Eclipse Power
Mobile: +44 (0) 7707 138077
Office: +44 (0) 1234 486487

www.eclipsepower.co.uk

<https://www.linkedin.com/company/eclipse-power-networks>



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Please don't print this e-mail unless you really need to!

Our Ref: 32864735 35185

Thursday, 21 March 2024

Joe Shawyer
Suite 6, 3rd Floor Princess Caroline House, 1 High Street

ESS
SS1 1JE

National Grid House
Warwick Technology Park
Gallows Hill, Warwick
CV34 6DA

Electricity Emergency Number:
0800 40 40 90*
*Available 24 hours, 7 days/week.
Calls may be recorded and monitored.
www.nationalgrid.com

Asset Protection
Gas Transmission
National Grid
Warwick
Email: assetprotection@nationalgrid.com

National Grid Electricity – No Assets Affected

Dear Sir/ Madam,

An assessment has been carried out with respect to NGET apparatus and the proposed work location. Based on the search area entered in the LSBUD system for assessment the search area has been found to not affect any NGET apparatus.

Please note this response and any attached map(s) are valid for 28 days

Yours sincerely

Asset Protection Team

Your Responsibilities and Obligations

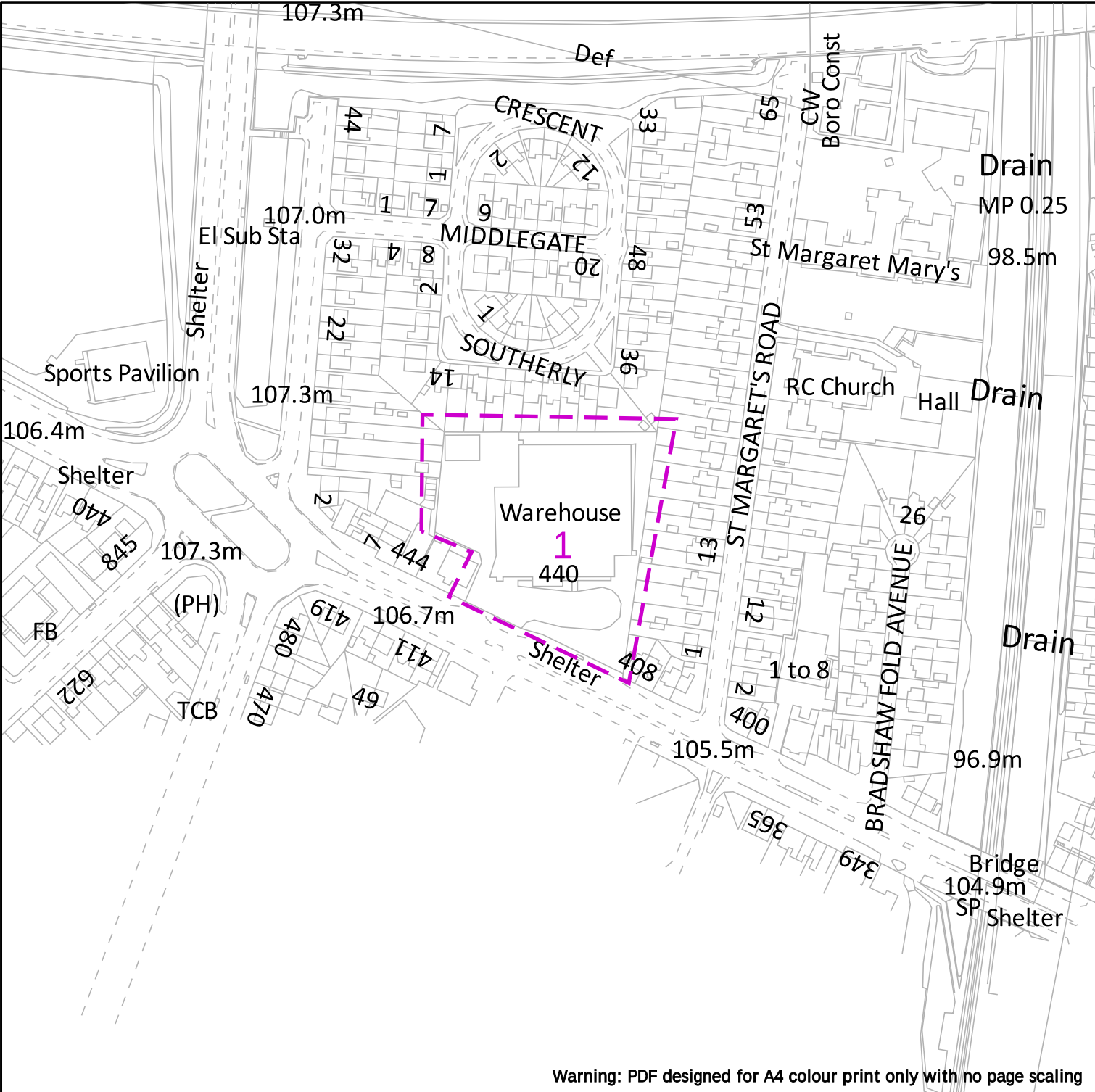
It is your responsibility to ensure that the information you have submitted is accurate and that all relevant documents including links are provided to all persons (either direct labour or contractors) working for you near National Grid Electricity Transmission plc's apparatus, as legally required including under the Construction (Design and Management) Regulations 2015.

The assessment solely relates to the physical apparatus of National Grid Electricity Transmission plc (NGET)
It does **NOT** cover:

- Apparatus owned by other people or organisations, e.g., Cadent, other gas distribution operators, local electricity companies, other utilities, landowners etc
- Apparatus owned by National Grid Gas plc.
- NGET's legal rights and interests (such as those contained in easements or wayleaves) in or concerning the land, which restrict activity in proximity to NGET's assets in private land. You must obtain details of any such restrictions from the landowner in the first instance and/or from HM Land Registry and/or you should seek legal advice. If in doubt, contact Asset Protection.

It is **YOUR** responsibility to consider whether any of the items or factors listed above may be present or relevant and if they could be affected by your proposed activities.

NGET or its agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability, which is prohibited by law, nor does it supersede the express terms of any related agreements.



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NationalGrid House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

AssetProtection@NationalGrid.com

0 200

Dig Sites Area: Line:

Underground Cables

Overhead Lines

Fibre Cables

EXTREME CAUTION - HIGH VOLTAGE
****RISK OF DEATH OR SERIOUS INJURY****

Date Requested: 21/03/2024
Job Reference: 32864735
Site Location: 388569 403198
Requested by: Mr Joe Shawyer
Your Scheme/Reference: 35185

IMPORTANT NOTICES
This plan shows those pipes owned by National Grid Electricity Transmission plc in its role as a Licensed Electricity Transporter (ET). Electricity cables owned by other ETs, or otherwise privately owned, may be present in this area. Information with regards to such cables should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Ancillary equipment such as cooling systems and communication cables are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by National Grid Electricity Transmission plc 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 cables 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 electricity apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

National Grid Electricity Emergency Number: 0800 40 40 90
Available 24 hours, 7 days/week. Calls may be recorded and monitored

Scale: 1:2500 (When plotted at A4)

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ENQUIRY SUMMARY

Received Date

21/03/2024 11:50

Work Start Date

22/03/2024

Your Reference

35185

Location

Centre Point: 388569 403198

X Extent:

Y Extent:

Postcode: M40 0AE

Map Options

Paper Size: A4

Orientation: PORTRAIT

Scale: 1:2500

Real World Extents: 116m x 122m

Enquirer Details

Organisation Name: Groundwise Searches Ltd

Contact Name: Joe Shawyer

Email Address: mail@groundwise.com

Telephone: 01702615566

Address: Suite 6, 3rd Floor Princess Caroline House, 1 High Street, , ESS, SS1 1JE

Enquiry Type

Initial Enquiry

Activity Type

Development Projects

Work Types

Commercial/industrial

Notes/Works Description (if supplied)

Site Contact Name (if supplied)

Site Contact Number (if supplied)

Debbie Miller

From: Plant Record Enquiries <assetrecords+canned.response@utilityassets.co.uk>
Sent: 26 March 2024 11:35
To: Responses
Subject: Re: Urgent Asap Please - Ref: 35185DM-GWS - Site: 440 Hollinwood Avenue, Manchester, M40 0AE

Thank you for recently contacting the Utility Assets plant record department. We will check whether we have any plant present at your site and contact you within 5 - 7 working days ONLY if we own any plant in the vicinity.

If you have sent an asset records enquiry to enquiries@utilityassets.co.uk please resend to assetrecords@utilityassets.co.uk

If we do not reply, we do not have any apparatus in the area of your works. However, PLEASE TAKE CARE when excavating around electricity cables in the event that not all cables present may be accurately shown. We recommend you use detecting equipment to map the site before excavating and fully comply with HSG47. DO NOT assume that a cable is dead if you don't have a record of its presence. The cable must be treated as live unless PROVEN DEAD by the cable owner. In case of emergency please contact your local electricity distribution company.

This is an automated reply from our dedicated asset records email address. If you receive further correspondence from us it will be from asset.manager@utilityassets.co.uk quoting a site reference number.

--

Kind regards

Asset Manager
asset.manager@utilityassets.co.uk
www.utilityassets.co.uk



This email and any attachment are confidential and may contain confidential and/or privileged information and are intended solely for the addressees. Any use of this email and/or its attachments not in accord with its purpose, or any dissemination or disclosure, either whole or partial, is prohibited, unless formally and specifically authorised by Utility Assets. If you receive this email in error, please delete it and any attachments and immediately notify Utility Assets by return email. Utility Assets will not be liable for the information in the email or attachments if anything is altered, changed or falsified.

Although this email and any attachment are believed to be free of any virus or any other defect, which might affect any computer or IT system into which they are received and opened, it is the responsibility of the recipient to ensure they are virus free and no responsibility is accepted by Utility Assets for any loss or damage arising in any way from receipt or use thereof.

Debbie Miller

From: plantprotection@cadentgas.com
Sent: 21 March 2024 11:52
To: Sales
Subject: LSBUD Ref: 32864735 Your Ref: 35185 DBYD Initial Enquiry
Attachments: 32864735_CadentGas.pdf

Date: 21/03/2024
LinesearchbeforeUdig ref: 32864735
Your ref: 35185

Dear Sir/Madam,

Please submit a planned works enquiry for your project

We have received a notification from the LinesearchbeforeUdig (LSBUD) platform regarding your initial enquiry to undertake works. As this is an initial enquiry, we haven't undertaken an assessment into the impact and risk posed to our assets. We need more information from you to do so.

You must not start any work until we confirm it is safe to do so after submission of a planned works enquiry.

There are Cadent gas pipes in the area you're planning to work. These pipes may impact and possibly prevent your work for safety or legal reasons.

If your works are proposed to be undertaken in an easement, please note any auto-response from our enquiry system does not constitute written consent and formal, signed written consent which will only be provided following consultation with our plant protection team.

What you need to do

To help develop your initial enquiry into a planned works enquiry, please review our attached plans, which detail the Cadent gas assets in the area along with our key guidance document [Specification for Safe Working in the Vicinity of Cadent Assets](#).

Once you have a plan for review by our engineering teams, please submit a "Planned Works" enquiry via LSBUD. In the meantime, if you want to discuss specifics associated with your initial enquiry please contact us at plantprotection@cadentgas.com or on 0800 688 588 quoting your reference at the top of this letter.

Your responsibilities and obligations

It is your responsibility to ensure that the information you have given us is accurate, therefore you must not undertake any works until a planned works enquiry has been submitted for assessment. You must also share all relevant documents, including the guidance notes, with anyone who carries out work on your behalf.

Cadent may have a Deed of Easement on the pipeline, which provides us with a right of access for a number of functions and prevents change to existing ground levels and storage of materials. It also prevents the erection of permanent/temporary buildings, or structures. If necessary Cadent will take action to legally enforce the terms of the easement.

This letter does not constitute any formal agreement or consent for any proposed development work either generally or related to Cadent's easements or other rights, or any planning or building regulations applications.

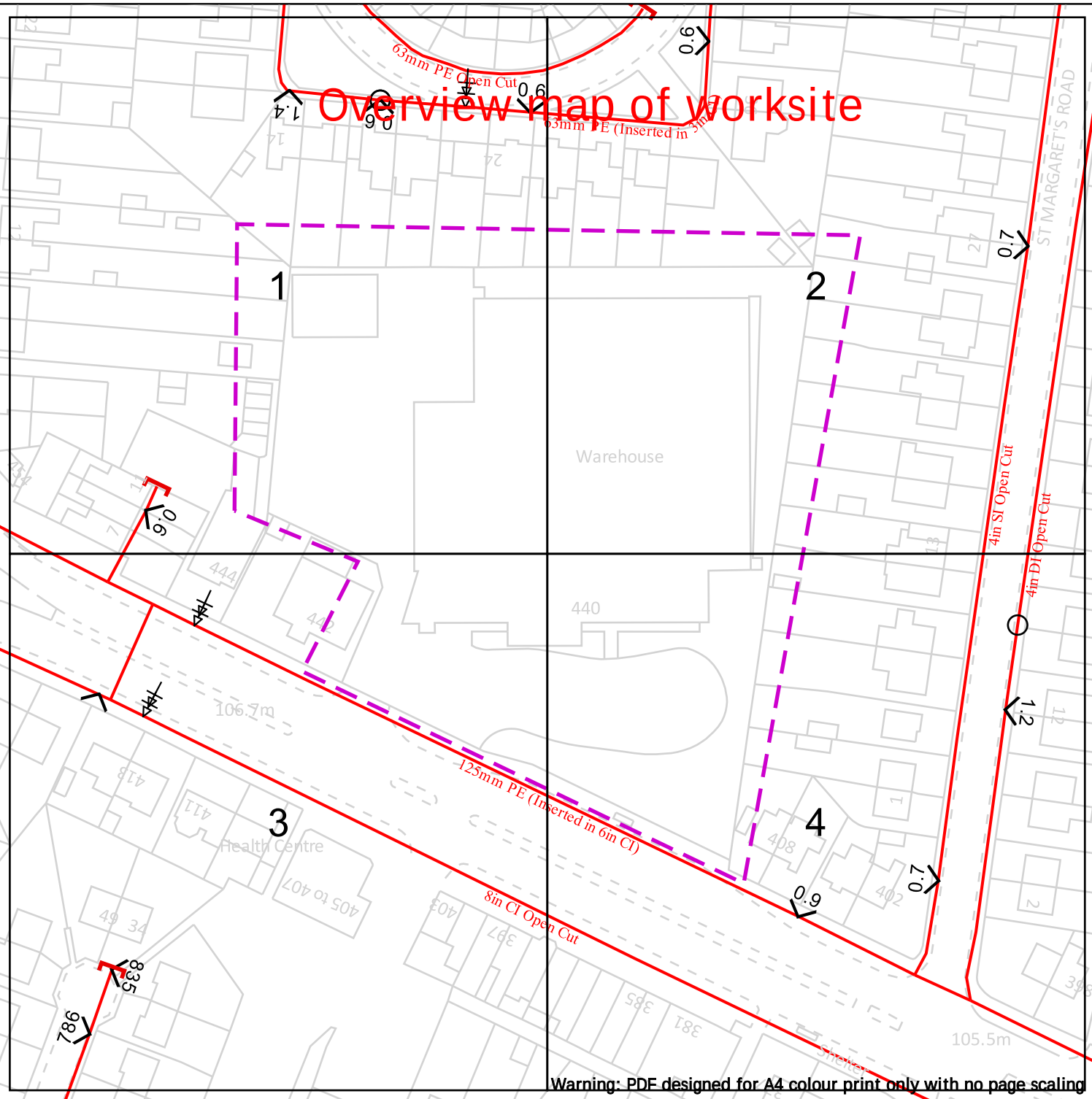
Cadent Gas Ltd or their agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability where prohibited by the law nor does it supersede the express terms of any related agreements.

Kind Regards,
Plant Protection Team
T: 0800 688 588
plantprotection@cadentgas.com
cadentgas.com

We work together | **We take responsibility** | **We drive performance** | **We shape the future**

Keeping people warm, *while protecting the planet*

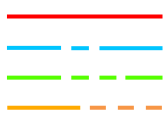
Overview map of worksite



Dig Sites

Area:

Line:



LP Mains
MP Mains
IP Mains
LHP Mains



Valve

Depth of cover

Syphon



Diameter Change

Material Change



Out of Standard Service

Where an out-of-standard service is present please contact plant protection 0800 688 588 for further information.

Out-of-standard service symbology may be used to indicate one or more of the following:

- Identification of shallow services
 - Identification of dual services
 - Recording of non-perpendicular services
- A perpendicular service/connection is laid in a straight line from the entry point at the property to the connection at the main – this includes a pipe that has a perpendicular connection and is not straight but does not deviate more than 1m off centre line.

Date Requested: 21/03/2024
Job Reference: 32864735
Site Location: 388569 403198
Requested by: Mr Joe Shawyer
Your Scheme/Reference: 35185

View extent: 100m, 100m

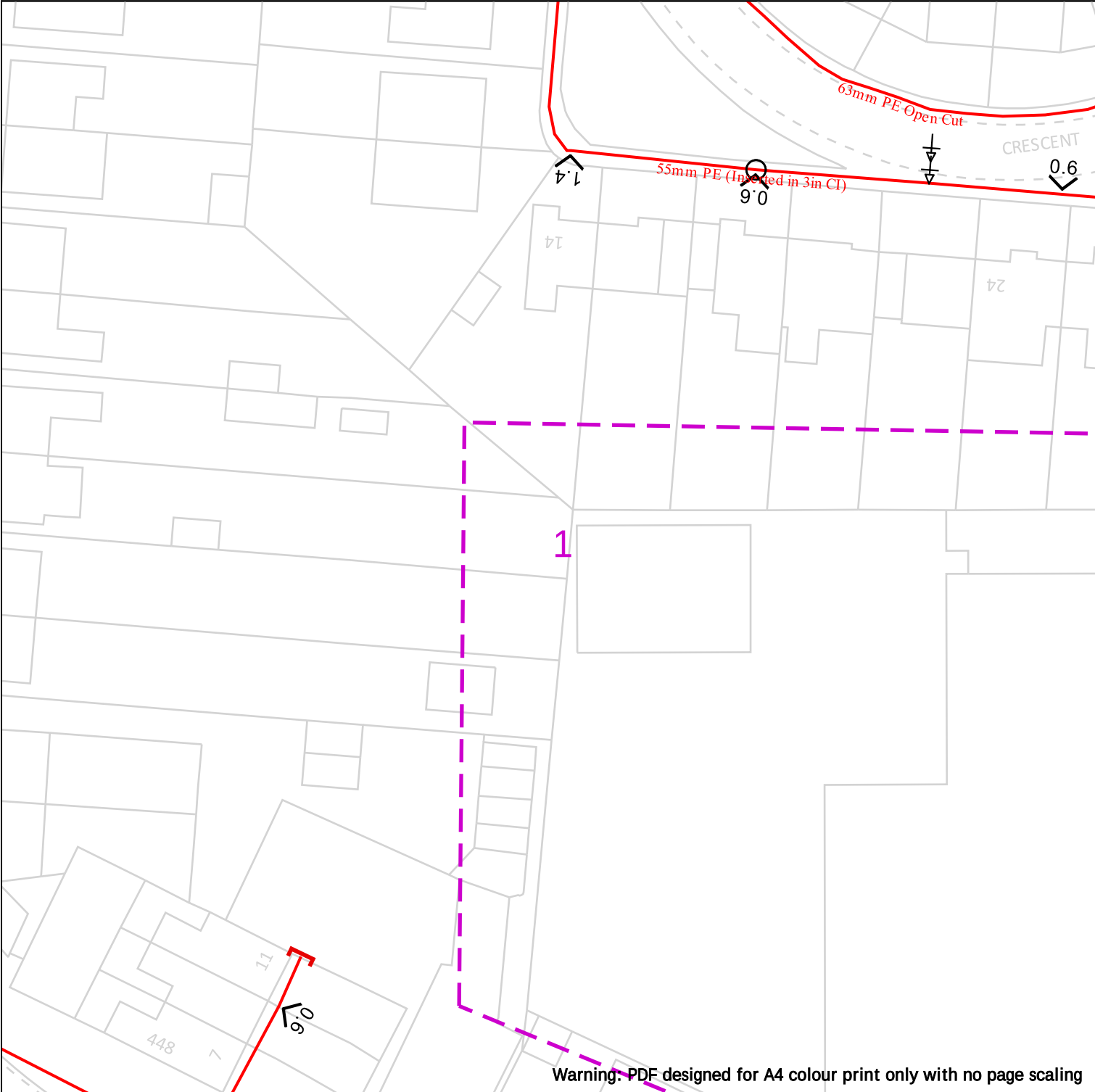
Scale: 1:1025 (When plotted at A4)

IMPORTANT NOTICES

This plan shows these pipes owned by Cadent Gas Limited in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GT's or otherwise privately owned may be present in this area. Information with regards 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 Limited or their agents, servants or contractors for any errors 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.

In case of emergency call - 0800 111 999

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Cadent
Your Gas Network

Dig Sites

Area:  Line: 

	LP Mains			Diameter Change
	MP Mains			Material Change
	IP Mains			Out of Standard Service
	LHP Mains			

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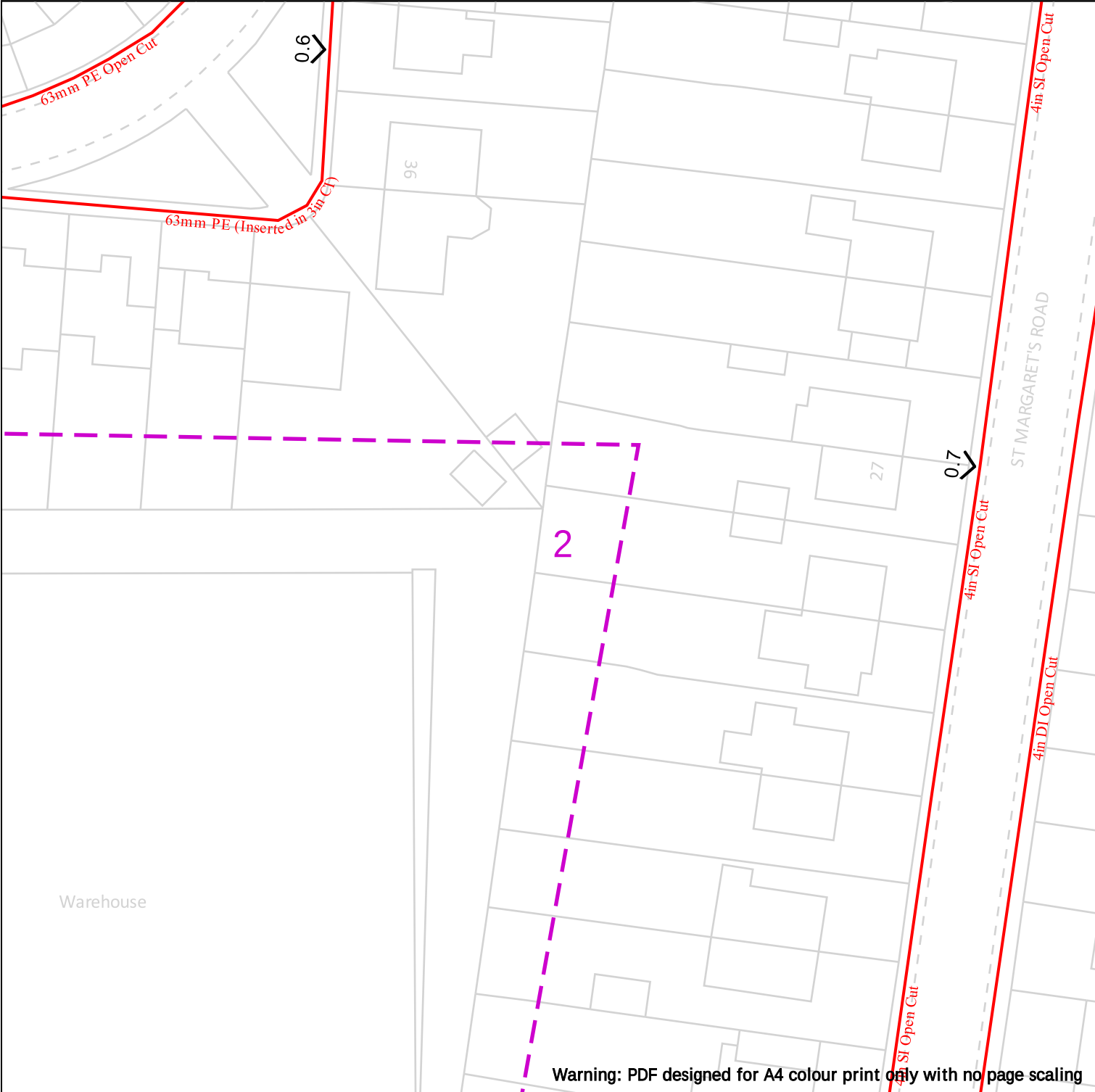
In case of emergency call - 0800 111 999

Date Requested: 21/03/2024
Job Reference: 32864735
Site Location: 388569 403198
Requested by: Mr Joe Shawyer
Your Scheme/Reference: 35185

View extent: 100m, 100m

Scale: 1:500 (When plotted at A4)

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Cadent
Your Gas Network

Date Requested: 21/03/2024
Job Reference: 32864735
Site Location: 388569 403198
Requested by: Mr Joe Shawyer
Your Scheme/Reference: 35185

View extent: 100m, 100m

Scale: 1:500 (When plotted at A4)

Dig Sites

Area:  Line: 

	LP Mains			Diameter Change
	MP Mains			Material Change
	IP Mains			Out of Standard Service
	LHP Mains			

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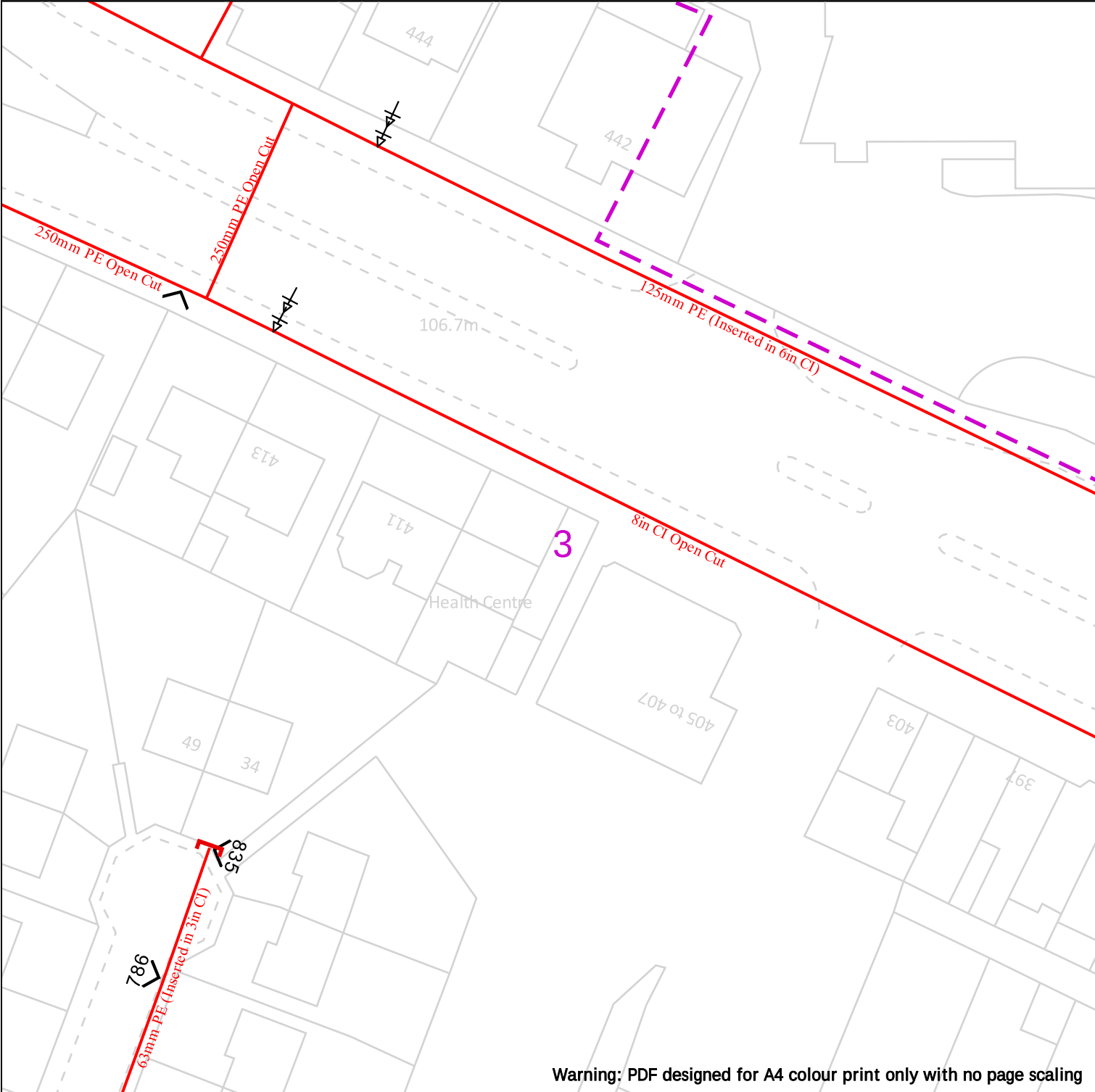
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Job Reference: 32864735
Site Location: 388569 403198
Requested by: Mr Joe Shawyer
Your Scheme/Reference: 35185

View extent: 100m, 100m

Scale: 1:500 (When plotted at A4)



Dig Sites

- LP Mains
- MP Mains
- IP Mains
- LHP Mains

Area: 

Line: 

 Valve

 Depth of cover

 Syphon

 Diameter Change

 Material Change

 Out of Standard Service

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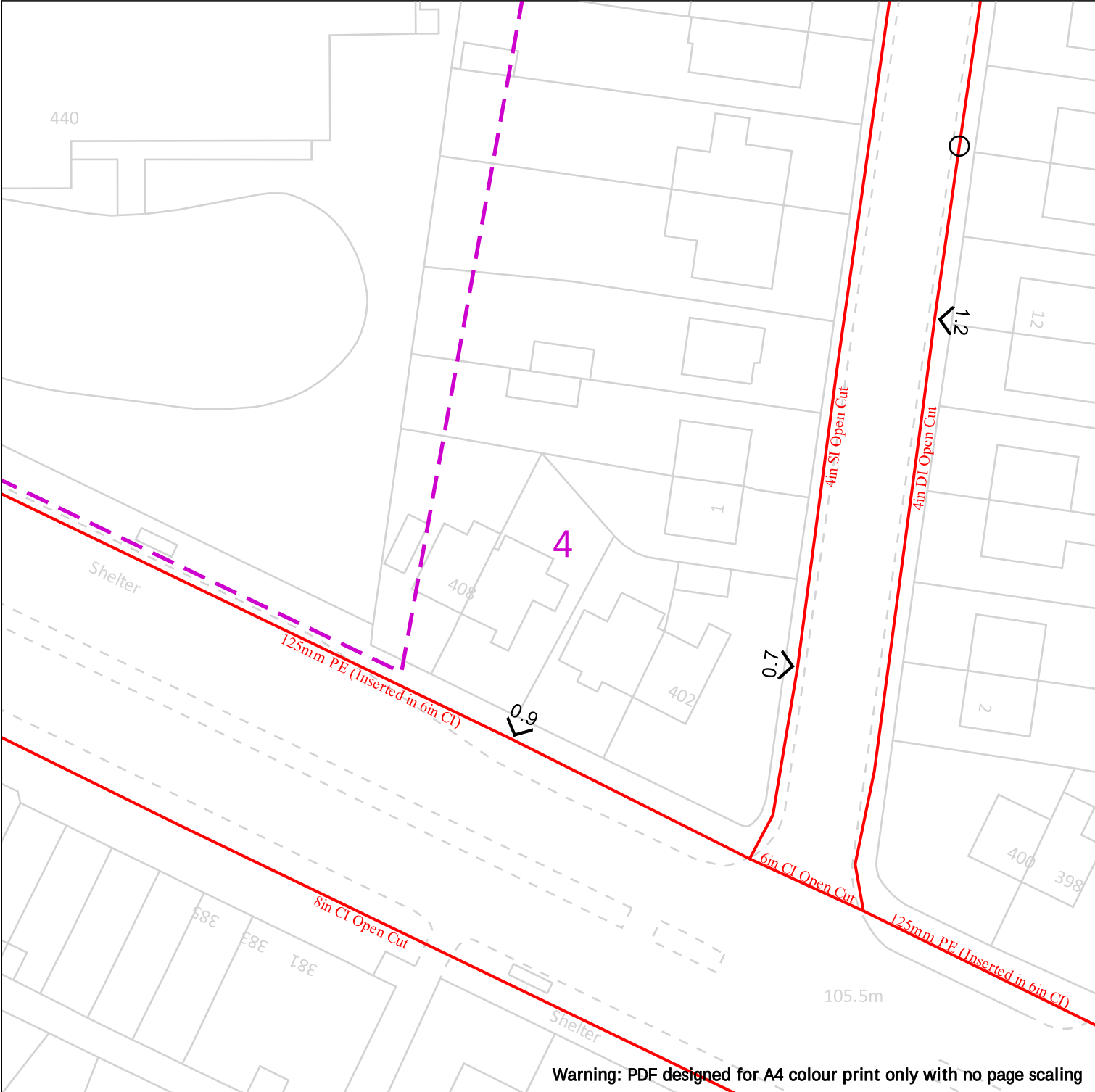
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View extent: 100m, 100m

Scale: 1:500 (When plotted at A4)



Dig Sites

- LP Mains
- MP Mains
- IP Mains
- LHP Mains

Area: 

Line: 

 Valve

 Depth of cover

 Syphon

 Diameter Change

 Material Change

 Out of Standard Service

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Specification for *Safe Working* in the Vicinity of Cadent Assets



Cadent Contact Details

East of England Operations Plant Protection

Address: Cadent Gas Limited, Vicarage Farm Road, Peterborough, PE1 5TP

Email: eaplantprotectionops@cadentgas.com

East Midlands Operations Plant Protection

Address: Cadent Gas Limited, Effingham Street, Sheffield, S4 7YP

Email: emplantprotectionops@cadentgas.com

North London Operations Plant Protection

Address: Cadent Gas Limited, Uxbridge Road, Slough, SL2 5NA

Email: nlplantprotection@cadentgas.com

North West Operations Plant Protection

Address: Cadent Gas Limited, Plant Protection (Block C), Mersey Road North, Failsworth, Greater Manchester, M35 9FF

Email: plantprotection.nw@cadentgas.com

West Midlands Operations Plant Protection

Address: Cadent Gas Limited, Windsor Street, Birmingham, B7 4DN

Email: plantprotection.wm@cadentgas.com



Disclaimer

This document is provided for use by third parties for safe working in the vicinity of Cadent assets. Where this document is used by any other party it is the responsibility of that party to ensure that this document is correctly applied.

Users should ensure that they are in possession of the latest edition of this document by referring to the Digging Safely webpage on the Cadent website.
www.cadentgas.com/help-advice/digging-safely

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Smell gas? Call the free, 24 hour
National Gas Emergency Service:

0800 111 999*

*All calls are recorded and may be monitored

Step by Step Process

Register with LinesearchbeforeUdig (LSBUD)

LSBUD provide a free online enquiry service giving results within minutes from a grid reference, postcode or street name. This allows you to submit enquiries about activities and work that you are planning which may have an impact on the gas network.

www.lsbud.co.uk

Submit an Enquiry

Within LSBUD there are 3 enquiry types, **information only**, **planned works** and **emergency works**. Information only enquiries will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry. If your works are of a genuine emergency nature (e.g. burst water main etc.) then you should submit an emergency enquiry.

Review the Response, Asset Location and Enclosed Guidance

LSBUD will auto-generate a response based on your enquiry details and our assets in the area. The assessment will be based on the selected Work Category and Work Type. If your planned works propose activities to be undertaken within the distances specified in this booklet, you must obtain site specific advice from our specialist operational plant protection team.

If your response says that we need to assess your enquiry further, you must not start any work until we confirm it is safe to do so.

If you are advised to proceed with caution, then you must ensure that you utilise the provided asset plans and follow the guidance in this document.

Observe Restrictions

In addition to the guidance contained in this booklet, you must ensure that you observe any site-specific advice provided by our specialist operational plant protection teams.

**If in doubt, contact Cadent by ringing the
Central Admin Team on 0800 688 588**

Introduction

Safe Working in the Vicinity of Cadent Assets: Requirements for Third Parties

This specification is for issue to third parties carrying out work in the vicinity of Cadent gas assets and associated installations. It is provided to ensure that individuals planning and undertaking work take appropriate measures to prevent damage.

Any damage to a gas asset, or its coating, can affect its integrity and can result in failure leading to potentially serious hazardous consequences for individuals located in the vicinity.

It is therefore essential that the safety advice outlined in this document, along with any site-specific advice given by our operatives, is complied with when working near to our assets. If Cadent consider any work to be in breach of the requirements stipulated in this document, then the Cadent Plant Protection Officer will request that work is suspended until the non-compliances have been rectified.

Every reasonable precaution shall be undertaken to avoid personal injury or damage to our apparatus. If we incur any direct or indirect costs as a consequence of your works and we are required to repair or divert any gas apparatus, you'll be recharged in full.



Any damage to our apparatus will be subject to legislative reporting responsibilities to the HSE under Reporting of Injuries, Diseases & Dangerous Occurrences Regulations 2013, Gas Safety Management Regulations 1996 and the Pipelines Safety Regulations 1996.

The requirements in this document are in line with the Institution of Gas Engineers and Managers (IGEM) recommendations [IGEM/SR/18 Edition 3 - Safe Working Practices to Ensure the Integrity of Gas Assets](#) and Associated Installations and the HSE's guidance document [HS\(G\)47 Avoiding Danger from Underground Services](#).

It is the responsibility of the third party to ensure that any work carried out also conforms with the requirements of the Construction and Design Management ([CDM Regulations 2015](#)) and all other relevant health and safety legislation. Reference shall be made to our apparatus within your site Health and Safety file.



**Keeping you,
your workers
and the public
safe when
working near
our pipelines**

1 Scope

This specification sets out the safety precautions and other conditions associated with working in the vicinity of Cadent assets, located in negotiated easements and public highways.

Mandatory and non-mandatory requirements

In this document:

- Shall: indicates a mandatory requirement
- Should: indicates best practice and is the preferred option

If an alternative method is used then a suitable and sufficient risk assessment shall be completed to show that the alternative method delivers the same, or better, level of protection.

Where the guidance in this document cannot be adhered to, then the diversions process shall be followed.

Before contacting our diversions team, you'll need to have your site information and any design proposals available.

Once you have this information, please contact our diversions team diversions@cadentgas.com or on 0330 678 1034.

Visit www.cadentgas.com/diversions for more information.

**You can contact our
diversions team by email
diversions@cadentgas.com
or by phone 0330 678 1034**



2 Formal Consent

Cadent's assets are either located in an easement agreed with the landowner at the time of installation, or within the highway. As the required arrangements for working in an easement and working in the highway differ, this section describes the specific requirements for these two areas.

Any documents handed to contractors or other individuals undertaking work (e.g. farmers, local authorities etc.), on site by Cadent, shall be signed for and adhered to by the site. All personnel working on site shall be made aware of the potential hazards of working near gas assets and the actions they should follow in case of an emergency.

2.1 Within an easement

The promoter of any works within an easement shall provide Cadent with details of the proposed works, including a risk assessment and method statement of how the work is intended to be carried out. Work shall not commence in an easement strip until formal written consent has been provided by Cadent. This will include details of Cadent's protection requirements, contact telephone numbers and the emergency telephone number. On acceptance of Cadent's requirements, the promoter of the works shall give Cadent at least 14 days' notice before commencing work on site.

Where clearance to proceed has been granted directly from the system, for example, if your works only affect low pressure assets (operating at less than 75 mbar), but the asset concerned is within an easement, the promoter of the works shall contact the network Plant Protection Office for formal written consent.

In addition to formal written consent, an easement crossing agreement (deed of indemnity) may be required. This shall be discussed with the Cadent Plant Protection Officer prior to the commencement of the works.

The width of an easement is dependent on a number of factors and is mainly dependent on the operating pressure, pipeline material and diameter, as these factors influence safe working requirements and building proximity distances. Easement details should be registered at Land Registry, however if you are unsure please liaise with your Cadent Plant Protection Officer.



Below is a list of our standard easement widths, however, some easements may vary:

Pressure tier/ Material	Diameter	Easement Width (total)
HP Steel	900mm, 1060mm, 1200mm (36", 42", 48")	24.4m (80')
HP Steel	750mm and 600mm (30" & 24")	18.3m (60')
HP Steel	Up to and including 450mm (18")	12.2m (40')
HP RTP	Determined on a case by case basis	
IP Steel	All sizes	6m plus pipe diameter
IP PE > 5.5 bar	Above 500mm (19")	30m plus pipe diameter
	356mm to 500mm	16m plus pipe diameter
	126mm to 365mm	12m plus pipe diameter
	Up to and including 125mm	12m plus pipe diameter
IP PE <5.5 bar	Above 500mm (19")	26m plus pipe diameter
	356mm to 500mm	8m plus pipe diameter
	126mm to 365mm	8m plus pipe diameter
	Up to and including 125mm	8m plus pipe diameter
AGI's	All sites	3m restrictive width around the installation
MP PE	Above 500mm (19")	12m plus pipe diameter
	356mm to 500mm	6m plus pipe diameter
	126mm to 355mm	5m plus pipe diameter
	Up to and including 125mm	4.5m plus pipe diameter
MP Steel	All sizes	6m plus pipe diameter
MP Iron	All sizes	6m plus pipe diameter
LP	Above 125mm	3m plus pipe diameter
	Up to and including 125mm	1m plus pipe diameter

2.2 Within a highway

Work shall be notified to Cadent in accordance with the requirements of the **New Roads and Street Works Act (NRSWA) and HS(G)47**. The promoter of any works within the highway should provide Cadent with details of the proposed works, including a risk assessment and method statement of how the work is intended to be carried out. This shall be submitted at least 14 days before

the planned work is to be carried out. If similar works are being carried out at several locations in close proximity, a single risk assessment and method statement should be adequate depending on the nature of the works. Work should not go ahead until formal written consent has been given by Cadent. This will include details of Cadent’s protection requirements, contact telephone numbers and the emergency telephone number.

3 Location of Gas Assets

A copy of our plans with your marked-out site is provided in our LSBUD response. Cadent asset records shall be consulted to establish the indicative location of the gas assets in relation to the promoter’s work area.

If the marked-out area is incorrect you MUST resubmit your enquiry with the correct area marked out.

Prior to work commencing on site, the gas assets should be located to verify the indicative location from plans.

This should initially be carried out through non-intrusive methods utilising pipe locators where possible. The indicative location should be verified through trial holes. Once located, the gas assets should be marked out at regular intervals using asset location markers with triangular flags (see Appendix A) or other suitable methods.

For assets exceeding 2 bar, the excavation of all trial holes shall be monitored by Cadent. For assets not exceeding 2 bar, monitoring will be at the discretion of the Cadent Plant Protection Officer.

Safe digging practices, in accordance with HSE publication HS(G)47, shall be followed. Direct and consequential damage to gas plant can be dangerous both to employees and to the general public.

We utilise marker posts and surface boxes to denote the location of our apparatus providing access to key parts of our network. Free access shall be maintained to such apparatus during and after your works and these shall not be moved, covered or damaged during the works.

- High Pressure
- Intermediate Pressure
- Medium Pressure
- Low Pressure



4 Temporary and Permanent Protective Measures

No temporary or permanent protective measures, including the installation of concrete slab protection, shall be installed over or near to a Cadent asset without the prior written consent of Cadent Plant Protection Officer. Cadent will need to approve the material, dimensions and method of installation for the proposed protective measure.

The method of installation shall be confirmed through the submission of a formal written method statement from the contractor to Cadent. Where permanent protection is to be installed over an asset, Cadent will normally carry out a coating survey of metallic assets to check that there is no existing damage to the coating, prior to the slab protection being installed. Cadent shall, therefore, be given at least 14 days' notice prior to the laying of any slab protection to arrange for this survey to be carried out.

Generally, due to the need for future access to below 2 bar gas assets, permanent protection is not permitted, however, can be approved at Cadent's discretion.

The safety precautions detailed in [Sections 5, 6, 7 or 8](#) of this document should also be observed during the installation of the asset protection.



5 Working in the Vicinity of a High or Intermediate Pressure Gas Asset (Operating at Pressures Greater than 2 bar)

The below information shall only be used as guidance, for all works in the vicinity of High and Intermediate Pressure Pipelines the auto-response from the system will advise not to carry out any works until we have undertaken a technical review of the planned works and provided site specific safe working advice.

Information only enquiries will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry for assessment.



5.1 Excavation

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators, and any other powered mechanical plant, shall not dig on one side of the asset with the cab of the excavator positioned on the other side.

All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

5.1.1 In proximity to an asset in an easement

Following location and marking of assets in agreement with the Cadent Plant Protection Officer, powered mechanical excavation may be used no closer than 3m (see Figure 1). The use of toothed excavator buckets vastly increases the potential for damage to assets, therefore only toothless buckets shall be used.

Any fitting, attachment or connecting pipework on an asset shall be exposed by hand.

If third parties are using any form of trench support system, they shall ensure that none of the components are in contact with the Cadent asset.

Consideration may be given to a relaxation of these limits or lower risk excavation methods by agreement with the Cadent Plant Protection Officer on site.

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.) and following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of 250mm, using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or close to above ground gas installations.

After the completion of the work, the level of cover over an asset should be the same as that prior to work commencing, unless otherwise agreed by Cadent.

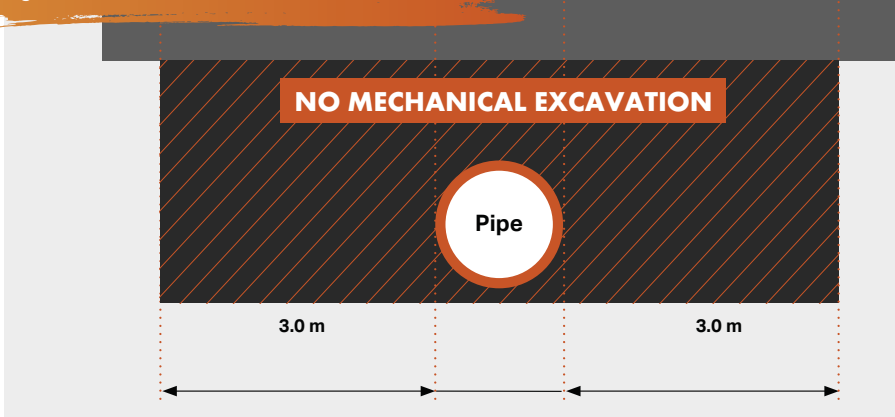
No new service shall be laid parallel to an asset within the easement. In special circumstances, and only with formal written agreement from Cadent, this may be relaxed for short excursions where the service shall be laid no closer than 600mm.

Where work is being carried out parallel to an asset, within or just alongside the easement, suitable barriers shall be erected for protection between the works and the asset to prevent encroachment.

5.1.2 In proximity to an asset in the highway

Following locating and marking of assets in agreement with the Cadent Plant Protection Officer, powered mechanical excavation may be used no closer than 3 meters (see Figure 1).

Figure 1. Excavation restrictions



The use of toothed excavator buckets vastly increases the potential for damage to assets, therefore only toothless buckets shall be used.

Any fitting, attachment or connecting pipework shall be exposed by hand.

If third parties are using any form of trench support system, they shall ensure that none of the components are in contact with the Cadent asset.

Removal of the bituminous or concrete highway surface layer by mechanical means is permitted to a depth of 300mm, unless any attachments or projections are present on an asset (e.g. valve spindles, pressure points etc.). The use of chain trenchers is not permitted within 3m of an asset. The Cadent Plant Protection Officer may need to be present to monitor this work. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools under the observation of Cadent.

In special circumstances, consideration may be given to a relaxation of these rules by agreement with the Cadent Plant Protection Officer and only whilst they remain on site.

5.1.3 Crossing over an asset (Open cut)

Where a new service is to cross over an asset, a clearance distance of 600mm between the crown of the asset and underside of the service should be maintained. If this cannot be achieved, the service shall cross below the asset (see Section 5.1.4).

In special circumstances, this distance may be reduced at the discretion of the Cadent Plant Protection Officer on site.

5.1.4 Crossing below an asset (Open cut)

Where a service is to cross below an asset, a clearance distance of 600mm between the crown of the new service and underside of the asset shall be maintained. Where lengths of pipe greater than one metre are to be exposed, the Cadent Plant Protection Officer shall be consulted. Exposed assets should be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.

In special circumstances, this clearance distance may be reduced at the discretion of the Cadent Plant Protection Officer on site.

5.1.5 Cathodic Protection (CP)

Cathodic protection (CP) is applied to Cadent's buried steel pipe and is a method of protecting assets from corrosion by maintaining an electrical potential between the pipe and anodes placed at strategic points along the asset. Where a new service is to be laid and similarly protected, the party installing the CP system shall undertake tests to determine whether the new service is interfering with the cathodic protection of Cadent assets.

Should any cathodic protection posts or associated apparatus need to be moved to facilitate third party works, at least 14 days' notice shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

5.1.6 Installation of electrical equipment

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party and a risk assessment and method statement shall be submitted to Cadent for approval, prior to the works commencing.

The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of the cathodic protection system. In these instances, Cadent will require the promoter of the works to conduct pre and post energisation potential surveys of Cadent's assets. The costs for any stray current mitigation systems required will be borne by the promoter of the works.

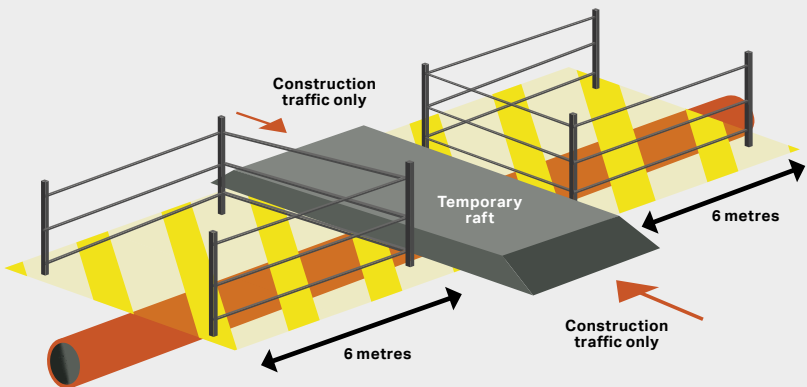
5.2 Construction Traffic

Where existing roads cannot be used, construction traffic shall only cross an asset at locations agreed with the Cadent Plant Protection Officer. Notices shall be placed directing traffic to the crossing points. Post and wire fencing shall be erected at all crossing points, and the fence should cover the width of the easement and extend a further 6 metres along the length of the easement on both sides (see Figure 2).

Assets shall be protected at all crossing points by a suitable method agreed with the Cadent Plant Protection Officer prior to installation. The promoter of the works shall review ground conditions, vehicle types and crossing frequencies to determine the type and construction of the protection required.

For larger scale projects or permanent solutions, a protection slab may be required.

Figure 2. Construction traffic requirements



5.3 Specific Activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of an asset. The promoter of works is required to consult Cadent when intending to undertake one of the listed activities and/or further advice is required on whether the work has the potential to affect the asset. The table below shows, for some specific activities, the prescribed distances where the advice of Cadent shall be sought.

Activity	Distance within which Cadent advice shall be sought
Piling	15 m
Surface mineral extraction	100m
Landfilling	100 m
Demolition	150 m or 400m for structure mass > 10000 tonnes
Blasting	500 m if the MIC* is greater than 200 kg 250 m if the MIC* is greater than 10 kg but less than 200 kg 100 m if the MIC* is 10 kg or less.
Deep mining	1000 m
Wind turbine	1.5 times mast height

*MIC - Maximum Instantaneous Charge

5.3.1 Trenchless techniques

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced. This risk assessment and method statement shall be formally agreed with Cadent prior to the commencement of the work. Please provide Cadent with at least 14 days' notice as the Cadent Plant Protection Officer may wish to be present to monitor this work.

5.3.2 Changes to depth of cover

The depth of cover over Cadent's asset shall not be altered. Cadent shall be consulted for any activity proposed that will lead to a change in cover over the asset. Expert advice may need to be sought, which will be determined by the Cadent Plant Protection Officer.

5.3.3 Piling

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset. The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec. The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

5.3.4 Demolition

No demolition should be allowed within 150m of an asset, or 400m for a structure mass greater than 10,000t without an assessment of the vibration levels at the asset. The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

5.3.5 Blasting

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

The peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

5.3.6 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100 metres of an asset. Consideration should also be given to extraction around other plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined by Cadent. The easement strip should be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability.

This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, Cadent shall assess whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of [Section 5.3.5](#) apply.



5.3.7 Deep mining

Assets within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance, which can be arranged through Cadent.

5.3.8 Landfilling

The creation of slopes outside of the asset easements may promote instability within the vicinity of an asset. Cadent should carry out an assessment to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which an asset is routed.

5.3.9 Pressure testing

Hydrostatic testing of a third-party asset should not be permitted within 8 metres either side of a Cadent asset, to provide protection against the effects of a burst. Where this cannot be achieved, typically where the third-party asset needs to cross a Cadent asset, one of the following precautions would need to be adopted:

- limiting of the design factor of the third-party pipeline to 0.3 at the asset's nominated maximum operating pressure (MOP), and the use of pre-tested pipe
- the use of sleeving
- Cadent conduct risk analysis of pipe failure

In either case, the third party shall submit their site-specific risk assessment and safe system of works for consideration by Cadent.

5.3.10 Seismic surveys

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of an asset that will result in peak particle velocities in excess of 75mm/sec at the asset.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

5.3.11 Hot work

Where a Cadent metallic gas asset has been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset. This may be reduced if suitable protection and precautions has been agreed with Cadent.

If the gas asset is PE (polyethylene or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, should not take place within 500mm of the gas asset. This may be reduced if suitable protection and precautions have been agreed with the Cadent Plant Protection Officer to prevent against the effects of sparks, radiant heat transfer etc.

The Cadent Plant Protection Officer shall be present to monitor all welding, burning or other 'hot work' that takes place.

5.3.12 Wind turbines

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of a gas asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 (UKOPA/GP/013) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.

5.3.13 Solar farms

Solar Farms can be built adjacent to gas assets but never within an easement. Advice shall be sought from Cadent at the early stages of design to ensure that electrical interference, security, future access and construction methods can be mutually agreed.

Further guidance can be found from UKOPA's Good Practice Guide 14 (UKOPA/GP/014) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

5.4 Backfilling

No backfilling should be undertaken without Cadent's agreement to proceed and the Cadent Plant Protection Officer will stipulate the necessary requirements. Some equipment may not be suitable for use over or around an asset due to the adverse effects of excessive compaction and vibration levels. The Cadent Plant Protection Officer will be able to advise on suitable equipment. Third parties undertaking work shall provide Cadent with 48 hours' notice, or shorter only if agreed with Cadent, of the intent to backfill over, under or alongside the asset.

This requirement should also apply to any backfilling operations that:

- are within 3 metres of an asset
- could influence the ground stability

Any damage to an asset or its coating shall be reported to Cadent in order that damage can be assessed, and repairs carried out.

Minor damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If an asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party shall re-excavate to enable the condition of the asset coating to be assessed.



6 Working in the Vicinity of a Medium Pressure Gas Asset (Operating at Pressures Greater than 75 mbar but not Exceeding 2 bar)

The below information shall only be used as guidance, and where appropriate, will be supplemented by site specific safe working advice from the network Plant Protection Officer.

Information only enquiries will not be escalated for operational site-specific advice, should you wish to carry out works you must submit a planned works enquiry for assessment.

6.1 Temporary and Permanent Structures

No temporary or permanent structures are permitted to be installed above, or in close proximity to a gas asset or easement due to the restriction of access this imposes. This includes, but is not limited to, permanent street furniture such as planters and bollards and temporary buildings such as welfare units and other enclosed spaces. The building proximity distances for medium pressure assets is as follows:

Please note that the easement distance may be greater than the building proximity distance. For any proposed structures in the easement, please consult with the Cadent Plant Protection Officer.

Material	Minimum proximity to premises
Cast/Spun Iron	3m
Ductile Iron	30m
Steel	1m
PE (inserted)	1m
PE (non-inserted)	2m for diameters < 500mm 5m for diameters > 500mm



6.2 Excavation

6.2.1 General

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators and any other powered mechanical plant shall not dig on one side of the asset with the cab of the excavator positioned on the other side. All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

Excavation with a powered mechanical excavator should not be carried out until the asset has been located through vacuum excavation or by hand. No mechanical excavation is permitted within 500mm of a gas asset. Any mechanical excavation should utilise a banksperson. Toothless buckets shall be used due to the potential of damage to assets using toothed excavator buckets.

Consideration shall be given to apparatus installed on gas assets including valves, spindles, pressure points etc. Any fitting, attachment or connecting pipework on an asset shall be exposed by hand.

Where concrete is exposed around gas apparatus, it shall not be removed without first consulting with a Cadent Plant Protection Officer as it could be providing protection or anchorage to live apparatus.

Where a third party is using any trench support system, they shall ensure that none of its components are in contact with an asset.

The use of chain trenchers is not permitted within 3m of the confirmed location of an asset.

6.2.2 Working in vicinity of iron pipework

When deep excavation greater than 1.5m in depth is carried out in the vicinity of iron pipework, steps shall be taken to ensure the risk associated with immediate and latent asset failure are considered and, where necessary, excavations are cut back to reduce the shear factor created by ground disturbance likely to result in settlement. This also includes instances where excavations are part of construction works, including basement conversions, underground car parks, shaft construction, etc.

Care should be taken to ensure that any exposed iron pipework is suitably supported at 1m intervals and protected from damage to avoid creating tensions that could lead to joint disturbance or pipe barrel fracture.

Where fittings or existing repairs are uncovered, care shall be taken to ensure that these are not disturbed.

When working near ductile iron pipework, any corrosion identified on the pipeline shall be reported to 0800 111 999 for a first call operative to attend to undertake a hazard assessment.

6.2.3 In proximity to an asset in an easement

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of 250mm using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or other gas assets.

After the completion of the work, the level of cover over the asset should be the same as that prior to work commencing.

No new service shall be laid parallel to the asset within the easement.

Where work is being carried out parallel to the asset, within or alongside the easement, suitable barriers shall be erected between the works and the asset to prevent encroachment or damage.

6.2.4 In proximity to an asset in the highway

Where sufficient depth of cover exists, and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, removal of the bituminous or concrete highway surface layer by mechanical means is permitted to a depth of 300mm. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools.

6.2.5 Crossing over an asset (Open cut)

Where a new service is to cross over a gas asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, shall be maintained. If this cannot be achieved, the service shall cross below the asset, [see Section 6.2.6](#).

6.2.6 Crossing below an asset (Open cut)

Where a service is to cross below a gas asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, between the crown of the new service and underside of the asset shall be maintained. The exposed asset shall be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.



**You can contact our
diversions team by email
diversions@cadentgas.com
or by phone 0330 678 1034**

6.2.7 Cathodic Protection (CP)

Cathodic protection (CP) is applied to some buried steel pipes and is a method of protecting assets from corrosion by maintaining an electrical potential between the asset and anodes placed at strategic points along the asset. Where a new service is to be laid and similarly protected, the party installing the CP system shall liaise with the Cadent Plant Protection Officer and undertake tests to determine whether the new service is interfering with the cathodic protection of the Cadent asset.

Should any cathodic protection posts or associated apparatus need moving to facilitate third party works, at least 14 days' notice shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

6.2.8 Installation of electrical equipment

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party, a risk assessment carried out and this shall be provided to the Cadent Plant Protection Officer for inspection. Equipment shall not be installed if the integrity of Cadent's assets is compromised. In this case, diversion of the affected assets is required.

The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of cathodic protection systems. In these instances, Cadent will require the promoter of the works to work with the Cadent Plant Protection Officer to ensure that pre and post energisation potential surveys of Cadent's assets are undertaken. The costs for any stray current mitigation systems required will be borne by the third-party promoter.



6.3 Construction Traffic

The promoter of the works shall review the ground conditions, vehicle types and crossing frequency to determine the type and construction of crossing that will be required. Additionally, no undue loads such as spoil heaps, lighting columns, permanent traffic lights or road signs should be allowed over gas assets.

Iron pipes, or pipes that are not already within an existing road (such as those within footways or verges), shall not be crossed by construction vehicles without suitable protection and the consent of the Cadent Plant Protection Officer.

Where existing roads cannot be used, construction traffic should only cross Cadent assets at specific locations, with notices directing traffic to the crossing points erected. All crossing points shall:

- Be at right angles to the asset
- Be fenced denoting the existence of the asset to ensure all traffic uses the crossing point. The fencing shall cover

the width of any easements and extend a further 6m along the length of any easements on both sides (see Figure 3).

- Have signs attached to the fence denoting the asset that the crossing point is located over
- Be regularly inspected and maintained in good condition

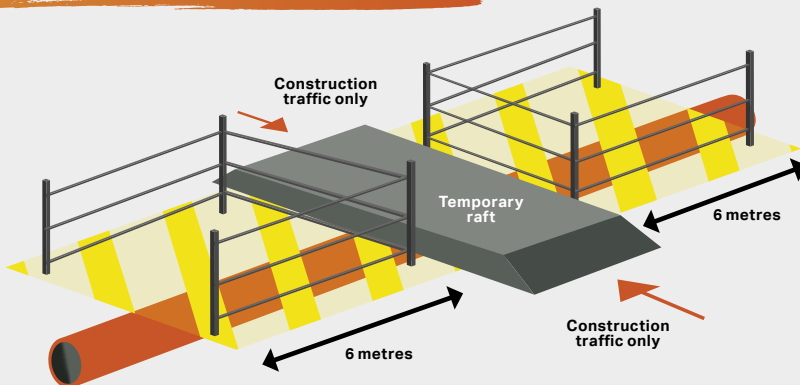
Note: A 5mph speed restriction should be enforced at all crossing points.

Suitable protection methods may include:

- Temporary protection slab
- Free-standing bridges (prefabricated modular steel or pre-cast concrete bridges)
- Proprietary access roadways
- Haul roads (including hardcore, sleepers, steel plates or a combination)

For larger scale projects or permanent crossings, diversion of the asset may be required.

Figure 3. Construction traffic requirements



6.4 Specific Activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of a Cadent asset. The promoter of works is required to consult Cadent when intending to undertake one of the activities listed below to obtain further site-specific advice on whether the work has the potential to affect the asset. The table to the right shows, for some specific activities, the prescribed distances where the advice of Cadent shall be sought.

**You can contact our
diversions team by email
diversions@cadentgas.com
or by phone 0330 678 1034**

Activity	Distance within which Cadent advice shall be sought
Piling	15m
Surface mineral extraction	100m
Landfilling	100m
Demolition	150m or 400m for structure mass > 10000 tonnes
Blasting	500m if the MIC is greater than 200kg 250m if the MIC is greater than 10kg but less than 200kg 100m if the MIC is 10kg or less.
Deep mining	1000m
Wind turbine	1.5 times mast height

6.4.1 Carriageway construction (including widening & bell mouth construction)

Where it is proposed to carry out carriageway construction over an asset previously located in a footway or verge, you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.

6.4.2 Trenchless techniques

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced and submitted to the Cadent Plant Protection Officer for review prior to commencing work. Please provide Cadent with at least 14 days' notice as we may wish to be present to monitor the work.

6.4.2.1 Tunnelling

Ground movement may occur when tunnelling in soft ground conditions. Ground movement contours from the tunnelling operation shall be calculated and all gas assets within the affected zone should be identified and assessed.

PE assets can tolerate some differential ground movement.

For cast and ductile iron assets, acceptable limits on stress increase and joint disturbances are defined in the performance acceptance criteria for iron mains.

For steel assets, an integrity assessment should be carried out according to the industry standard **IGEM/TD/12 – Pipework stress analysis for gas industry plant**. An expert on Soil/Pipe Interaction Analysis should be consulted when required for the evaluation of ground movement effects on the assets.

For any proposed tunnelling works, you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works, due to the likely impact on our assets.

6.4.3 Changes to depth of cover

The depth of cover over Cadent's asset shall not be altered. Where a change in cover is required, contact your Cadent Plant Protection Officer.

**You can contact our
diversions team by email
diversions@cadentgas.com
or by phone 0330 678 1034**



6.4.4 Piling

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made, which may require expert advice.

6.4.5 Demolition

No demolition should be allowed within 150m of an asset for 400m for a structure mass greater than 10,000 tonnes without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

6.4.6 Blasting

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should provide the Cadent Plant Protection Officer with the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought, which can be arranged through Cadent.

6.4.7 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100m of a gas asset. Consideration should also be given to extraction around plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined. Where an easement exists, the easement strip shall be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability. This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded.

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, an assessment should be made as to whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of [Section 6.4.6](#) apply.

6.4.8 Deep mining

Gas assets within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance, which can be arranged through Cadent.

6.4.9 Landfilling

The creation of slopes outside of the asset easements may promote instability within the vicinity of the asset. Cadent should carry out an assessment to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which the asset is routed.

6.4.10 Pressure testing

Pressure testing should not be permitted within 8m of an asset unless suitable precautions have been taken against the effects of a pipe failure.

6.4.11 Seismic surveys

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of PE or steel assets that will result in peak particle velocities in excess of 75mm/sec at the asset or for iron assets that will result in peak particle velocities in excess of 25mm/sec at the asset.

The promoter of the works should provide Cadent the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.



6.4.12 Hot work

Where the Cadent's metallic gas assets have been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset. This may be reduced if suitable protection and precautions have been agreed with Cadent.

If the gas asset is PE (or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, shall not take place within 500mm of the gas asset. For further advice contact your network Plant Protection Officer.

Protection measures shall be agreed with the Cadent Plant Protection Officer prior to installation to prevent the effects of sparks, radiant heat transfer etc.

Any hot works in proximity to a Cadent gas asset require leakage surveys prior to, during and after the works. If gas is detected, all works shall stop, and the leak immediately reported to the National Gas Emergency Service on 0800 111 999.

The Cadent Plant Protection Officer will determine the need to remain on site to monitor all welding, burning or other 'hot work' that takes place.

6.4.13 Wind turbines

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of the asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 ([UKOPA/GP/013](#)) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.

6.4.14 Solar farms

Solar Farms can be built adjacent to gas assets, but never within an easement. Advice shall be sought from Cadent at the early stages of design to ensure that electrical interference, security, future access and construction methods can be mutually agreed.

Interference checks shall be completed by the third party to ensure that the solar installations and associated infrastructure have no negative effect on cathodic protection systems.

Further guidance can be found from UKOPA's Good Practice Guide 14 ([UKOPA/GP/014](#)) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

6.4.15 Lifting operations

Where lifting operations are planned to be carried out in the vicinity of medium pressure apparatus a site-specific risk assessment and lift plan is required to be reviewed by the Cadent Plant Protection Officer.

Protection shall be afforded to live apparatus when carrying out the works to prevent impact damage in the event of an uncontrolled failure or drop. Any loads shall be secured using suitable and sufficient lifting accessories to reduce the likelihood of the load being dropped.

Consideration shall be given to the location of lifting equipment and the loads induced into the ground to avoid the potential overloading of buried apparatus. Where the site cannot be laid out to avoid loading gas apparatus, the asset shall be suitably protected with the consent of the

Cadent Plant Protection Officer. Alternatively, the asset will require replacement/diversion.

6.5 Backfilling and Reinstatement

Reinstatement around Cadent apparatus still poses a risk to the integrity of the asset. A gas asset must not be located within the footway or carriageway construction as this has the potential to cause damage to the apparatus during and post completion of the reinstatement.

No backfilling should be undertaken without Cadent's agreement to proceed. Some equipment may not be suitable for use over or around assets due to the adverse effects of excessive compaction and vibration levels.

A gas asset shall not be encased in concrete or have concrete positioned within 300mm of the asset, or anywhere above an iron gas asset due to the need for future access.

The fine fill material should be firmly packed around the pipe in 100mm layers to achieve a compacted thickness of 75mm and shall be laid to a minimum depth of 150mm above the crown of the asset.

Mechanical compaction equipment shall not be used until a 250mm hand rammed layer has been compacted above the crown of the pipe.

For backfilling and reinstatement in the vicinity of iron apparatus, in addition to the above, the maximum weight of compaction equipment used above the crown of the asset shall not exceed 1.5t/m² and vibratory compaction shall not be used.

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diversions team by email
diversions@cadentgas.com
or by phone 0330 678 1034**

Material used in the backfill shall conform to the following requirements:

- Sand shall be well-graded in accordance with BS EN 12620:2002+A1:2007
- It shall not contain any sharp objects, large stones or bricks
- Foamed concrete shall not be used

We will require marker tape to be installed at least 250mm above the crown of the main.

Prior to backfilling, if the asset is coated, Cadent require the opportunity to inspect its condition in order to assess and to carry out any repairs as necessary. Please contact your network Plant Protection office to arrange this. Any damage to the asset or coating shall be reported to the Cadent Plant Protection Officer so that damage can be assessed, and repairs carried out.

Minor (and existing) damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If the asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party will need to re-excavate to enable the condition of the asset coating to be assessed.

All temporary supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.

7 Working in the Vicinity of a Low Pressure Gas Asset (Operating at Pressures up to 75 mbar)

For planned and emergency works in the vicinity of Low Pressure gas assets, the promoter will be advised proceed with caution. The guidance contained within this section must be followed. If it cannot, contact shall be made with the network Plant Protection office for advice.

7.1 Temporary and Permanent Structures

No temporary or permanent structures are permitted to be installed above, or in close proximity to a gas asset or easement due to the restriction of access this imposes. This includes, but is not limited to, permanent street furniture such as planters and bollards and temporary buildings such as welfare units and other enclosed spaces. The building proximity distances for low pressure assets is 1m.

Please note that the easement distance may be greater than the building proximity distance, for any proposed structures in the easement please consult with the Cadent network Plant Protection Officer.

7.2 Excavation

7.2.1 General

Mechanical excavators should not be sited or moved above an asset.

Mechanical excavators and any other powered mechanical plant shall not dig on one side of an asset with the cab of the excavator positioned on the other side. All traffic should be positioned far enough away from the trench to prevent trench wall collapse.

Excavation with a powered mechanical excavator should not be carried out until gas assets have been located through vacuum excavation or by hand. No mechanical excavation is permitted within 500mm of gas assets. Any mechanical excavation should utilise a banks person. Toothless buckets shall be used due to the potential of damage to assets using toothed excavator buckets.

Consideration shall be given to apparatus installed on gas assets including valves, spindles, pressure points etc. Any fitting, attachment or connecting pipework on the asset shall be exposed by hand.

Where concrete is exposed around gas apparatus this shall not be removed as it could be providing protection or anchorage to the live apparatus.

Where a third party is using any trench support system, they shall ensure that none of its components are in contact with the asset.



The use of chain trenchers to do this is not permitted within 3m of the confirmed location of the asset.

7.2.2 Working in vicinity of iron pipework

When deep excavation greater than 1.5m in depth is carried out in the vicinity of iron pipework, steps shall be taken to ensure the risk associated with immediate and latent asset failure are considered, and where necessary, excavations are cut back to reduce the shear factor created by ground disturbance likely to result in settlement. This also includes instances where excavations are part of construction works including basement conversions, underground car parks, shaft construction, etc.

Care should be taken to ensure that any exposed iron pipework is suitably supported at 1m intervals and is protected from damage to avoid creating tensions that could lead to joint disturbance or pipe barrel fracture.

Where fittings or existing repairs are uncovered care shall be taken to ensure that these are not disturbed.

When working near ductile iron pipework should any corrosion be identified on the pipeline this shall be reported to 0800 111 999 for a first call operative to attend to undertake a hazard assessment.

7.2.3 In proximity to an asset in an easement

Where sufficient depth of cover exists and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, light tracked vehicles may be permitted to strip topsoil to a depth of

250mm using a toothless bucket.

No topsoil or other materials shall be stored within the easement without the written permission of Cadent. No fires are allowed in the easement strip or other gas assets.

After the completion of the work, the level of cover over an asset should be the same as that prior to work commencing.

No new service shall be laid parallel to an asset within an easement.

Where work is being carried out parallel to an asset, within or alongside an easement, suitable barriers shall be erected between the works and the asset to prevent encroachment or damage.

7.2.4 In proximity to an asset in the highway

Where sufficient depth of cover exists, and the absence of attachments and projections has been confirmed (e.g. valve spindles, pressure points etc.), following evidence from hand dug trial holes, removal of the bituminous or concrete highway surface layer by mechanical means is permitted to a depth of 300mm. Where the bituminous or concrete highway surface layer extends below 300mm deep, it shall only be removed by handheld power assisted tools.

7.2.5 Crossing over an asset (Open cut)

Where a new service is to cross over an asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater shall be maintained. If this cannot be achieved, the service shall cross below the asset, [see Section 7.2.6](#).

7.2.6 Crossing below an asset (Open cut)

Where a service is to cross below an asset, a minimum clearance distance of 1.5 times the diameter of the gas asset or 300mm, whichever is greater, between the crown of the new service and underside of the asset shall be maintained. The exposed asset shall be suitably supported and protected by matting and timber cladding. Any supports shall be removed prior to backfilling.

7.2.7 Cathodic Protection (CP)

Cathodic protection (CP) is applied to some buried steel pipes and is a method of protecting assets from corrosion by maintaining an electrical potential between the asset and anodes placed at strategic points along the asset. Where a new service is to be laid and similarly protected, the party installing the CP system shall undertake tests to determine whether the new service is interfering with the cathodic protection of the Cadent asset.

Should any cathodic protection posts or associated apparatus need moving to facilitate third party works, appropriate notice, shall be given to Cadent. Cadent will undertake this work and any associated costs will be borne by the third party.

7.2.8 Installation of electrical equipment

Where electrical equipment is being installed close to Cadent's buried steel assets, the effects of a rise of earth potential under fault conditions shall be considered by the third party and a risk assessment carried out. Equipment shall not be installed if the integrity of Cadent's

assets is compromised. In this case, diversion of the affected assets will be required.

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The installation of electrical cables parallel to Cadent assets may induce currents into the asset. This may interfere with the effective operation of cathodic protection systems. In these instances, Cadent will require the promoter of the works to conduct pre and post energisation potential surveys of Cadent's assets. The costs for any stray current mitigation systems required will be borne by the third-party promoter.

7.3 Construction Traffic

The promoter of the works should review the ground conditions, vehicle types and crossing frequency to determine the type and construction of crossing that will be required. Additionally, no undue loads such as spoil heaps, lighting columns, permanent traffic lights or road signs shall be allowed over gas assets.

Iron pipes, or pipes that are not already within an existing road such as those within footways or verges shall not be crossed by construction vehicles without suitable protection being designed and installed. Consideration shall be given to the requirement for access to low pressure apparatus therefore for large scale, long duration projects, or permanent crossings, the diversions process shall be followed to determine whether the asset requires diversion/

replacement in advance of the works taking place.

Where existing roads cannot be used, construction traffic should only cross Cadent assets with a minimum depth of cover of 750mm (post crossing construction) at specific locations, with notices directing traffic to the crossing points erected. All crossing points shall:

- Be at right angles to the asset
- Be fenced denoting the existence of the asset to ensure all traffic uses the crossing point. The fencing shall cover the width of any easements and extend a further 6m along the length of any easements on both sides (see Figure 2 on page 13).
- Have signs attached to the fence denoting the asset that the crossing point is located over
- Be regularly inspected and maintained in good condition

Note: A 5mph speed restriction should be enforced at all crossing points.

Suitable protection methods may include:

- Temporary protection slab
- Free-standing bridges (prefabricated modular steel or pre-cast concrete bridges)
- Proprietary access roadways
- Haul roads (including hardcore, sleepers, steel plates or a combination)

7.4 Specific Activities

This section details the precautions that need to be taken when carrying out certain prescribed activities in the vicinity of a Cadent asset. The promoter of works is required to consult Cadent when intending to undertake one of the activities listed below and further advice is required on whether the work has the potential to affect the asset.

7.4.1 Carriageway construction (including widening & bell mouth construction)

Where it is proposed to carry out carriageway construction over an asset previously located in a footway or verge you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.

7.4.2 Trenchless techniques

Where trenchless techniques are being considered, a formal risk assessment and method statement shall be produced prior to commencing work.

Trial holes shall be undertaken to ensure that sufficient clearance exists between gas assets and the proposed third-party asset (or the pipe to be split if a pipe splitting technique is being used) prior to the works.

If an asset is to be replaced using pipe splitting techniques in the vicinity of iron mains, in addition to the below clauses, an integrity assessment shall be undertaken.

When running parallel to gas assets, the minimum clearance shall be:

- 1m

When crossing gas assets, the minimum clearance shall be:

- 500mm or 1.5 times the diameter of the asset, whichever is greater.

Clearances may need to be increased due to the following factors:

- Ground conditions
- Largest reamer diameter
- Type of reamer used, e.g. hollow, finned, etc.
- Accuracy of equipment being used
- Construction of adjacent services and structures
- Configuration of other underground services crossing or running parallel to the drill path
- Consequences of damage
- Pipe stress increase from potential ground movement

The exposed asset should be suitably supported and be protected by matting and suitable timber cladding to reduce the risk of damage from any broken pipe fragments (if pipe splitting is used).

Supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.

All lateral crossings shall be exposed around their full circumference with an additional 250mm clearance below. The width of the excavation shall be three times the diameter of the largest reamer or 500mm either side of the largest reamer, whichever is the greatest. These clearances shall be measured from the drill path centre. Each crossing should be manned during the drilling/splitting operation to watch the reamer/splitter pass.

For pipe splitting running parallel to a buried gas asset, trial holes should be undertaken at suitable and frequent locations along the proposed route to confirm sufficient clearance distances exist, and the pipe route is confirmed.

The line of the pipe to be installed/split should be monitored along its length to ensure no variance from its path.

Consideration should be given for a leakage survey to be undertaken before work starts, during the works if safe to do so and following completion. If there is any likelihood of damage to the asset, the operation shall be stopped immediately.

7.4.2.1 Tunnelling

Ground movement may occur when tunnelling in soft ground conditions. Ground movement contours from the tunnelling operation shall be calculated and all gas assets within the affected zone should be identified and assessed.

PE assets can tolerate some differential ground movement.



For cast and ductile iron assets, acceptable limits on stress increase and joint disturbances are defined in the performance acceptance criteria for iron mains.

For steel assets an integrity assessment should be carried out according to the industry standard **IGEM/TD/12 – Pipework stress analysis for gas industry plant**.

An expert on Soil/Pipe Interaction Analysis should be sought when required for the evaluation of ground movement effects on the assets.

For any proposed tunnelling works, due to the likely impact on our assets you must contact the diversions team to determine if diversion or replacement of the asset is required before commencement of your works.

7.4.3 Changes to depth of cover

The depth of cover over or around Cadent's iron assets shall not be altered. If a change in the depth of cover is required, you must contact the diversions team to arrange for diversion or replacement of the asset before commencement of your works.

For PE and steel pipes, reductions in depth of cover are only permitted if the below minimum depths of cover can be maintained (following investigation across the affected length):

- In fields and agricultural land 1.1m
- In roads and verges 750mm
- In footpaths 600mm
- In private property 600mm

Substantial increases in depth of cover shall not be permitted.

Where a change in the depth of cover affects attachments and projections such as services and valves, liaison with our diversions team is required to ensure these are appropriately protected or altered.

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or by phone 0330 678 1034**

7.4.4 Piling

No piling shall be allowed within 15m of an asset without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made, which may require expert advice.

7.4.5 Demolition

No demolition should be allowed within 150m of an asset for 400m for a structure mass greater than 10,000 tonnes without an assessment of the vibration levels at the asset.

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure the allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought.

Where demolition is proposed you must ensure that the gas supply to the premises has been isolated in a suitable, identified location.

7.4.6 Blasting

The Maximum Instantaneous Charge (MIC) dictates the distance at which an assessment of the vibration levels (at the located asset) is required. The measured distances are as follows:

- 500m if the MIC is greater than 200kg
- 250m if the MIC is greater than 10kg but less than 200kg
- 100m if the MIC is 10kg or less

For steel or PE assets, the peak particle velocity at the asset shall be limited to a maximum level of 75mm/sec.

For iron assets, the peak particle velocity at the asset shall be limited to a maximum level of 25mm/sec.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

Where ground conditions include silt or sand, an assessment of the effect of vibration on settlement and liquefaction at the asset shall be made. Expert advice may need to be sought.

7.4.7 Surface mineral extraction

An assessment shall be carried out on the effect of surface mineral extraction activity within 100m of an asset. Consideration should also be given to extraction around plant and equipment associated with assets (e.g. cathodic protection ground beds).

Where the mineral extraction extends up to the asset easement, a stable slope angle and stand-off distance between the asset and slope crest shall be determined.

Where an easement exists, the easement strip shall be clearly marked by a suitable permanent boundary, such as a post and wire fence. Additionally, where appropriate, slope indicator markers shall be erected to facilitate the verification of the recommended slope angle as the slope is formed, by the third party. The asset easement and slope need to be inspected periodically to identify any signs of developing instability.

This may include any change of slope profile including:

- Bulging
- The development of tension cracks on the slope or easement
- Any changes in drainage around the slope

The results of each inspection should be recorded.

Where surface mineral extraction activities are planned within 100m of the asset but do not extend up to the asset easement boundary, an assessment should be made as to whether this could promote instability in the vicinity of the asset. This may occur where the asset is routed across a natural slope or the excavation is deep. A significant cause of this problem is where the groundwater profile is affected by changes in drainage or the development of lagoons.

Where the extraction technique involves explosives, the provisions of [Section 7.4.6](#) apply.

7.4.8 Deep mining

Assets routed within 1km of active deep mining may be affected by subsidence resulting from mineral extraction. The determination of protective or remedial measures will normally require expert assistance.

7.4.9 Landfilling

The creation of slopes outside of the asset easements may promote instability within the vicinity of the asset. An assessment shall be carried out by the promoter of the works to determine the effect of any landfilling activity within 100m of an asset. The assessment is particularly important if landfilling operations are taking place on a slope in which the asset is routed.

7.4.10 Pressure testing

Pressure testing should not be permitted within 8m of an asset unless suitable precautions have been taken against the effects of a pipe failure.



7.4.11 Seismic surveys

The promoter of works shall advise Cadent of any seismic surveying work in the vicinity of PE or steel assets that will result in peak particle velocities in excess of 75mm/sec at the asset or for iron assets that will result in peak particle velocities in excess of 25mm/sec at the asset.

The promoter of the works should determine the anticipated vibration levels prior to the work commencing. The ground vibration should be monitored by the promoter to verify the anticipated levels and to ensure allowable peak particle velocity is not exceeded. Alarms should be set at suitable increments to provide a forewarning of limit exceedance. The promoter shall retain records of ground vibration levels for provision of the Cadent Plant Protection Officer on request.

7.4.12 Hot work

Where the Cadent's metallic gas asset has been exposed, welding (or other hot works that may involve naked flames) should not be carried out in proximity of the gas asset.

If the gas asset is PE (or a PE asset is contained within a metallic sleeve) welding, or other hot works that may involve naked flames, shall not take place within 500mm of the gas asset.

Protection measures shall be installed to prevent the effects of sparks, radiant heat transfer etc.

Any hot works in proximity to a Cadent gas asset shall require leakage surveys prior to, during and after the works. If gas is detected, all works shall stop, and the leak immediately reported to the National Gas Emergency Service on 0800 111 999.

7.4.13 Wind turbines

Wind turbines shall not be sited any closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of the asset.

Further guidance can be found from UKOPA's Good Practice Guide 13 ([UKOPA/GP/013](#)) - Requirements for the Siting and Installation of Wind Turbines Installations in the Vicinity of Buried Pipelines.

7.4.14 Solar farms

Solar Farms can be built adjacent to assets but never within an easement.

Interference checks shall be completed by the third party to ensure that the solar installations and associated infrastructure have no negative effect on cathodic protection systems.

Further guidance can be found from UKOPA's Good Practice Guide 14 ([UKOPA/GP/014](#)) - Requirements for the Siting and Installation of Solar Photovoltaic (PV) Installations in the Vicinity of Buried Pipelines.

7.4.15 Lifting operations

Where lifting operations are planned to be carried out in the vicinity of low pressure apparatus a site-specific risk assessment and lift plan is required.

Protection shall be afforded to live apparatus when carrying out the works to prevent impact damage in the event of an uncontrolled failure or drop. Any loads shall be secured using suitable and sufficient lifting accessories to reduce the likelihood of the load being dropped.

Consideration shall be given to the location of lifting equipment and the loads induced into the ground to avoid the potential overloading of buried apparatus.

Where the site cannot be laid out to avoid loading gas apparatus, the asset shall be suitably protected with the consent of the Cadent Plant Protection Officer. Alternatively, the asset will require replacement/diversion.

7.5 Backfilling and Reinstatement

Reinstatement around Cadent apparatus still poses a risk to the integrity of the asset. A gas asset must not be located within the footway or carriageway construction as this has the potential to cause damage to the apparatus during and post completion of the reinstatement.

No backfilling should be undertaken without Cadent's agreement to proceed. Some equipment may not be suitable for use over or around assets due to the adverse effects of excessive compaction and vibration levels.

A gas asset shall not be encased in concrete or have concrete positioned within 300mm of the asset or anywhere above an iron gas asset due to the need for future access.

The fine fill material should be firmly packed around the pipe in 100mm layers to achieve a compacted thickness of 75mm and shall be laid to a minimum depth of 150mm above the crown of the asset

Mechanical compaction equipment shall not be used until a 250mm hand rammed layer has been compacted above the crown of the pipe

For backfilling and reinstatement in the vicinity of iron apparatus, in addition to the above, the maximum weight of compaction equipment used above the crown of the pipe shall not exceed 1.5t/m² and vibratory compaction shall not be used.

Material used in the backfill shall conform to the following requirements:

- Sand shall be well-graded in accordance with BS EN 12620:2002+A1:2007
- It shall not contain any sharp objects, large stones or bricks
- Foamed concrete shall not be used

We will require marker tape to be installed at least 250mm above the crown of the pipe. Any damage to the asset or coating shall be reported to the Cadent Plant Protection Office so that damage can be assessed, and repairs carried out.

Minor (and existing) damage to pipe coating and cathodic protection test leads will be repaired by Cadent free of charge. If the asset has been backfilled without the knowledge of the Cadent Plant Protection Officer, the third party will need to re-excavate to enable the condition of the asset coating to be assessed.

All temporary supports shall be removed prior to backfill but only when the asset is sufficiently supported by bedding material around the pipe.

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