



JNP GROUP
CONSULTING ENGINEERS

Development Summary

Project: Henderson Street
Bridge of Allan

Client: Simply UK

Reference: G10XXX-JNP-XX-XX-RP-D-0001 P01

Date: November 2020

Summary of Technical Aspects

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1.0 Introduction

JNP have been commissioned to review a brownfield site adjacent to Henderson Street, Bridge of Allan. This takes the form of a Desk Top Report. The report comprises a review of readily available (at cost) published technical information and a site walkover.

The site is located on Henderson Street. The site is currently used as a Hotel. The site is bounded to the east by a residential development. Henderson street runs along the southern boundary. Dense foliage forms the northern boundary. The site is accessed by a car park entrance and exit off Henderson street on the southern boundary. The hotel building is a three-storey stone building set in landscaped gardens.

2.0 Topography

The site rises substantially from south to north with retaining structures to the rear of the existing hotel.

Based on site inspection it is not anticipated that there will be any issue with levels on the development in terms of tie-in to road levels and surrounding buildings/sites. It should be noted that any proposed development should take account of the levels on the site. It is likely that retention will be required along the northern boundary however through significant landscaping work this requirement may be reduced.

3.0 Ground Conditions

There is currently no site-specific ground investigation. Based on the site inspection and historical review of the site the following information can be provided.

The site lies at the boundary of a former raised coastline, with the lower part of the site formed in deposits of Raised Tidal Flat Deposits (dominated by clay and silt) and the steeply rising ground at the rear of the site in Raised Marine Deposits of silt and sand with some gravels and clay. This geomorphology is the reason for the significant level difference across the site. The Raised Marine Deposits form the hillside to a gently rising shelf at between 30-40 metres above Ordnance Datum and the Tidal Flat Deposits is at around 10m AOD at Henderson Street. Intrusive investigations will be required to properly understand the ground conditions across the site.

Bedrock geology is a conglomerate of the Ochil Volcanic Formation. These rocks contain metal ores including copper and iron as well as traces of precious metals including silver and gold. The former Airthrey Hill copper mine, worked intermittently from the 17th to early 19th centuries, was to the north west above the site on Mine Road. These workings were accessed by a 400-metre-long adit driven from what is now Henderson Street. This adit was driven through the steep slope of the Raised Marine Deposits. Copper-rich water from mine and adit were the basis for the development of Bridge of Allan as a spa town in the 19th century. The location of the adit is unclear and will require further historical investigation to

confirm this but it is understood to be in the rear of a property on Henderson Street. Evidence suggests that it is probably to the west of the site.

The level difference across the site is currently modified by retaining structures. If these structures are to be retained in the development of the site, then verification of the capacity of these structures may be required. The ground model means that any new retaining new structures will retain soils of the Raised Marine Deposits and are likely to generate resistances to overturning within deposits of potentially low strength Tidal Flat Deposits. The depth to rock – or other competent superficial soils e.g. dense sand or gravel - will be critical in the selection and design of such structures. Possible forms of retention include sheet piling and a contiguous piled wall, with other forms possible depending on confirmation of ground conditions and the retained height.

Ground-related issues can be expected to include the following:

- Near-surface soft soils potentially requiring deeper foundations.
- Different ground conditions from back to front of the site.
- Possible hard rock within the depth of engineering of deep foundations and retaining structures.
- Shallow groundwater.
- Potential for elevated levels of radon gas.
- There are no risks from mineral extraction other than the adit as noted or any other ground gas.

Other issues:

- The former Eagleton Hotel at 103 Henderson Street is a Category C listed building.
- There has been no prior development of the site that could have created a source of significant contamination of soil or groundwater.

4.0 Foul and Surface Water Drainage

Scottish water records have been sourced and have identified a combined sewer network runs through the western portion of the site from Kenilworth Road to the north. A combined sewer has also been identified which travels along the northern boundary east to west. Any proposed development should take account of these existing sewers and consult with Scottish water on either way-leave agreement or diversion application.

Based on the site location it is recommended that any proposed surface water infrastructure is discharged through the existing combined sewer on Henderson street.

It is recommended based on the records that any proposed foul infrastructure should discharge to the existing combined sewer along Henderson street.

Any proposed drainage solution should include sufficient treatment and attenuation of surface water on site prior to discharge to the existing infrastructure.

A PDE is required in order to establish acceptable capacity has been provided at the local treatment plant and a full proposal issued to Scottish Water for their consideration/acceptance.

5.0 Services

Existing service information has been sourced.

An existing water distribution main has been identified along Henderson Street to the south of the site.

No independent utilities have been identified within the site boundary other than those serving the existing property.

Connections to existing services are within available distance of the site. Locations of these services have been included within the appendices of this report.

6.0 Roads Access & Egress

The site is serviced from Henderson Street. The speed limit at on this road is currently 30 MPH. A full traffic analysis will be required in support of planning.

Any proposals should include design of a new access road and relevant junction design to adoptable standard. Requirements should be confirmed by the local authority.

7.0 Flooding

Based on SEPA flood maps, the indications are as follows: -

River – No risk identified

Surface Water – No risk identified

Coastal - No risk identified

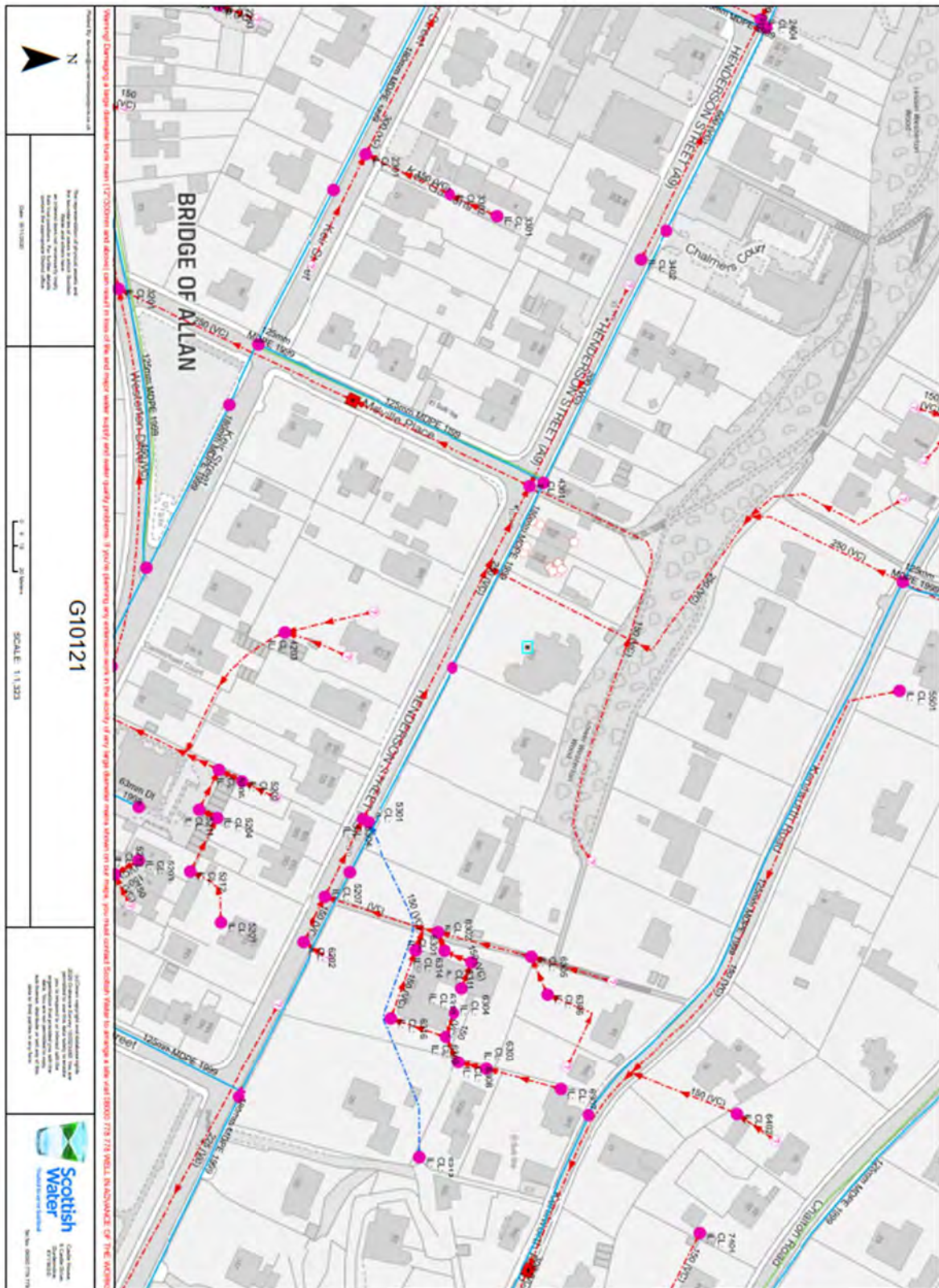
A full FRA by a specialist Flood company will be required. Based on the SEPA flood maps it is unlikely that the outcome of the FRA will provide any flooding mitigation requirements.

8.0 Further Investigation

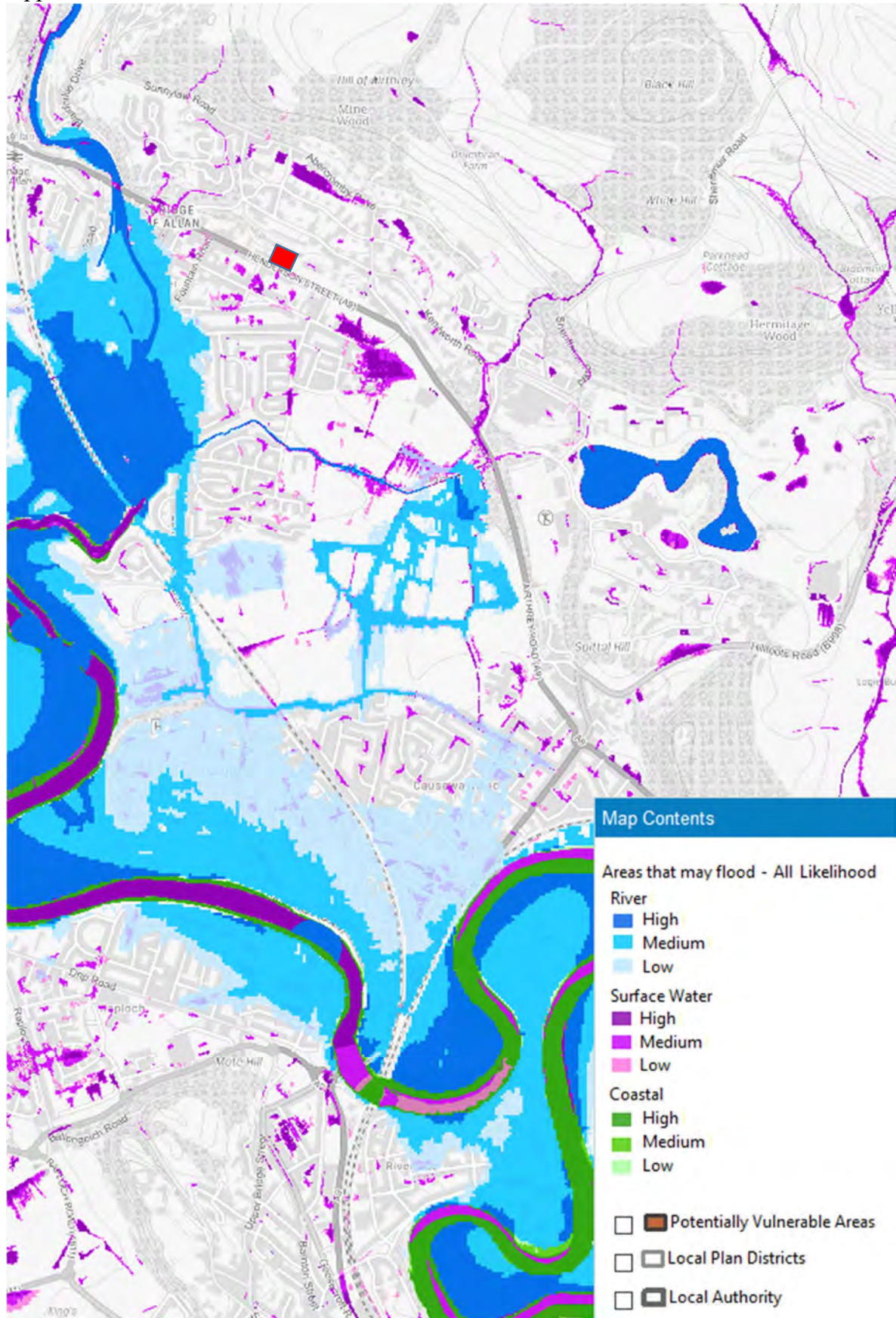
Further investigation to allow proper design of the proposed development and to obtain information required to satisfy various third parties are estimated as follows: -

Topographical Survey	circa £1,000 + VAT
Site Investigation	circa £15,000 + VAT, Ph 1 £2,500 + VAT
Drainage CCTV	£1000 + VAT
FRA	£2000 + VAT

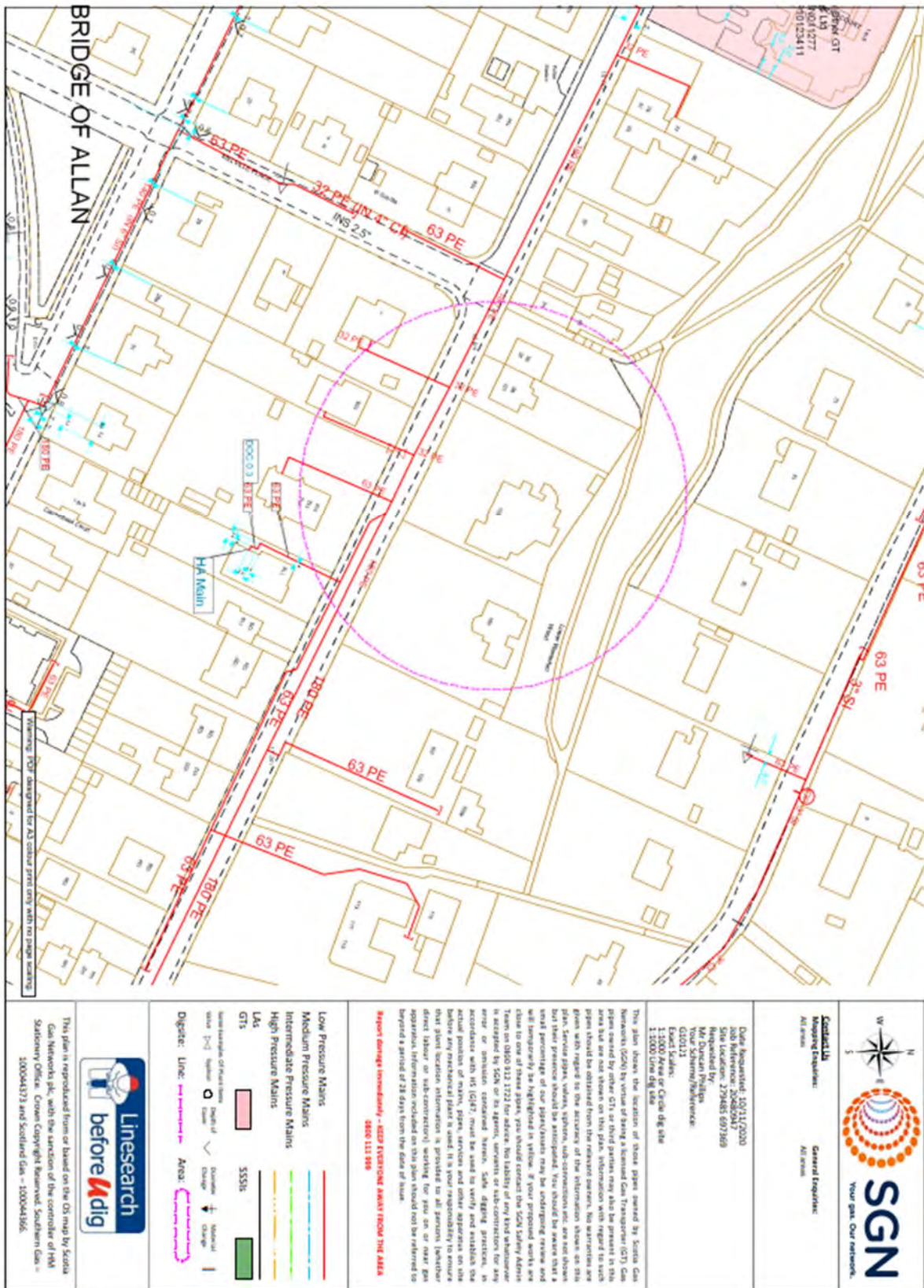
Appendix B



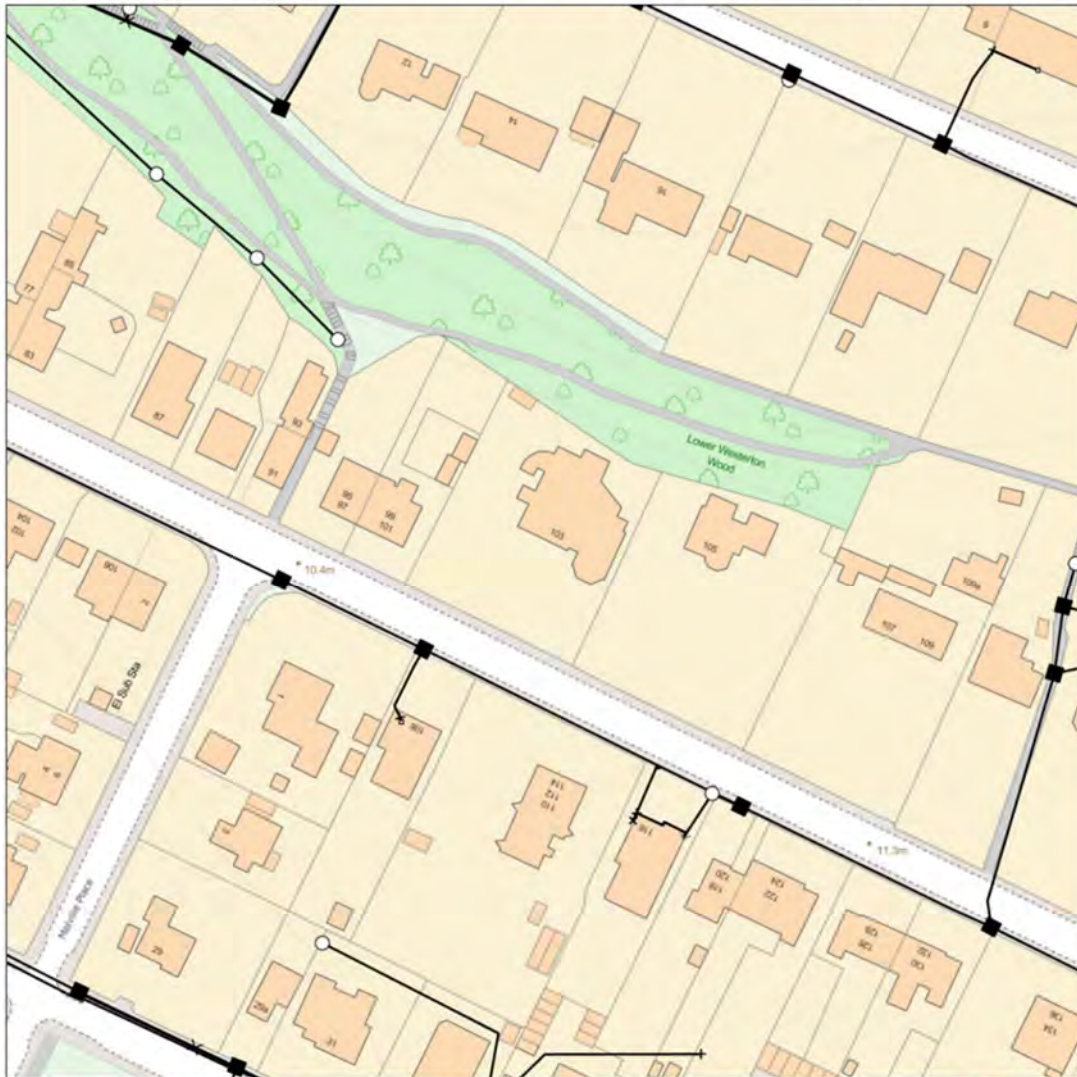
Appendix C



Appendix D



Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.



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ADVANCE NOTICE REQUIRED
 (Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

Accidents happen

If you do damage any Openreach equipment please let us know by calling 0800 023 2023 (opt 1 + opt 1) and we can get it fixed ASAP

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KEY TO BT SYMBOLS

	Planned	Live	Change Of State	+	Hatchings
PCP			Split Coupling		Built
Pole			Duct Tee		Planned
Box			Building		Inferred
Manhole			Kiosk		Duct
Cabinet			Other proposed plant is shown using dashed lines. BT symbols not listed above may be disregarded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.		
	Pending Add	In Place	Pending Remove	Not In Use	
Power Cable					
Power Duct				N/A	

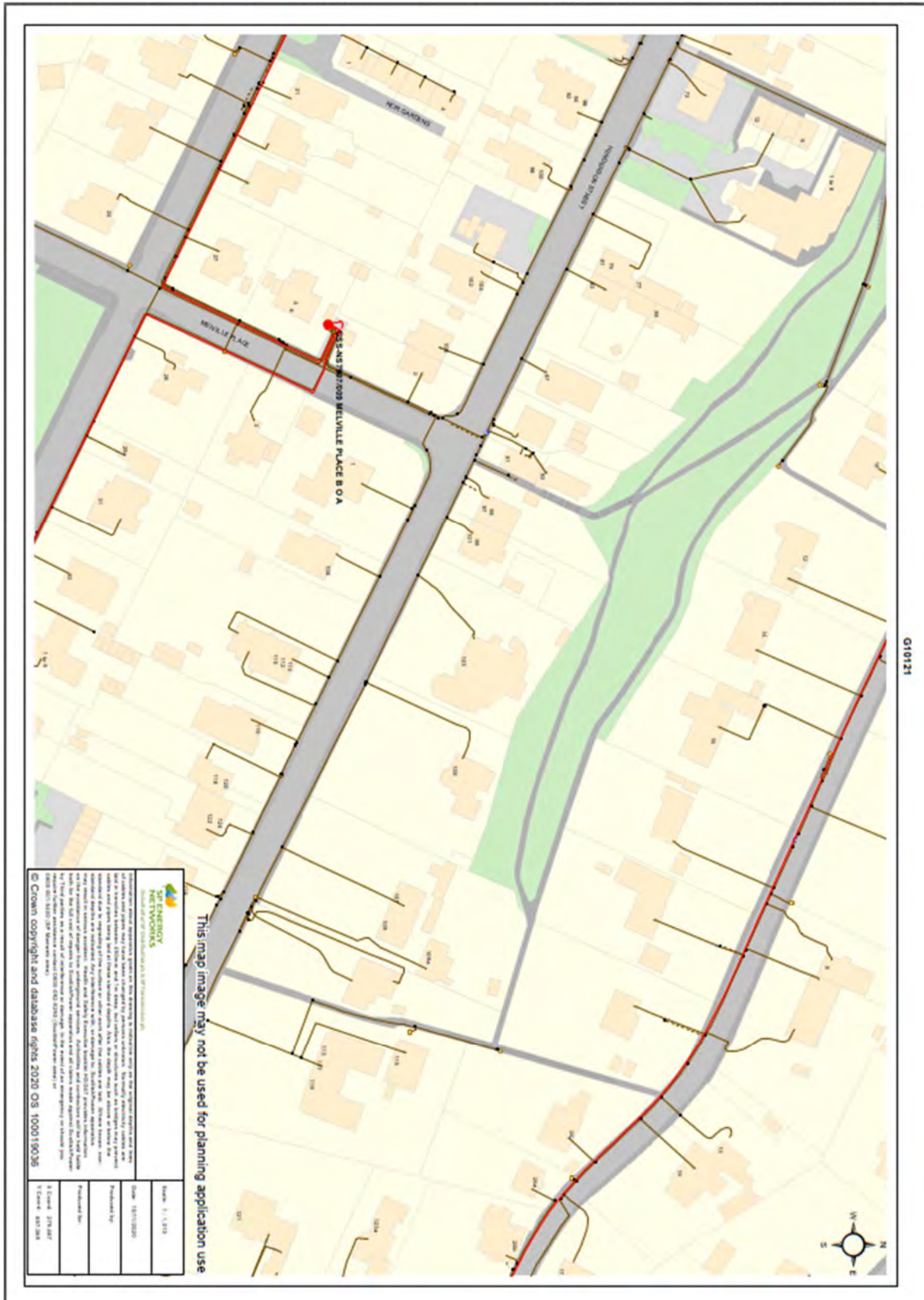
BT Ref : LUG01082S

Map Reference : (centre) NS7948797369

Easting/Northing : (centre) 279487,697369

Issued : 10/11/2020 13:23:53

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk





LEGEND

- EXISTING PLANT
- EXISTING PLANT

Disclaimer:

Information shown on this plan is for general guidance only. No warranty is made as to its accuracy. This plan must not be relied upon in the event of excavation or other works being carried out in the vicinity of Citylink plant. No liability of any kind is accepted by Citylink, its agents or servants for any error, omission, discrepancy or deviation. This information is valid for the date printed.

Project
Plant Enquiry

Drawing
Existing Plant

Drawn by:
smallworld

Date: 10/11/2020

Drawing No.
CFH_EP_0000001

Revision
001

Scale: 1:2500

AA



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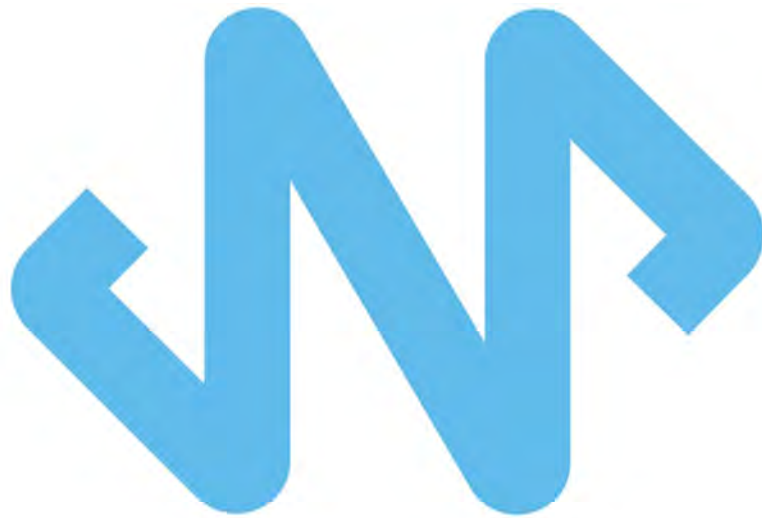
Citylink: 0845 253 0774
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Legend: ■ EXISTING PLANT
 — EXISTING PLANT

Appendix E







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