Appendix 15.2 – DNO Connection Offers

Appendix 15.2.3 - Gas DNO Connection Offer: National Grid*

*Note – Cost sensitive information has been removed from all relevant appendices



Design Study

Rail Central
Towcester Road
Northampton
NN7 3AP

Project Ref: 1300112480

Prepared By

Aaron Dolan - Design Engineer

Reviewed By

Stephen Johnson – Design Manager

July 2017







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Request for Detailed Design Study

Project Overview

tRIIO have been requested to produce a detailed design study for and on behalf of Hydrock via the connections Non Standard SCJ work stream.

A budget estimate was provided to Cadent using the tRIIO high level calculator, this report firms up the detailed design for this project and provides a narrative and sufficient design for a quotation to be produced.

Introduction

These works are being carried out between the Northampton Loop and the West Coast Main Line railways in Northampton.

The Northampton loop is a railway line serving the town of Northampton. It is a branch of the West Coast Main Line, deviating from the faster direct main line which runs to the west. The West Coast Main Line (WCML) is a four track line up to either end of the Loop: the 'up' and 'down' fast tracks take the direct route while the 'up' and 'down' slow tracks are diverted via Northampton railway station.

Warwickshire County Council has proposed a new station on the Northampton Loop Line called Rugby Parkway, which would be on the south-eastern outskirts of Rugby serving the Hillmorton area of the town. The purpose of this would be to accommodate the future expansion of the town. If it goes ahead the new station is planned to open in 2019.

Scope of Works

This sufficiently complex job (SCJ) has been subjected to detailed network analysis, it has been identified that the supply network with adequate capacity to meet this demand / load is the medium pressure network in Towcester Road. This network is sourced at 1.7barg.

A design risk assessment is included within this document as an appendices' the DRR and DRA identifies and provides mitigation to the major hazards identified on this project.

A wire frame graphical representation has been provided within the appendices and should be viewed when reviewing the narrative below, the design can be sectionalised into 2 separate components, the Medium Pressure feed to the West of Towcester Road and the Medium Pressure feed to the East of Towcester Road.

Furthermore graphical representation of internal pipe work layouts have been provided for the 13 units and Maintenance training depot. These are not detailed engineering design's, these will be provided once the developers plantroom layouts have been further developed.







7 Bar Rated 250mm HDPE MP Main

Positive confirmation is required from Cadent's NS department around the future of the HDPE pipeline with regards to potential uprating. This proposal assumes that the maximum operating pressure (MOP) is 2barg.

Should the HDPE network require uprating in the future, a new 7 bar to 2 bar PRI will need to be installed. This does not form part of this design study.

Please see appendix 1 wire frame model as a graphical representation of the narrative below.

Medium Pressure (MP) Mains Heading West of Towcester Road

The new MP connection is to be supplied from the Cadent 250mm diameter 7 bar rated HDPE main, PON number 633730109 at connection point X473035, Y254767 located in Towcester Road.

The pipeline route is subject to a Building Proximity Distance, for Medium Pressure HDPE mains this is 10 metres either side of the pipeline, for MDPE mains this is 3 metres either side of the pipeline, this route is therefore not impacted by this restriction.

Node 1 to Valve – Lay open cut method, 300m of 125mm HDPE medium pressure main to valve in open trench, excavated by the customer. Connection to parent main to be by 250mm x 125mm branch saddle with appropriate pressure and rider points.

Valve to Node 2 - Lay by open cut method, 364m of 125mm MDPE medium pressure main in open trench, excavated by the customer.









Medium Pressure (MP) Mains Heading East

The new MP connection is to be supplied from the Cadent 250mm diameter (7 bar rated HDPE) main, PON number 633730109 at connection point X473035, Y254767 located in Towcester Road.

The pipeline route is subject to a Building Proximity Distance, for Medium Pressure HDPE mains this is 10 metres either side of the pipeline. For MDPE mains this is 3meter either side of the pipeline, this route is therefore not impacted by this restriction.

Node 1 to Valve – Lay by open cut method, 82m of 180mm HDPE medium pressure main in open trench, excavated by the customer. Connection to parent main to be by 250mm x 180mm PE branch saddle with appropriate pressure and rider points.

Node 1 to Node 2 - Lay by open cut method, 31m of 180mm MDPE medium pressure main in open trench, excavated by the customer.

Node 2 to Node 3 - Lay by open cut method, 219m of 90mm MDPE Medium pressure main open trench, excavated by the customer.

Node 2 – Node 4 Lay by open cut method, 272m of 90mm MDPE Medium pressure main open trench, excavated by the customer.

Node 2 – Node 5 Lay by open cut method, 594m of 180mm MDPE Medium pressure main open trench, excavated by the customer.

Node 5 – Node 6 Lay by open cut method, 1006m of 125mm MDPE Medium pressure main open trench, excavated by the customer.

Node 5 – Node 7 Lay by open cut method, 429m of 90mm MDPE Medium pressure main open trench, excavated by the customer.







No final finished site levels have been provided at this stage of the design process, the developer will be expected to utilise the tables below to establish the depth of trench with regards to FFL's to ensure compliance with specification.

Mains and Service Pipe Diameter	Pipe Location	Recommended Minimum Depth of Cover (mm)
	In field	1100
All Diameter Mains	In roads and verges	750
	In footpaths	600
	In field	1100
Services above 63mm/2"	In roads and verges	750
	In footpaths	600
	In private property	Min. 600 (Note 2)
Sorving up to and	In roads and verges	450
Service up to and including 63mm/2"	In footpaths	450
including 65mm/2	In private property (Note 1)	375

The table below states the minimum proximity distance required from any known building

			- L	MOP	20	
		≤75mbar	>75mbar ≤2bar	>2bar ≤4bar	>4bar ≤5.5bar	>5.5bar ≤7bar
O.D. (mm)	Material PE grade		Minin	num proximit	y (m)	
	PE80 SDR 26	0.25	3			
≤140	PE80 SDR 17.6	0.25	3			
5140	PE80 SDR 11	0.25	3	5	5	
	PE100 SDR 11	0.25	3	5	5	10
	PE80 SDR 26	1	3			
	PE80 SDR 17.6	1	3			
160 to 250	PE80 SDR 11	1	3	5		
	PE100 SDR 11	1	3	5	5	10
	PE100 SDR 21	1	3			
	PE80 SDR 26	1	3			
	PE80 SDR 17.6	1	3			
315	PE80 SDR 11	1	3			
	PE100 SDR 11	1	3	5	5	10
	PE100 SDR 21	1	3			
	PE80 SDR 21	1	4			
355 to 400	PE80 SDR 17.6	1	4			
	PE80 SDR 11	1	4			
	PE100 SDR 11	1	4	5	5	10
	PE100 SDR 21	1	4			
	PE80 SDR 17.6	1	5			
	PE80 SDR 11	1	5			
450	PE100 SDR 11	1	5	13	13	13
	PE100 SDR 21	1	5		1	
	PE80 SDR 17.6	1	5			
500	PE80 SDR 11	1	5			
	PE100 SDR 21	1	5			
	PE 80 SDR 11	1	6			
630	PE 80 SDR 17.6	1	6			
630	PE 80 SDR 21	1	6			
	PE 100 SDR 21	1	6			







Services to Units

Unit's 1 to 7

25m x 90mm (per unit) MP MDPE service, entering into a bespoke metering kiosk via 90mm PE / 3" steel feeding 1 meter (per unit). The transition from below ground 90mm PE to above ground 3" steel to be via a bespoke governor leg fitting in the vertical plane.

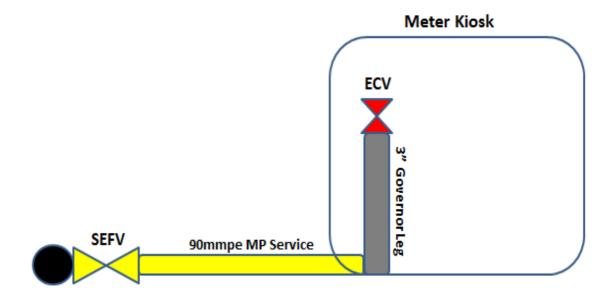
The 90mm MP MDPE services shall be fitted with Service Excess Flow Valves (SEFV) externally, as close to the parent main as possible.

Customer is to ensure that adequate ventilation is provided in accordance with IGEM/GM/8 Edition2.

Customer is to provide all necessary metering equipment and confirm plantroom space is adequate.

Unit's 1 to 7 Example

(Not For Construction)









Unit's 8 to 13

25m x 63mm (per unit) MP MDPE service, entering into a bespoke metering kiosk via 63mm PE / 2" steel feeding 1 meter (per unit). The transition from below ground 63mm PE to above ground 2" steel to be via a bespoke governor leg fitting in the vertical plane.

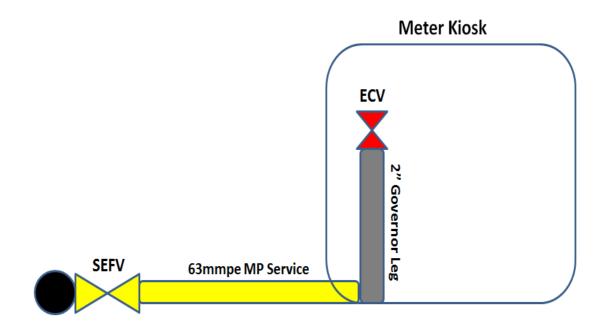
The 63mm MP MDPE services shall be fitted with a Service Excess Flow Valves (SEFV) externally, as close to the parent main as possible.

Customer is to ensure that adequate ventilation is provided in accordance with IGEM/GM/8 Edition2.

Customer is to provide all necessary metering equipment and confirm plantroom space is adequate.

Unit's 8 to 13 Example

(Not For Construction)









Maintenance Training Depot

175m x 63mm MP MDPE service, entering into a bespoke metering kiosk via 63mm PE / 2" steel feeding 1 meter. The transition from below ground 63mm PE to above ground 2" steel to be via a bespoke governor leg fitting in the vertical plane.

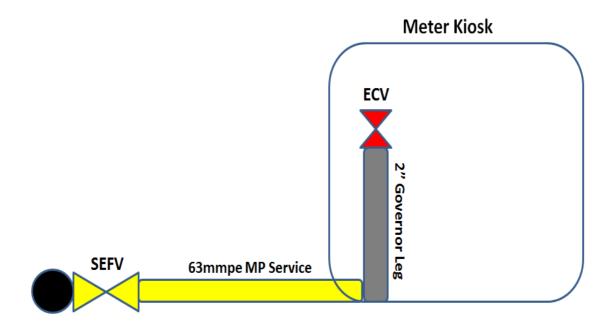
The 63mm MP MDPE service shall be fitted with a Service Excess Flow Valve (SEFV) externally, as close to the parent main as possible.

Customer is to ensure that adequate ventilation is provided in accordance with IGEM/GM/8 Edition2.

Customer is to provide all necessary metering equipment and confirm plantroom space is adequate.

Maintenance Depot

(Not For Construction)









CDM 2015 Duty Holder Determination

The following table shows the CDM2015 legal duty holders as determined and agreed between tRIIO and Cadent.

Preconstruction information from the developer and Cadent is not fully developed at this stage, tRIIO has utilised Cadent design platform ESRI and subsequent free to use sources as the basis of this design proposal.

Activity				Client	PC	PD	Designer	Contractor
Standard	and	Non	Standard	Cadent	tRIIO	tRIIO	tRIIO	ТВА
connections	s and D	isconne	ctions					

Should the construction site be controlled by other parties during the construction phase then the above arrangements will need to be reviewed and agreed to ensure all legal duty holders are understood.

Any subsequent pre construction information that was not available at the time of this design proposal that affects the design should be issued to tRIIO for review and confirmation of suitability.

Pre-Construction Sources of Information

The list below is an extract of the external sources of information that is available to tRIIO design team and has been cross referenced accordingly.

Land Searches Land Registry

Geotechnical Assessment British Geological Survey

Cadent ESRI system **Contact Zones**

H Codes (Hazard Identity Codes)

Vulnerable Customers

118 Layers

Third Party Utility Plans Electricity

IGT Gas Networks

National Grid

Virgin Telecom

BT Telecom

Water

Crime Statistics

Environment Agency







Land & Planning Dependency

Cadent Land and Development will be sourcing easements and leases, as well as access permissions should any mains be on private land. None of the above are required for services to properties as the supply serves the property only and as such has its own rights.

No land negotiations have commenced at this stage, it is not deemed these will be required provided the land is adopted highway.

Temporary Works BS5975

tRIIO do not foresee any requirement for Temporary Works on this SCJ unless significant excavations below 2.5m depth of cover, this being the depth of cover where the Generic TW Deep Excavation Booklet Rev 1 finished. Should this depth of cover need to be exceeded then this will be a construction variation not a design variation.

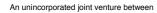
Appendices

App 1 - Wire Frame Model

App 2 - Design Risk Assessment

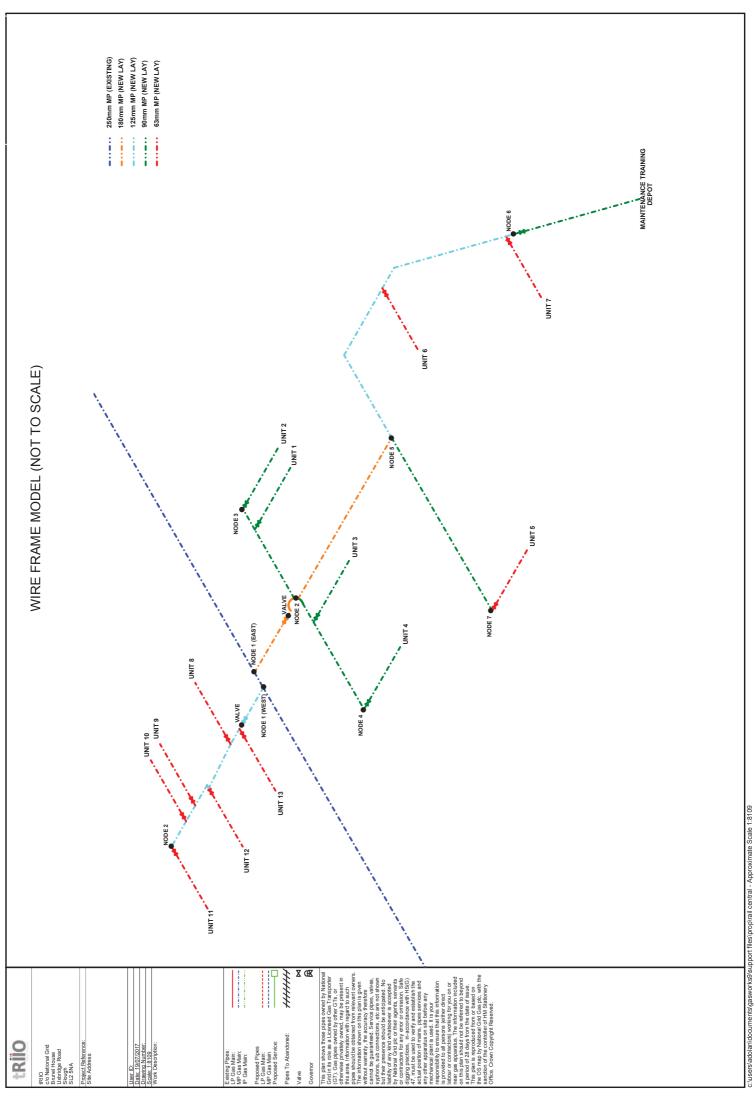
App 3 - Cable Drawing

App 4 - Flood Map









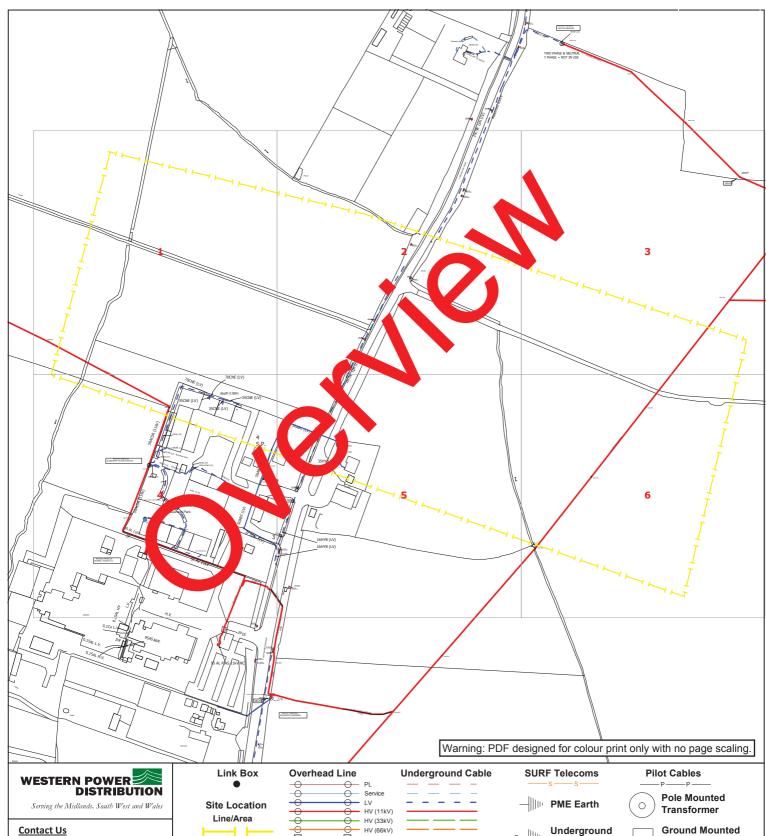
J	CDM Design Risk Register	CRIO Strategic Partnership
Project: Project Ref: Doc Ref: Date:	RAIL CENTRAL, TOWCESTER ROAD, NORTHAMPTON, NN7 3AP 1300112480 TRI EHS 60.04.01 F05 Design Risk Assessment V3.8 (24/03/2017) 19/07/2017	
Designer	Aaron Dolan	
	Project Red/Green Status based on Residual Risk Score The Hadd/Op Overall Risk Red/Green Status' automatically cakulates the residual risk score (and cobur).	, jun).
his DRR and DRA details the actions taken to apply ERICPD and create a agree of any of the principles of ALARP as the foremost concern, the repeatable stature of the RRIIO design deliverable enables a Generic, and Site Specific pproach to be taken.	46	
he limited nature of the design options enables a Risk Register to be developed pecific to the RIIO contract scope.	<18 Issue to Ops. No Hazid/Op Handover Meeting Required >18 Or trigger Full DRA Required	
Activity / Risk	Identified Present by Designer Design Options / Reasons for Rejection	Highest Risk Tier
Method of Construction	Copen Cut	Medium
	«	
	Special Engineer Difficulty	
Gas Specific Hazards	dW P	Medium
	P CEED ALADD DIAM SDAT	
Network Hazards	0 0 0	
	Rural	
Locale Hazards	Civic Amenilies affected	Medium
	Contamination Environmental	
Indianana of A tonoman Dlast	0 6	The state of the s
Underground & Aboveground Plant	Significant = HV, oi, N SEHV Unmade Ground	ußIL
:		
Highway / Logistics Hazards		
	Carriageway = 30mph	
Structural Hazards	Shallow Depth Extra Depth / Temporary Works Required	Medium
	32 - 180	:
Utility Lay / abandon	7180 - 315 dia , 8* / 200mm <= 12* / 300mm = above 315 dia, >12* - above	Medium
Snacja i Activitias	Maintenance	
Ton Marie Transfer		
MOBS	0 - 20m	
Manual DRA override needed?	Comment/Reason	

CDM H Code Table



		Identified
	Arthirty / Rick	Dracont hy
	NEW / AMADA	Designer
H01	HV >= TkV cable(s) recorded at this location	
H02	Overhead hazard identified e.g. cable	
H03	Cables traced but not visible	
H04	Shallow utility encountered	
H05	Damaged third party plant/property	
90H	Major hazardous underground plant <3m, e.g. oil, high pressure gas	
H07	Excavation >1.2m <=2.5m	
H08	Excavation >2.5m	
60H	Special measures deployed/required to enter/exit excavation	
H10	Ground support system required/deployed, e.g. shuttering	
H11	Risk of collapse of wall, building or other structure from excavating	
H12	Water ingress undermining trench walls or plant	
H13	Increased traffic hazard, e.g. bend in road, traffic lights, reversing required	
H14	Work may significantly increase risk to safe operation of railway system either directly of as a result of traffic incident	
H15	Cannot position vehicle close to site	
H16	High volume pedestrian traffic, e.g. school, shopping complex, hospital	
H17	Vulnerable Customer Identified	
H18	Physical/verbal assault likely/encountered	
H19	Increased risk of vandalism/vandalism encountered	
H20	Dangerous animal(s) encountered	
H21	Risk of theft offfrom vehicle	
H22	Asbestos (including a cementitious main) is suspected	
H23	Identified biological hazard (e.g. sharps, discarded needles, evidence of rats, damaged sewer)	
H24	Contaminated ground encountered	
H25	Hazardous personal/environmental vegetation	
H26	Any other identified hazards, where normal precautions are considered to be insufficient	
H30	SSRA considered sufficient	

Marche March Mar	This Design Risk Assessment (DRA) provides a balanced and consistent approach to hazard dedentification and fisk assessment. Through a deskip to exercise, the Designer has utilised Malional Grid systems, as well as other fire to use in three based search facilities, to obtain suitable and	The 'Hazid/Op	Project RedGreen Status based on Residual Risk Score The Hazid/Op Overall Risk Red/Green Status' and onatically calculates the residual risk score (and colour).				CDM Design Risk Assessment			tRIIO
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Moting Foundation Marie	integers have been nonlined, above by may have been conducted at the undergon	₹								
Part	used in conjunction with the Operational Risk Assessment process.	215 8/or1	Full Hazid/Op Handover Meeting Requir ed					Designer Authoriser	Aaron Dolan Aaron Dolan	Signature
				ľ						AN
The part Principle Princ		ntified Present by Designer	-	Risk	Action / Control Measures inate, Reduce, Isolate, introl, PPE, Discipline	S	De	Description of Action to be taken	be taken	
Compact Michael Mich	ry Hazards		Permitry Risks							
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Packet P	irseries, Community Centres, Nursing Homes									
Per Oper Change Per Paris Ch	Hazards		Utility Risks							
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Part	Electrical / Power Services, Pylons, Poles, Masts, Towers			-						
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SCITION OF DEVILORMENT LOCATED WITHIN A FLOOD WANNION MARA A SET FLOOD MAN	ibstations), Water Pumping Stations, Reservoirs	£	IV CABLES PRESENT WITHIN THE DEVELOPMENT PROXIMITY (SEE CABLE DRAWINGS)							
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	nired	8%		0						



Mapping Enquiries:

All areas 0121 623 9780 **General Enquiries:**

All areas 0800 096 3080

Date Requested: 19/07/2017 Job Reference: 10848615 Site Location: 473055 254719 Requested by:

Mrs Sharon De Souza Your Scheme/Reference: 130012480

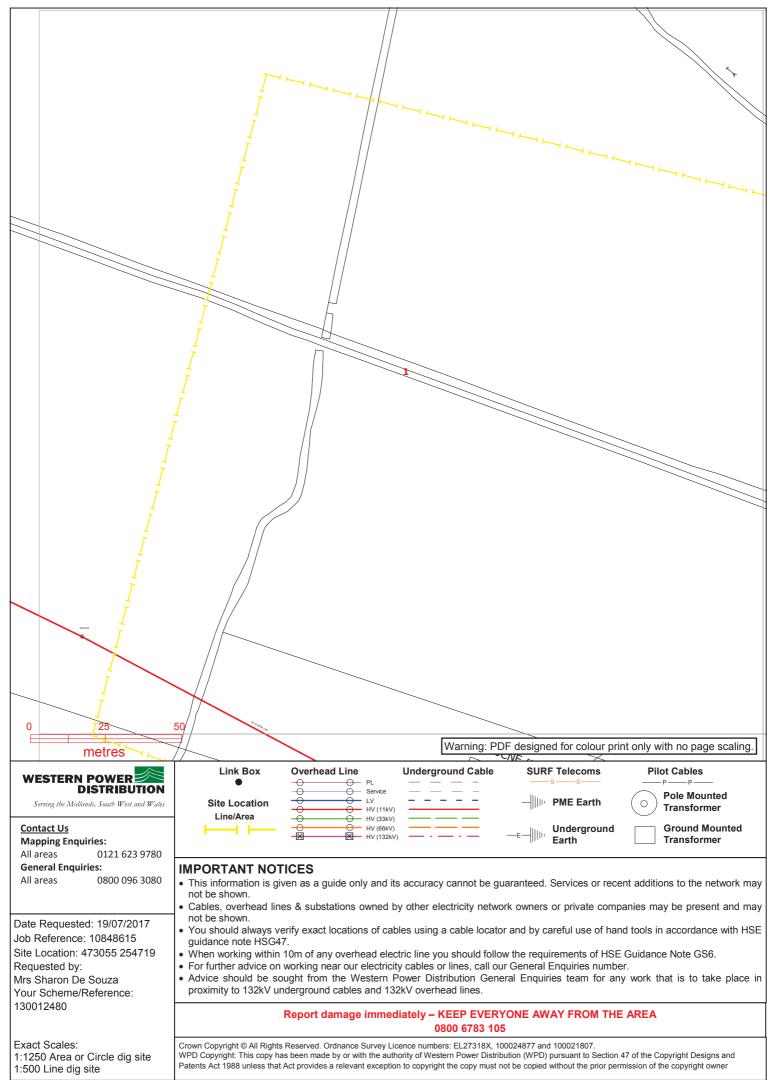
Ground Mounted Underground HV (132kV) Earth Transformer

IMPORTANT NOTICES

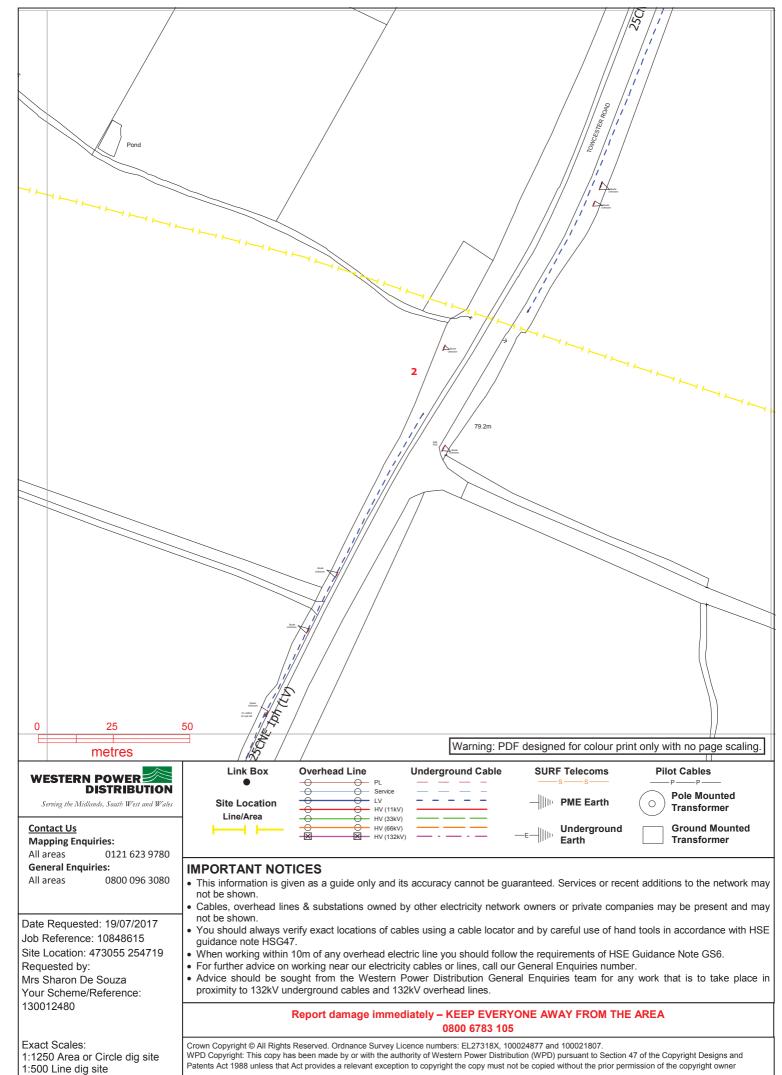
- This information is given as a guide only and its accuracy cannot be guaranteed. Services or recent additions to the network may
- · Cables, overhead lines & substations owned by other electricity network owners or private companies may be present and may not be shown.
- You should always verify exact locations of cables using a cable locator and by careful use of hand tools in accordance with HSE guidance note HSG47.
- When working within 10m of any overhead electric line you should follow the requirements of HSE Guidance Note GS6.
- For further advice on working near our electricity cables or lines, call our General Enquiries number.
- · Advice should be sought from the Western Power Distribution General Enquiries team for any work that is to take place in proximity to 132kV underground cables and 132kV overhead lines.

Report damage immediately – KEEP EVERYONE AWAY FROM THE AREA 0800 6783 105

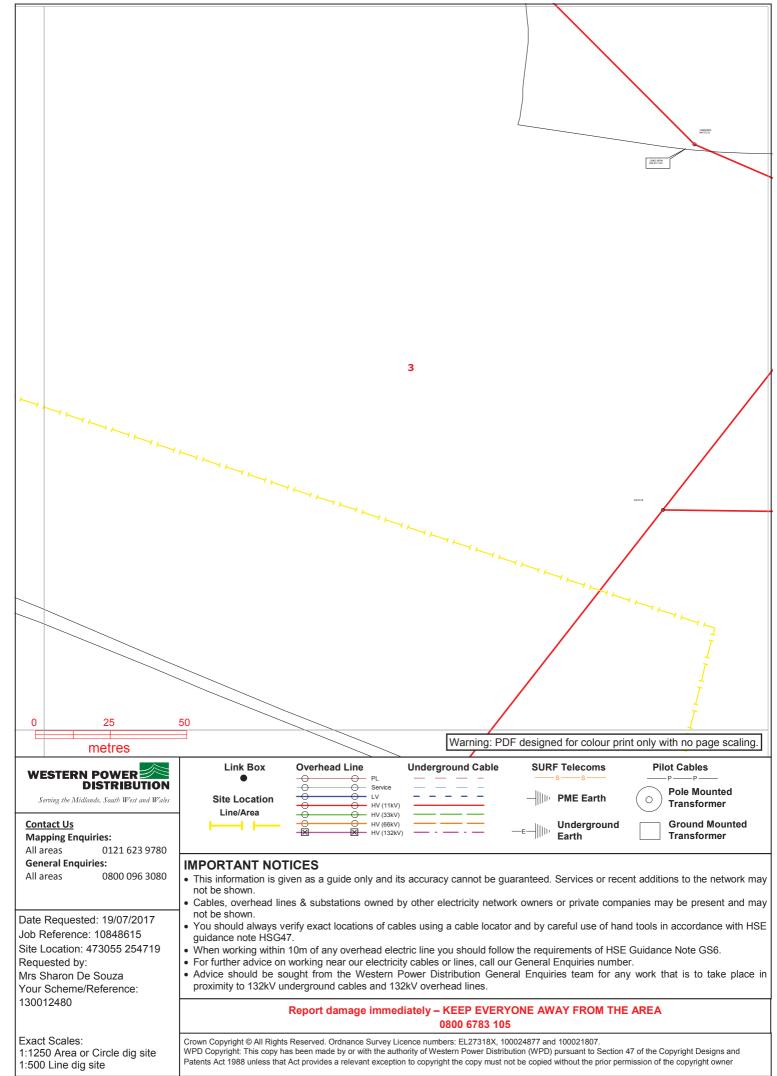
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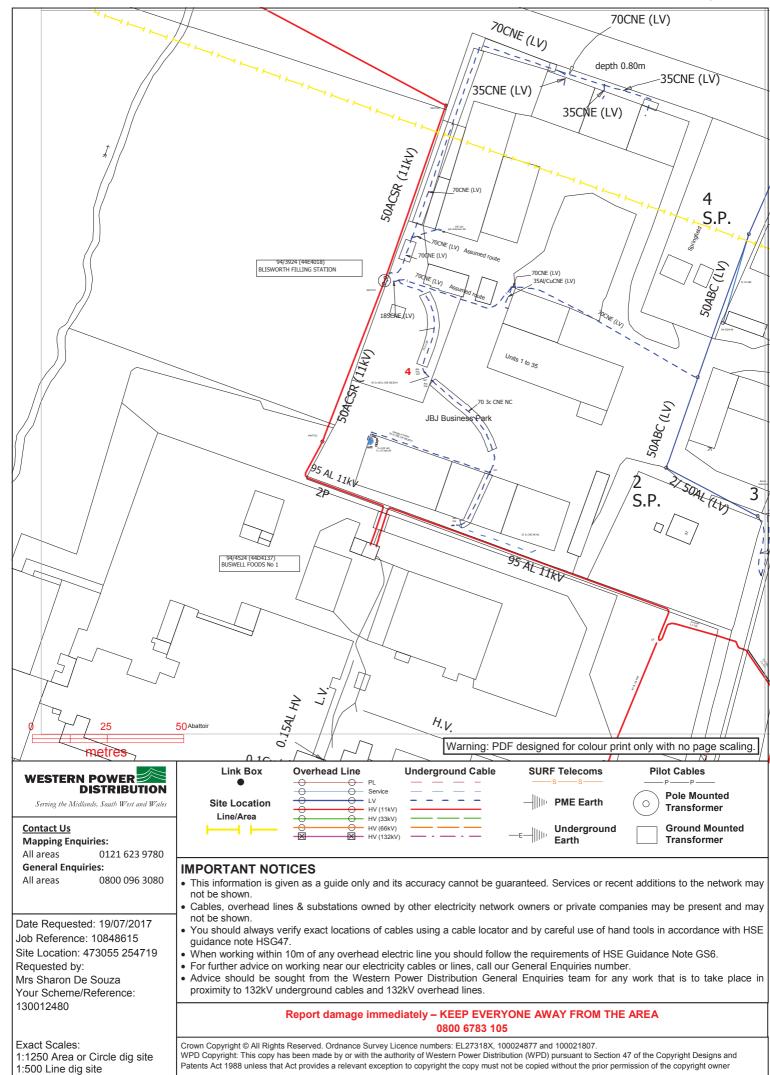


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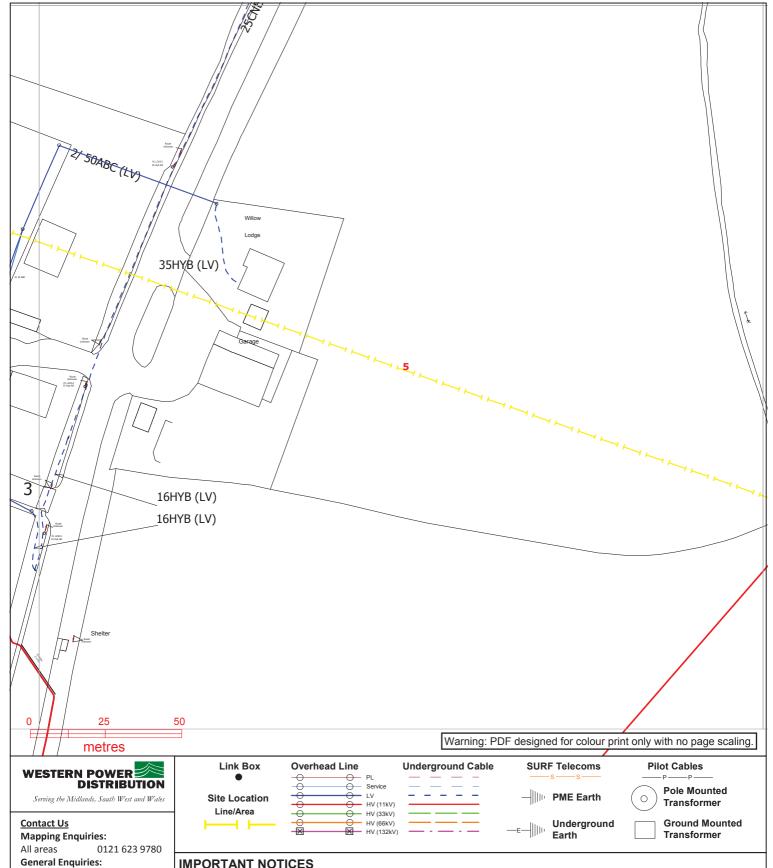


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All areas

0800 096 3080

Date Requested: 19/07/2017 Job Reference: 10848615 Site Location: 473055 254719 Requested by:

Mrs Sharon De Souza Your Scheme/Reference: 130012480

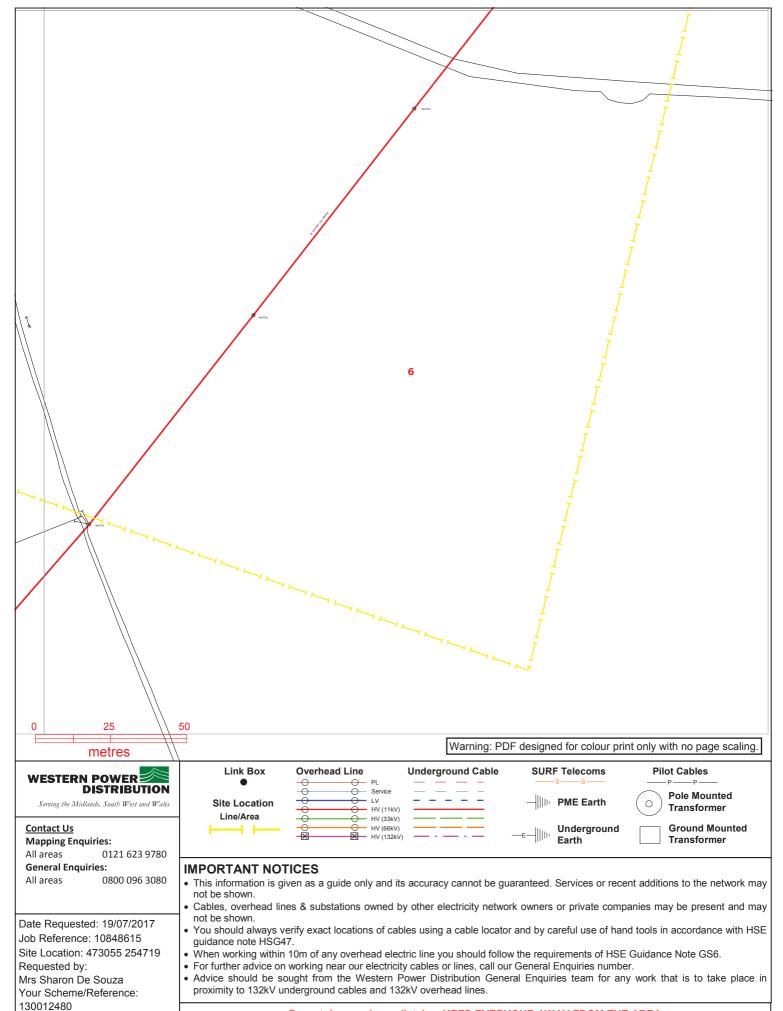
Exact Scales: 1:1250 Area or Circle dig site 1:500 Line dig site

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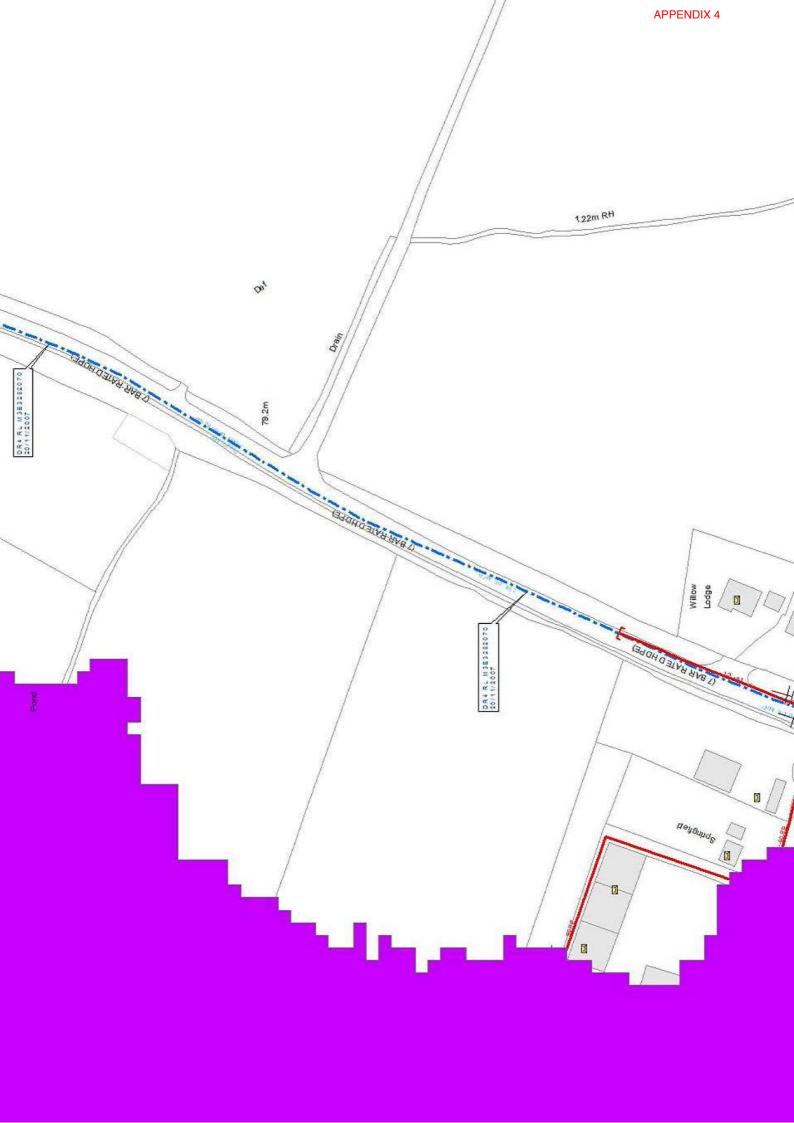
1:1250 Area or Circle dig site 1:500 Line dig site

Exact Scales:

Report damage immediately – KEEP EVERYONE AWAY FROM THE AREA
0800 6783 105

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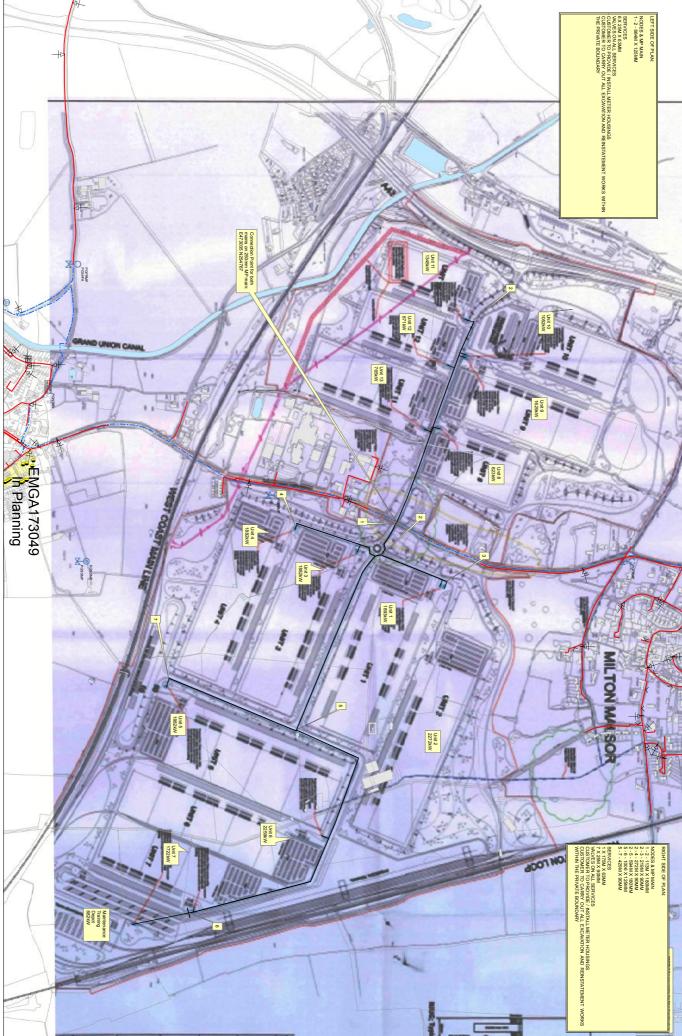
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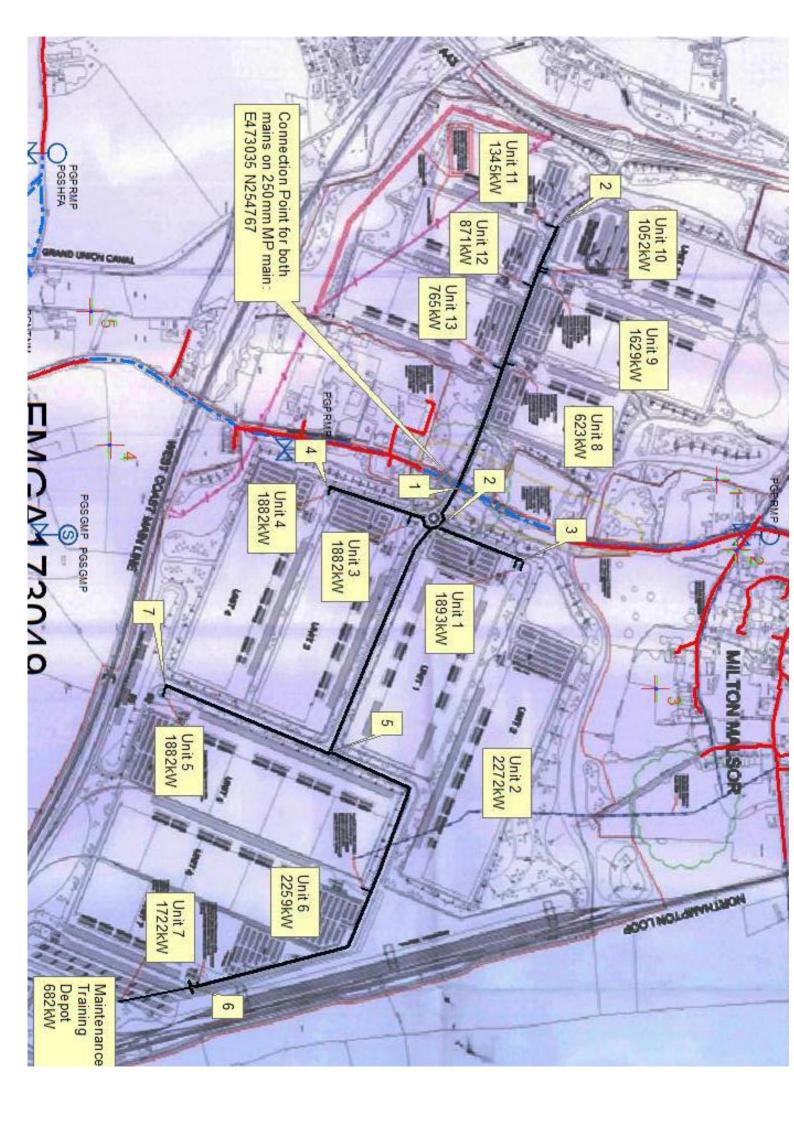


Out of Benderifiered ©

| Collision of Collision | The plant closes from plant closes and closes of closes o







Network Quotation No Sales Order Number Your Reference

130015189 0032435708 **Cadent Gas Limited**

Connections Cadent PO Box 7084 Wolverhampton **WV1 9AW.**

National Gas Emergency Service - 0800 111 999* (24hrs) *calls will be recorded and may be monitored

Tom Fox Hydrock consultants Ltd LÓBB SHIPPON **PLYMPTON** PLYMOUTH

Date : 12th September 2017

Contact : Non-Standard Connections Team

Direct Tel : 0800 074 5788

Email : connectionshelp@cadentgas.com

www.cadentgas.com

QUOTATION LETTER

Valid for 45 days from the date of issue unless previously withdrawn

Dear Tom Fox,

PL7 5BP.

Site address: RAIL CENTRAL, TOWCESTER ROAD, MILTON MALSOR, NORTHAMPTON, NN7

3AP.

Work Type: Band 3 New to New Supply

I am pleased to provide you with a Quotation for the work requested at the above site address. The Quotation is produced in accordance with Cadents Siteworks Terms for Below 7 Barg Infrastructure Works (version applicable at the date of this quotation). A copy of the Terms and Conditions can be found on Cadent's website:

http://cadentgas.com/Business-with-us/iGT-UIP.aspx

If you require a printed version of our Terms and Conditions please contact us on the details próvided above.

It may be possible to obtain an alternative quotation from other Gas Transporters or Utility Infrastructure Providers (UIPs) for the provision of this work. If you would like to know more about this please visit our website at www.cadentgas.com which will explain who the other companies are and how you can obtain a competitive quotation.

Please note that we may still terminate the contract if we find that any of the assumptions are not correct or, for any of the reasons outlined in the Termination clause of the associated Terms and Conditions.

This quotation pack includes:

Acceptance Form Credit Card Form Proforma Invoice Design drawing Quotation Detail Form

This quotation is valid for 45 calendar days unless the quotation is withdrawn before the end of this period and is produced subject to the assúmptions/conditions set out below:

- The owner of the premises at which the works are to be carried out has given their consent.
- The person who gives us access to the premises on the day the works to be carried out is authorised by you to agree to any variations to the works that may be required. The proposed supply loadings you have declared are correct.
- That the correct property has been identified using the information you have provided to
- All information relating to the requested work has been read and fully understood prior to



Acceptance of this quotation.

If you accept this quotation, you also accept the assumptions stated in this quotation and any accompanying documentation.

If any of the above assumptions are incorrect, please advise us as soon as possible so we can re-quote for the works and minimise any possible delay to the works being carried out. If, prior to the work commencing or at any time during the works, we find that any stated assumption is incorrect, we will determine whether the quotation should be varied or withdrawn. If we determine that the quotation needs to be amended, we will provide you with a variation to the work quoted, which must be agreed with yourself before work can start or continue. If we cannot agree a variation with you, then we will terminate the contract and you will be charged for any works carried out to date and any additional monies will be refunded.

Cadent Gas Limited operates a scheme whereby customers receiving inaccurate quotations may receive compensation in respect of the inaccuracy. Should you consider that you need to make a claim please contact us on telephone number 08453666758.

Customers are advised that we are unable to ensure full reinstatement of specialist surfaces, e.g., mosaic tiles or coloured flagstones. In such cases, customers are advised to engage their own specialist contractor to replace the final surface to their requirements.

Please arrange to relocate or protect growing plants as unfortunately, we are unable to replace them if they are destroyed or damaged.

For each of the work types listed, please note the following important points (where applicable):

1. You should be aware that Cadent Gas Limited is a Gas Transporter and not a licensed Supplier/Shipper. Cadent Gas Limited is able to undertake the physical work to provide you with a gas supply, but Cadent Gas Limited cannot supply you with gas or provide you with a gas meter.

Please contact your licensed Gas Supplier to arrange for a gas meter to be fitted in conjunction with your agreed installation date.

2. If you elect to carry out your own excavations, then you must excavate the full length of the service route within your property. You are responsible for ensuring that the excavation is safe and offers adequate protection to any person who may have access to the property. If you wish to install a duct to enable the service pipe to be installed at a later date, please contact us to confirm the specification and special requirements relating to the duct. The reinstatement of the trench, including the safe removal of all surplus material is your responsibility.

Next Steps:

Any amendments to this quotation must be agreed in writing with us, as unauthorised amendments will invalidate the quotation. Please indicate your acceptance of the quotation by completing the Acceptance Form and returning it to us with the following (as applicable):

- 1. Consent Form (if s service pipe needs to be installed in Third Party land)
- 2. Full payment (this can either be by cheque, postal order, BACS or completion of the payment card form).

We will schedule the works when we have received your signed Acceptance Form and the items referred to above.

You should note that, by signing the Acceptance Form, you are entering into a legally binding contract with Cadent Gas Limited. Please ensure that you have read and understood this quotation and the accompanying documents, including the relevant Terms and Conditions.



We look forward to receiving your signed Acceptance Form, but if you have any queries in the meantime, please do not hesitate to contact Non-Standard Connections Team on the above number.

Yours faithfully,

Jodie Cheung Design Senior Analyst



Load Details				
Property type	Number of Premises	Supply Hourly Quantity (kW)	Daily Quantity (kWh)	Annual Quantity (kWh)
Commercial	14	20759		105754360
Totals	14	20759	0	105754360

Job Details	
Connection Type	Branch Saddle
Service Termination Diameter	50mm ECVs 80mm ECVs
Governor Required	n/a
Governor Type	n/a
Type of Meter box(s)/Housing	Customer Provided
Meter Location	External
Engineering Difficulties	n/a
Assumptions	Customer is responsible for the supply and installation of the gas meters along with any associated outlet pipework. Customer to excavate and backfill within private. Customer to supply and install the meter housing Customer to construct the concrete base for the meter housing
Easements	n/a
Cadent Gas Limited Funded Enhancement	n/a

CONFIDENTIALITY

THE INFORMATION IN ANY PLAN PROVIDED WITH THIS QUOTATION IS THE PROPERTY OF CADENT GAS LIMITED AND IS TO BE HELD STRICTLY IN CONFIDENCE BY THE RECIPENT. NO COPY IS TO BE MADE WITHOUT WRITTEN PERMISSION OF CADENT GAS LIMITED.

DISCLOSURE OF ANY SUCH INFORMATION IS TO BE MADE ONLY TO THOSE EMPLOYEES OF THE RECIPENT WHO NEED TO USE THE INFORAMTION AND IT IS THE RESPONSIBILITY OF THE RECIPENT TO BIND ANY SUCH EMPLOYEES.

