JOB TYPE:	**HV CABLE LAY/ EXCAVATION**
POINT A GRID REF:	**341379, 429561**
Highway Authority:	**Lancashire county council**
Streetworks Contractor:	***GL Energy solutions***
Tel No:	**0151 353 7061**

Job Description

ERS HV TWIN CIRCUIT CABLE LAY

Notes / Job Requirements/Summary to Work Allocator

Scope of Works:

GL Energy Solutions will undertake a 1.4 km section of a 3 km (GL are responsible for the cable installation on the private land extending on from the 1.4km to site location) twin circuit cable lay. This work involves excavating new trenches to accommodate two 160mm ducts for 11kV triplex cables and one 56mm (2-inch) duct for a pilot fibre cable. The installation will include:

- **Trenching:** 1.4 km of excavation.
- **Duct Installation:** 160mm ducts for x2 11kV triplex cables and 56mm duct for x1 pilot fibre cable.
- **Cable installation:** Cables to be installed as per requirement into newly installed duct/ routes.
- **Jointing Infrastructure:** Installation of jointing pits for the 11kV cables every 350-400 meters.
- **Fibre Chambers:** Installation of 2 fibre jointing stand-off chambers.

The work must adhere to technical specifications and comply with safety and industry standards.

SAFETY STATEMENT

The correct installation procedure must be followed to reduce the risk of an accident. Conditions at the installation site may exacerbate risks to handling and lifting. GL Energy solutions require you to undertake an on-site assessment and if the results indicate risks above that covered by your training, then you should consult your line manager/supervisor. Any health & safety issues found while planning the work will be stated in the notes &/or job notes page.

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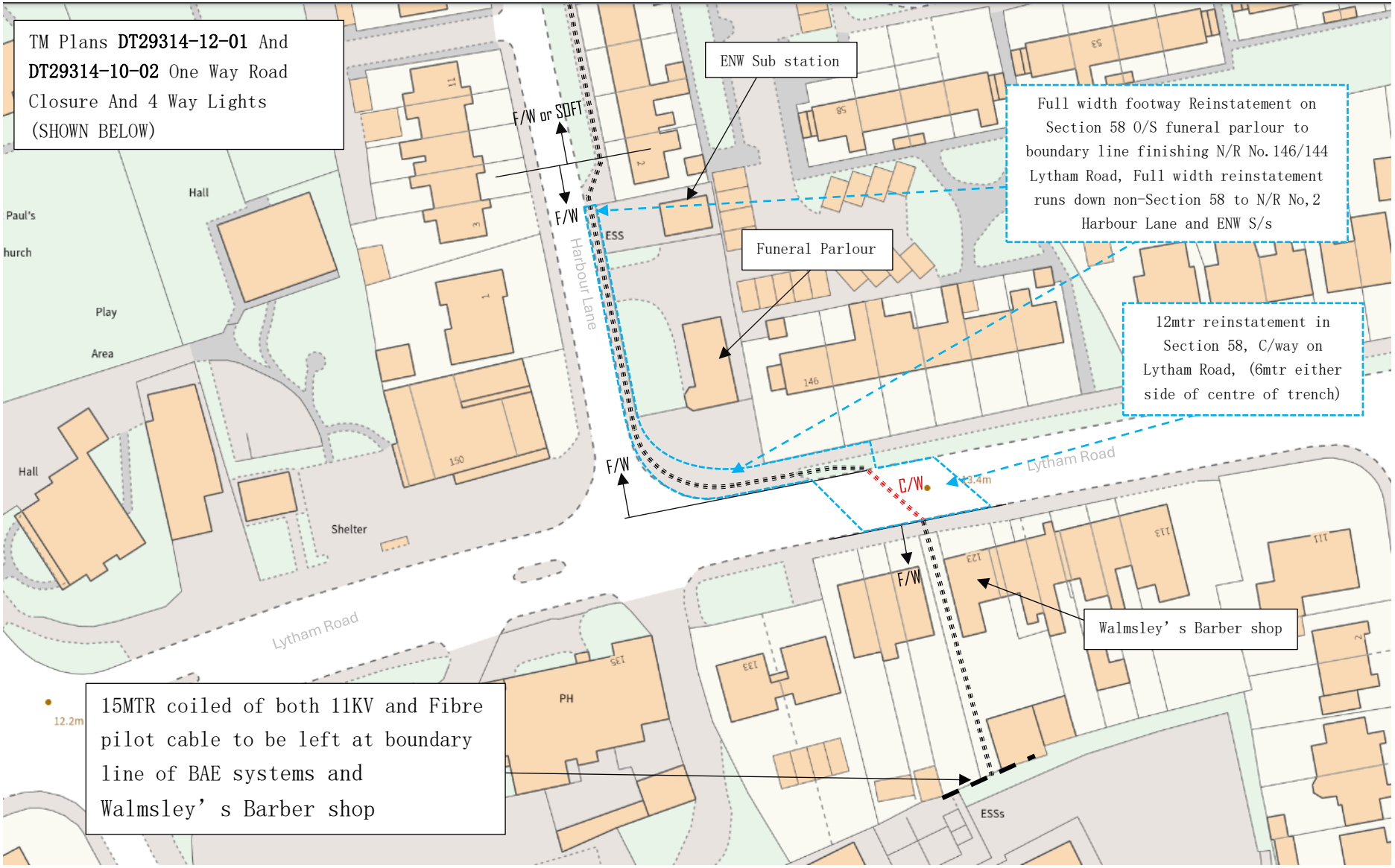
GEOGRAPHICAL OVERVIEW

DESIGN KEY (please refer to key for the below detail design)

Each surface type will be excavated and reinstated in line with current specification for 11KV and Fibre ducting.

Each single line shown in the below design, represents excavation for the installation of all associated and required duct/cable.

FOOTWAY EXC	
CARRIAGEWAY EXC	
SOFT EXC	
PRIVATE EASEMENT EXC	
JOINTING PIT *	Estimated location referenced in doucument
FIBRE CHAMBER	F


TM Plans DT29314-12-01 And DT29314-10-02 One Way Road Closure And 4 Way Lights (SHOWN BELOW)
ENW Sub station
Full width footway Reinstatement on Section 58 O/S funeral parlour to boundary line finishing N/R No.146/144 Lytham Road, Full width reinstatement runs down non-Section 58 to N/R No,2 Harbour Lane and ENW S/s
Funeral Parlour
12mtr reinstatement in Section 58, C/way on Lytham Road, (6mtr either side of centre of trench)
F/W or SDFT
F/W
ESS
Harbour Lane
F/W
C/W
3.4m
Lytham Road
F/W
Walmsley's Barber shop
Hall
Paul's
hurch
Play
Area
Hall
Shelter
Lytham Road
PH
12.2m
15MTR coiled of both 11KV and Fibre pilot cable to be left at boundary line of BAE systems and Walmsley's Barber shop
ESSs

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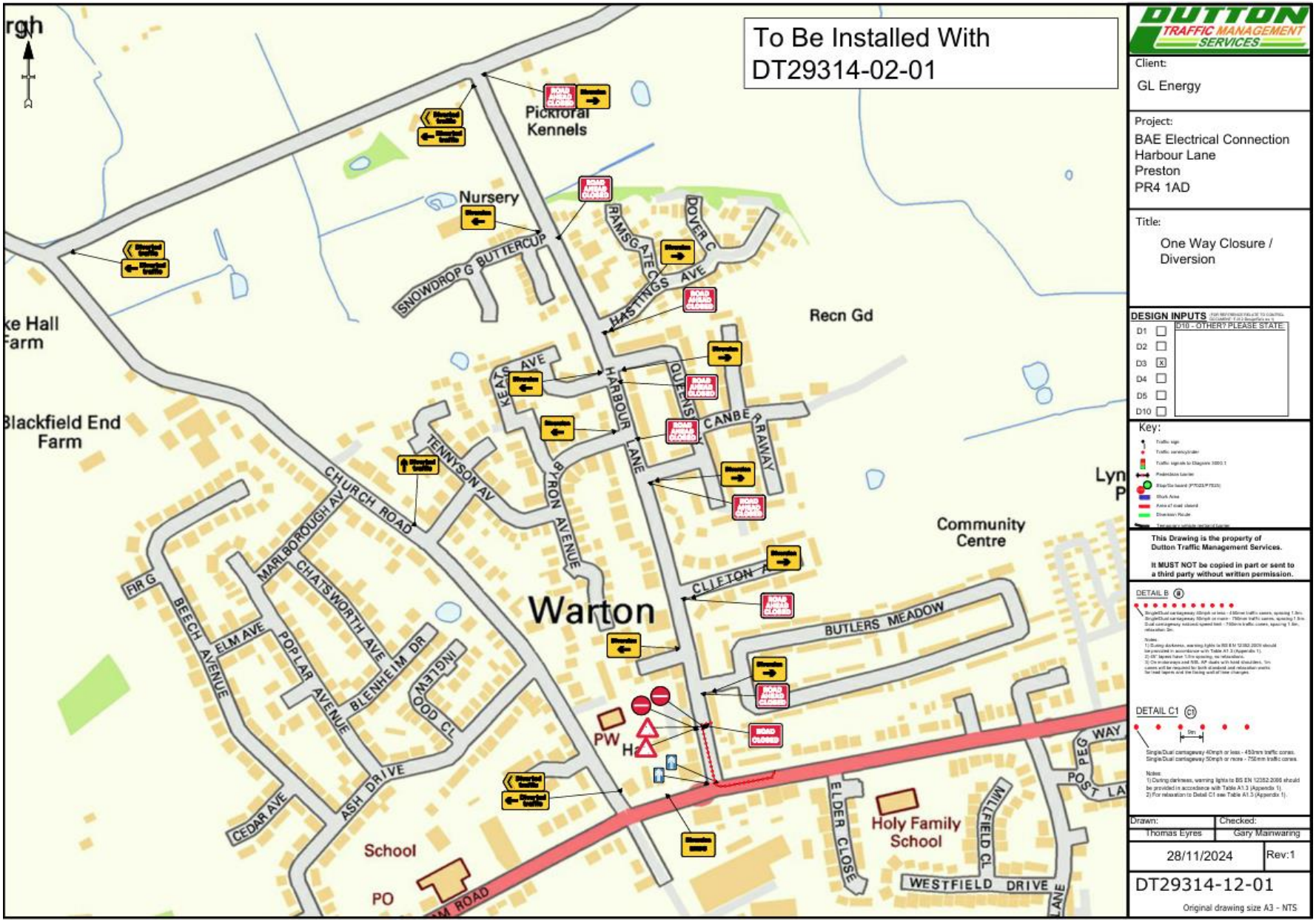
Diversion Plan For one way road closure (DT29314-12-01)



DUTTON TRAFFIC MANAGEMENT SERVICES

Client:
GL Energy

Project:
BAE Electrical Connection
Harbour Lane
Preston
PR4 1AD

Title:
One Way Closure / Diversion

DESIGN INPUTS

D1	☐	D10 - OTHER? PLEASE STATE:
D2	☐	
D3	☒	
D4	☐	
D5	☐	
D10	☐	

Key:

DETAIL B

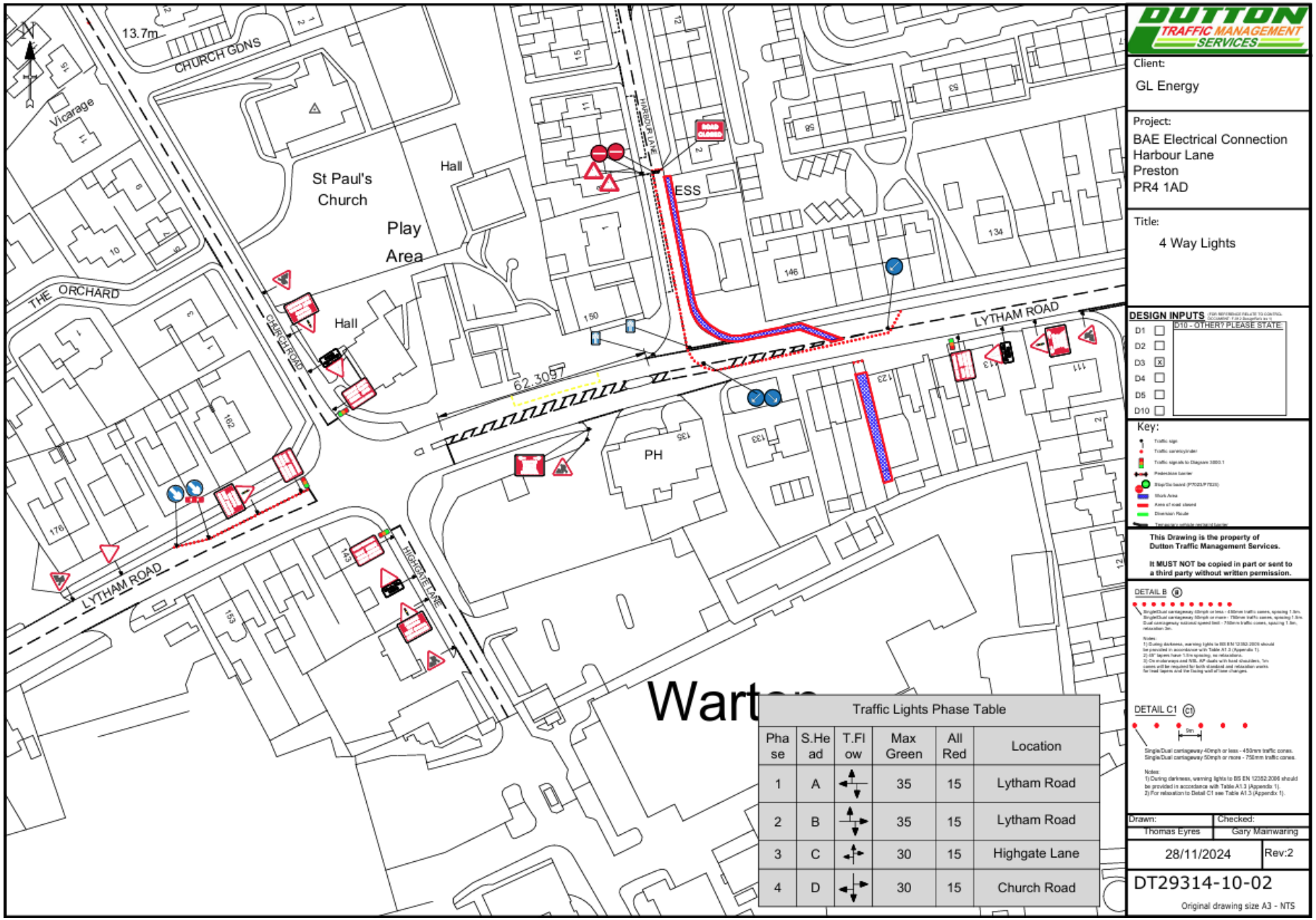
DETAIL C1

Drawn:	Checked:
Thomas Eyres	Gary Mainwaring
28/11/2024	Rev:1

DT29314-12-01

Original drawing size A3 - NTS

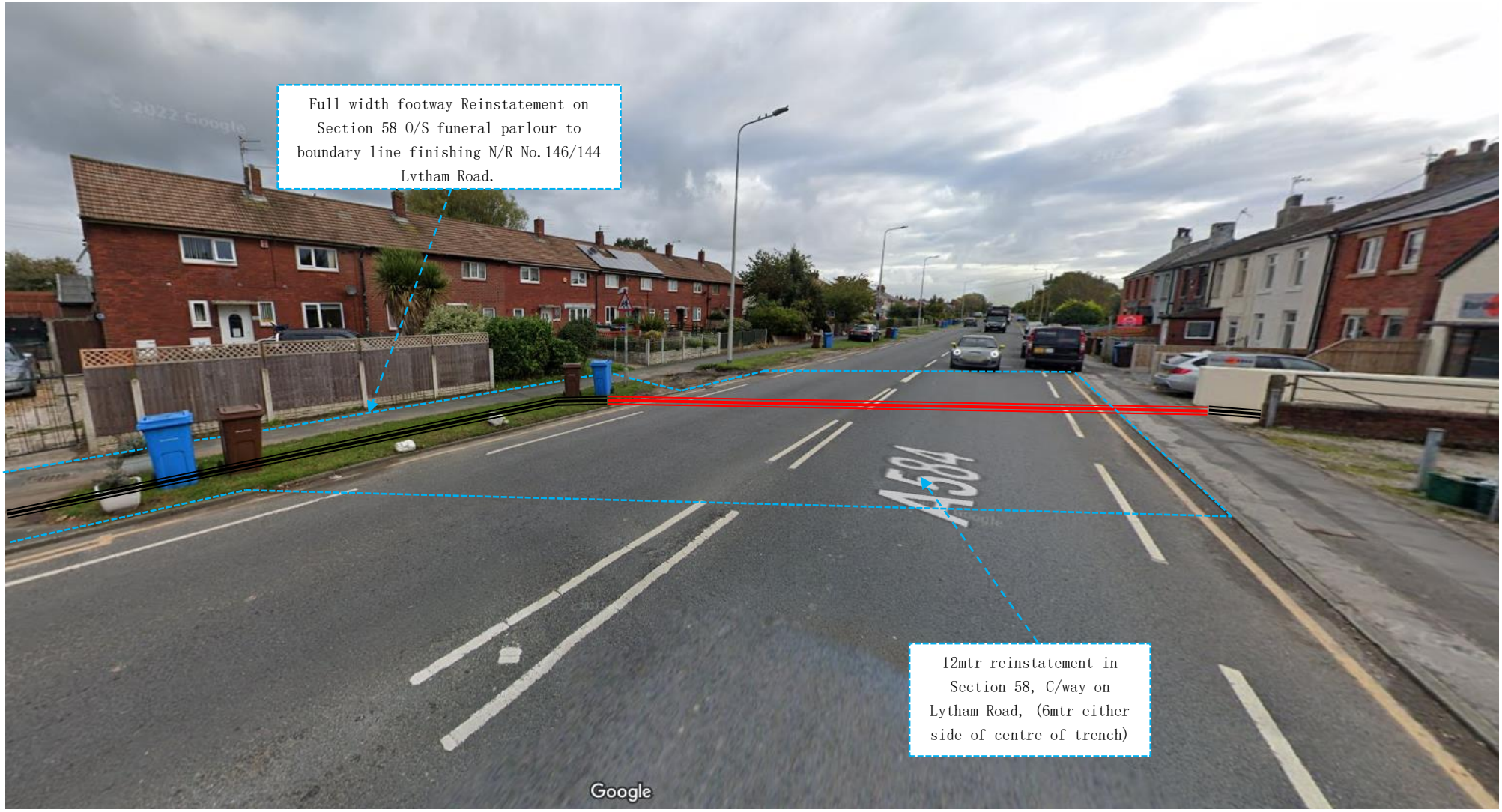
(DT29314-10-02) 4 WAY LIGHTS



Traffic Lights Phase Table

Phase	S.Head	T.Flow	Max Green	All Red	Location
1	A		35	15	Lytham Road
2	B		35	15	Lytham Road
3	C		30	15	Highgate Lane
4	D		30	15	Church Road

LYTHAM ROAD/ BARBERS ROAD CROSSING VISUAL

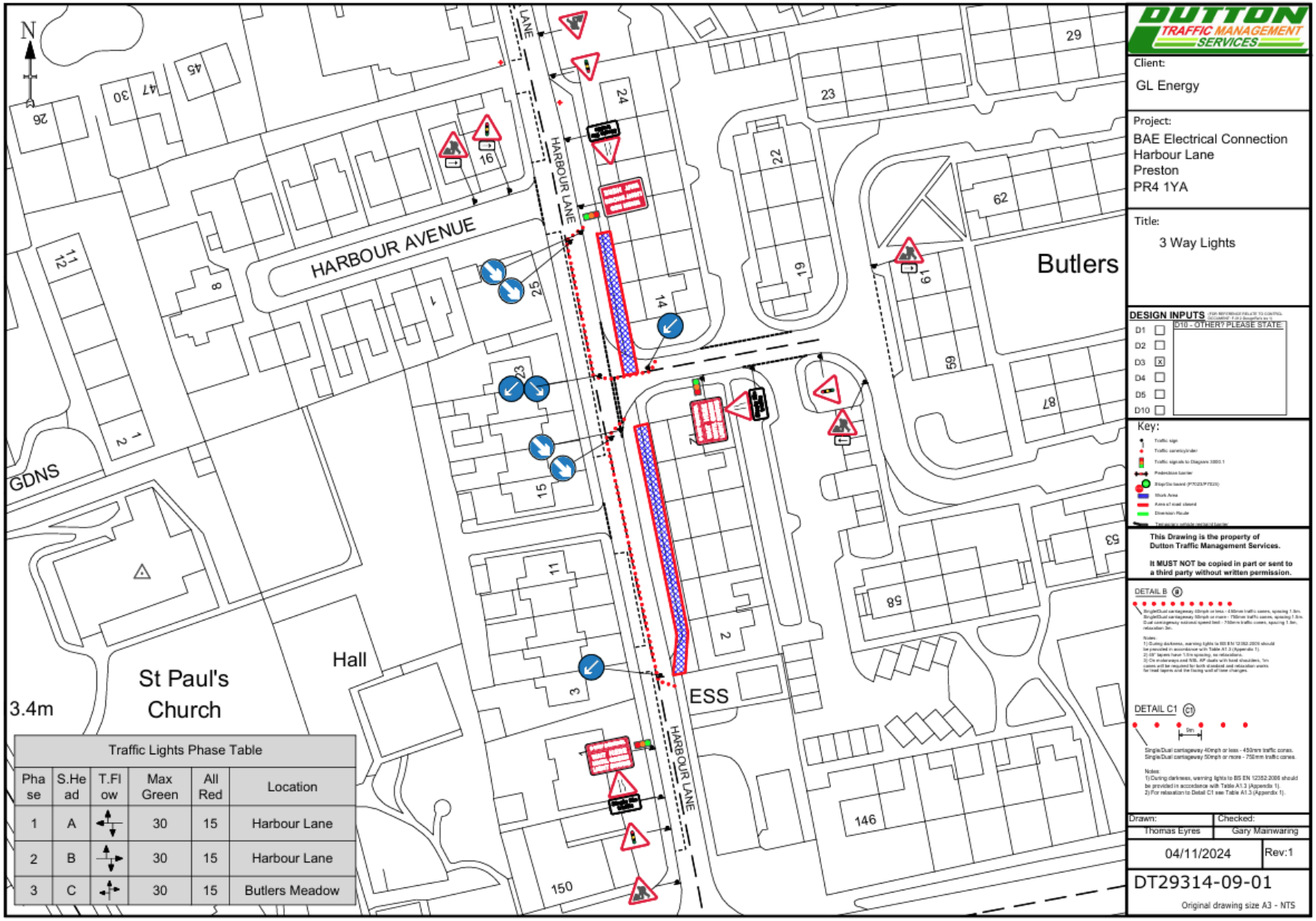


FUNERAL PARLOUR/ HARBOUR LANE VISUAL

HARBOUR LANE/ ENW SUBSTATION VISUAL

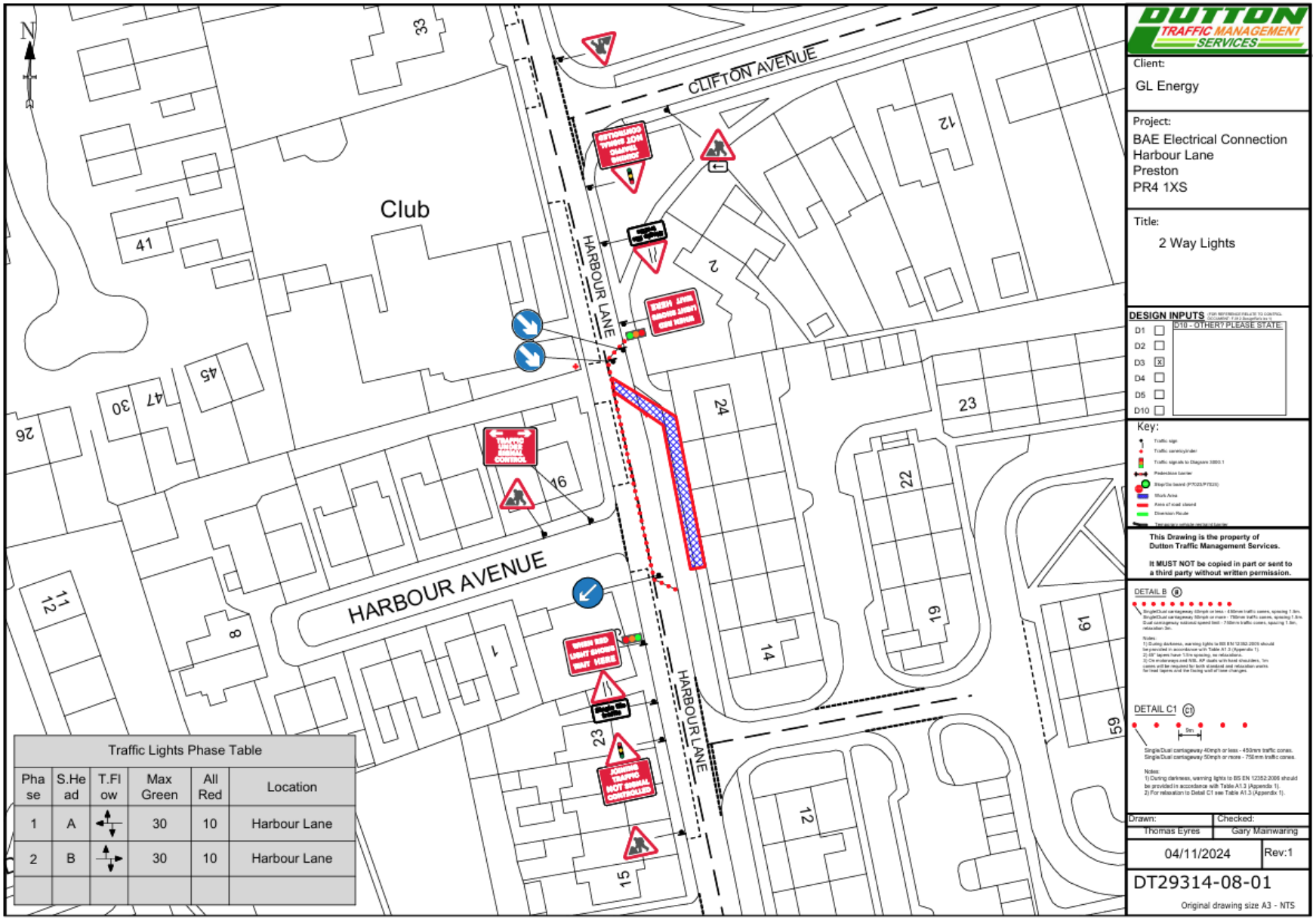
TM Plans **DT29314-09-01** Moving into **DT29314-08-01** to Include Right hand side of the Road Crossing **DT29314-07-01** Is Left Hand Side of the Road Crossing and Continuing North (SHOWN BELOW)

(DT29314-09-01) 3 WAY LIGHTS

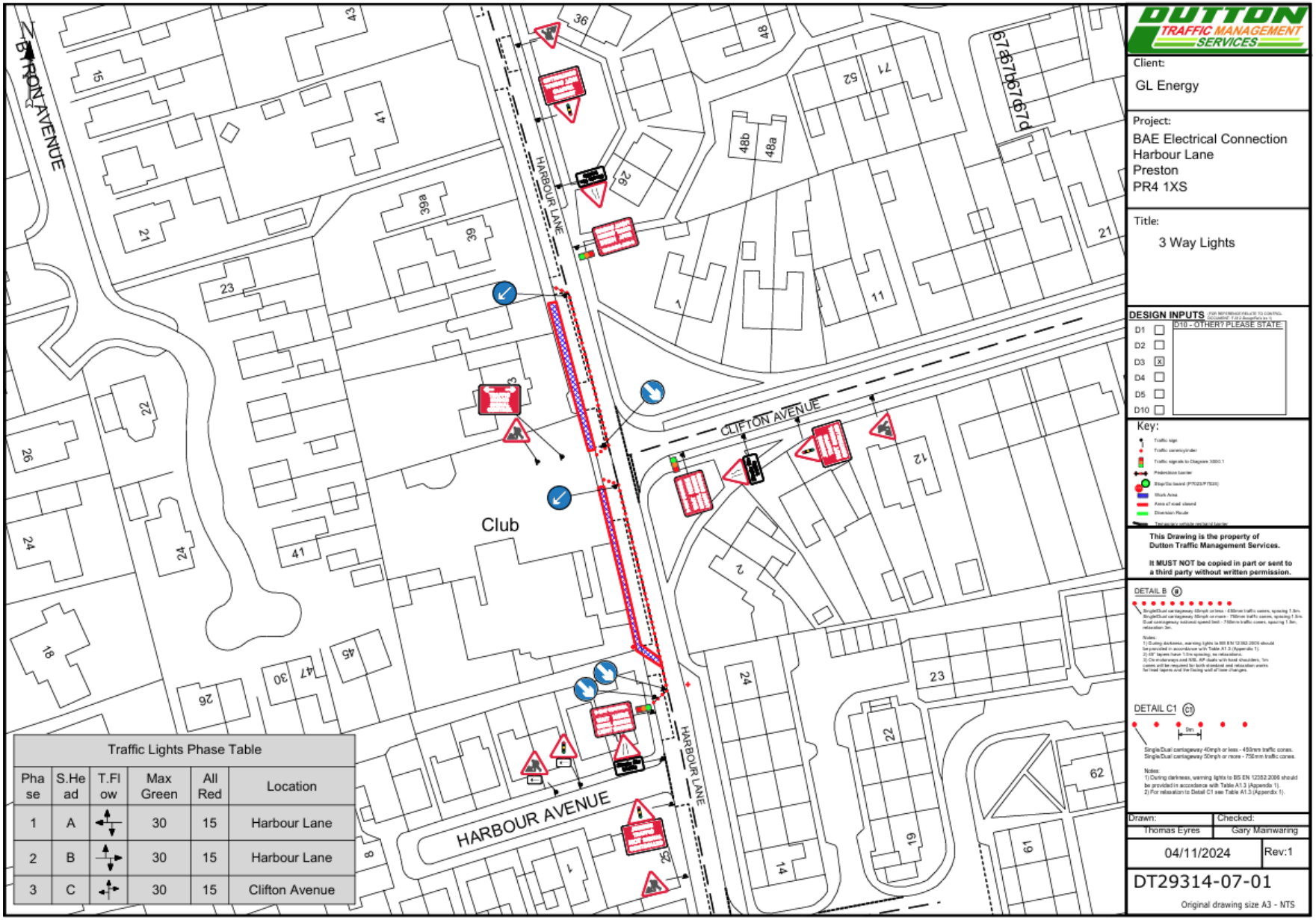


Traffic Lights Phase Table					
Phase	S.Head	T.Flow	Max Green	All Red	Location
1	A		30	15	Harbour Lane
2	B		30	15	Harbour Lane
3	C		30	15	Butlers Meadow

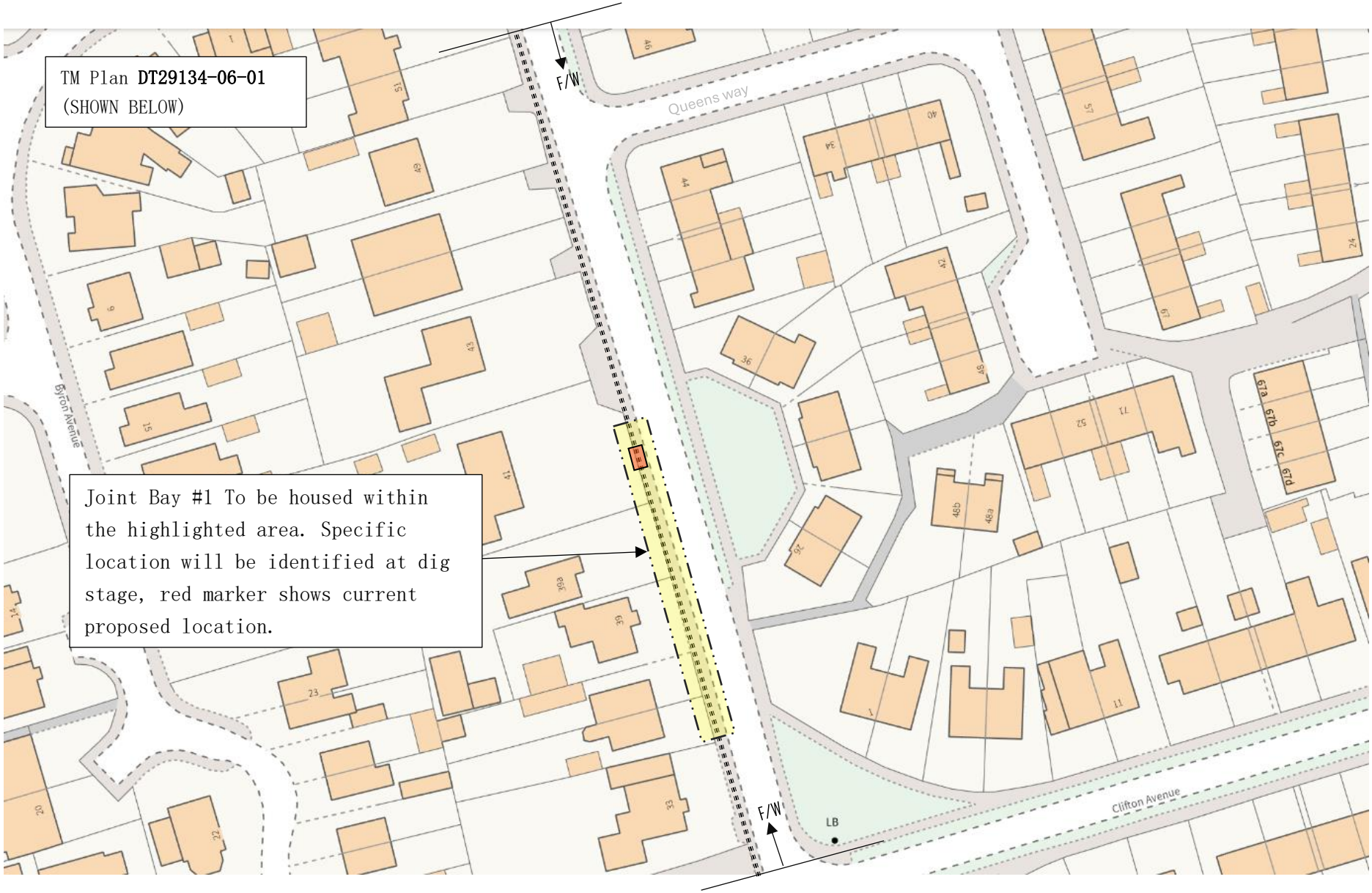
(DT29314-08-01) 2 WAY LIGHTS



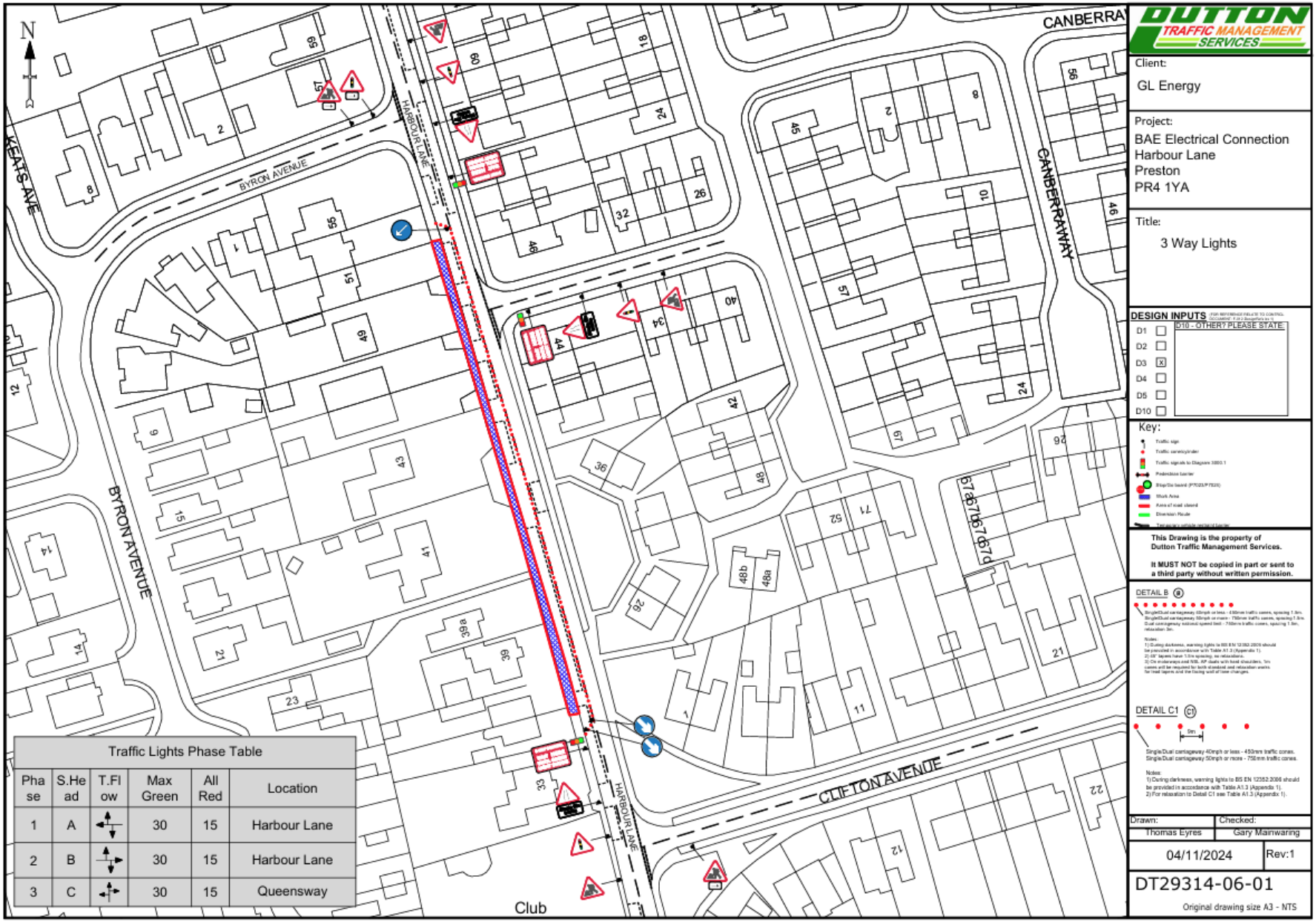
(DT29314-07-01) 3 WAY LIGHTS

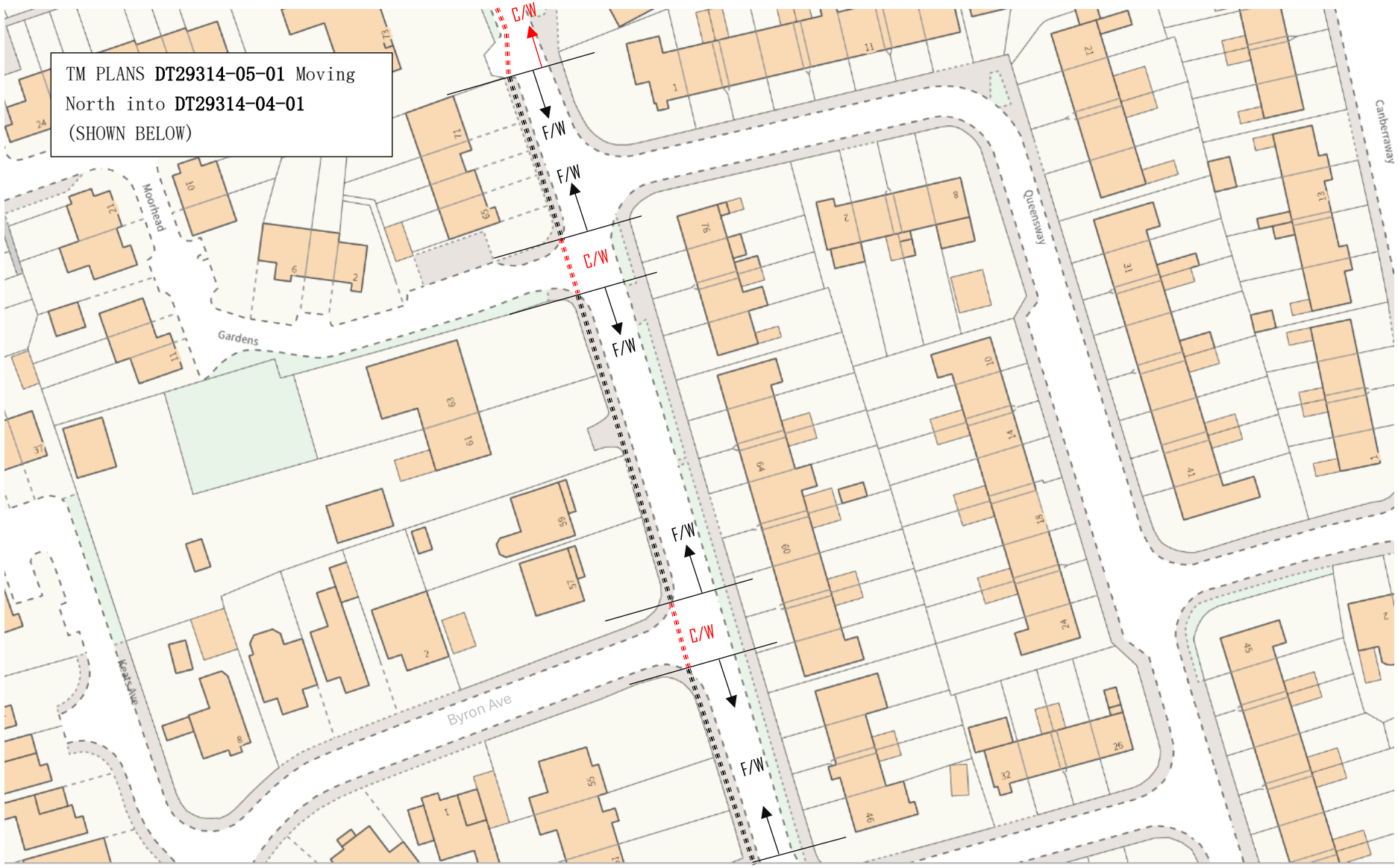


Traffic Lights Phase Table					
Phase	S.Head	T.Flow	Max Green	All Red	Location
1	A		30	15	Harbour Lane
2	B		30	15	Harbour Lane
3	C		30	15	Clifton Avenue

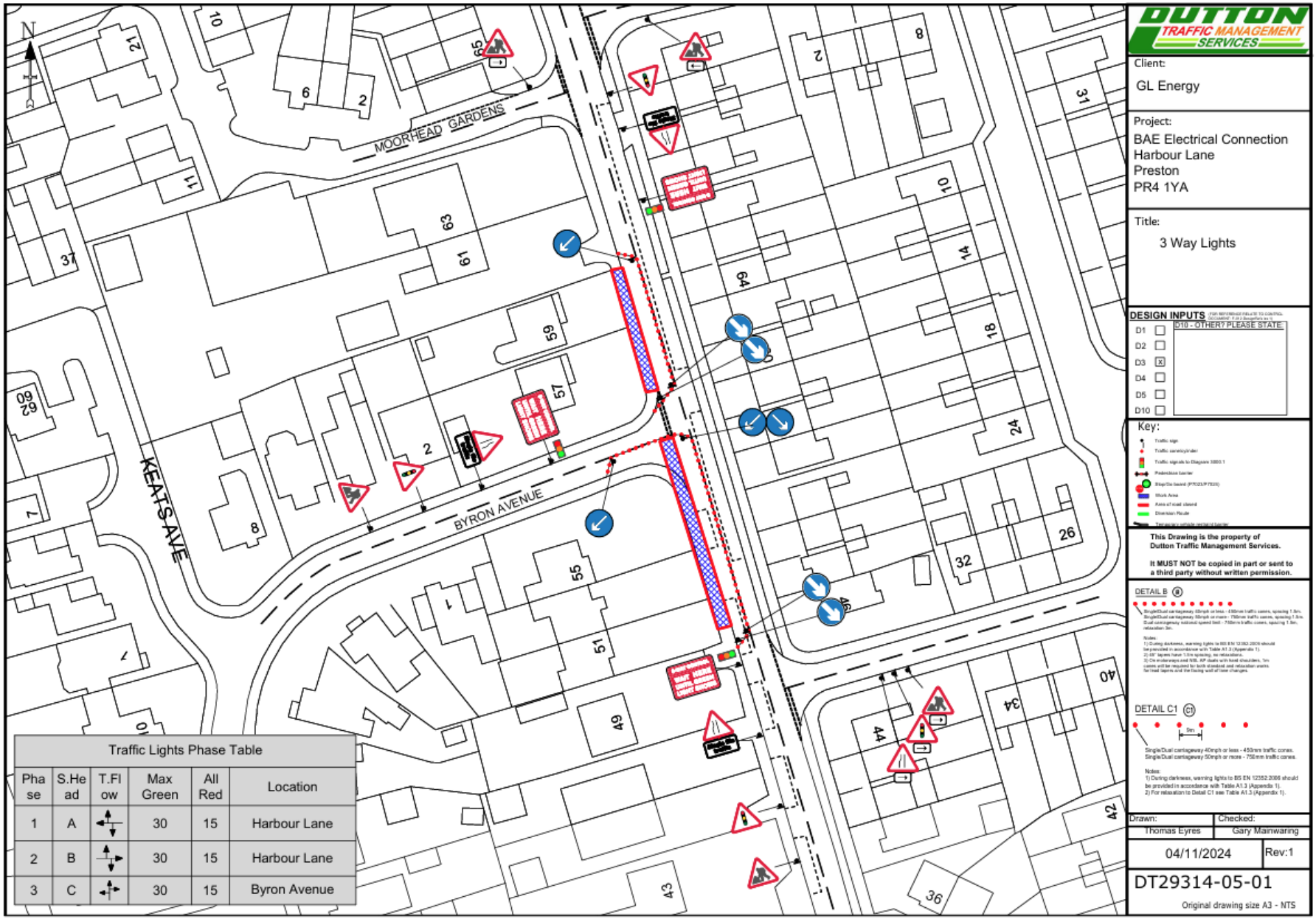

TM Plan DT29134-06-01
(SHOWN BELOW)
Joint Bay #1 To be housed within the highlighted area. Specific location will be identified at dig stage, red marker shows current proposed location.
F/W
Queens way
Byron Avenue
Clifton Avenue
LB
F/W

(DT29314-06-01) 3 WAY LIGHTS



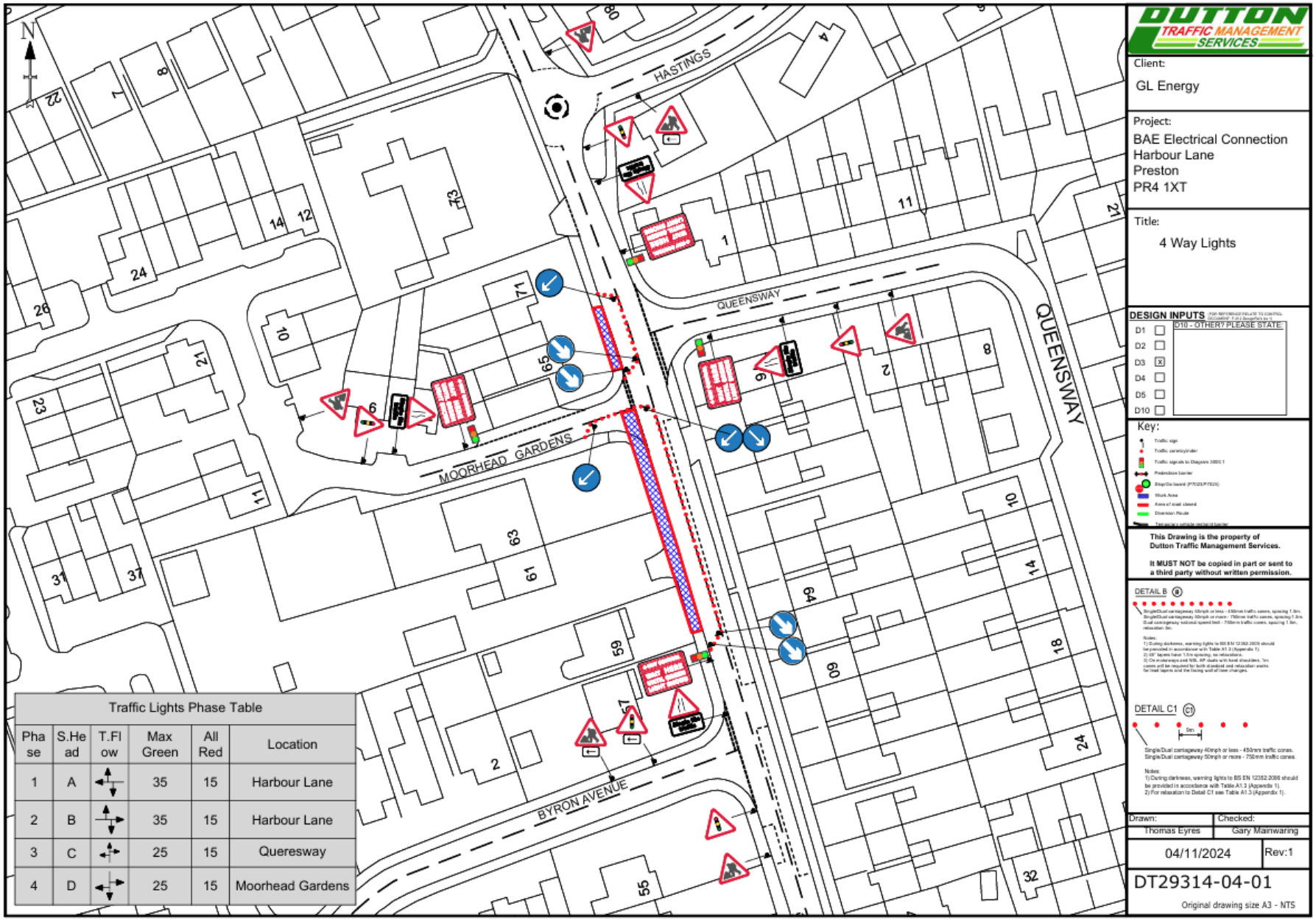

TM PLANS DT29314-05-01 Moving North into DT29314-04-01 (SHOWN BELOW)
C/W
F/W
F/W
C/W
F/W
F/W
C/W
F/W
Moorhead
Gardens
Queensway
Canberraway
Byron Ave
Kealy Ave

(DT29314-05-01) 3 WAY LIGHTS



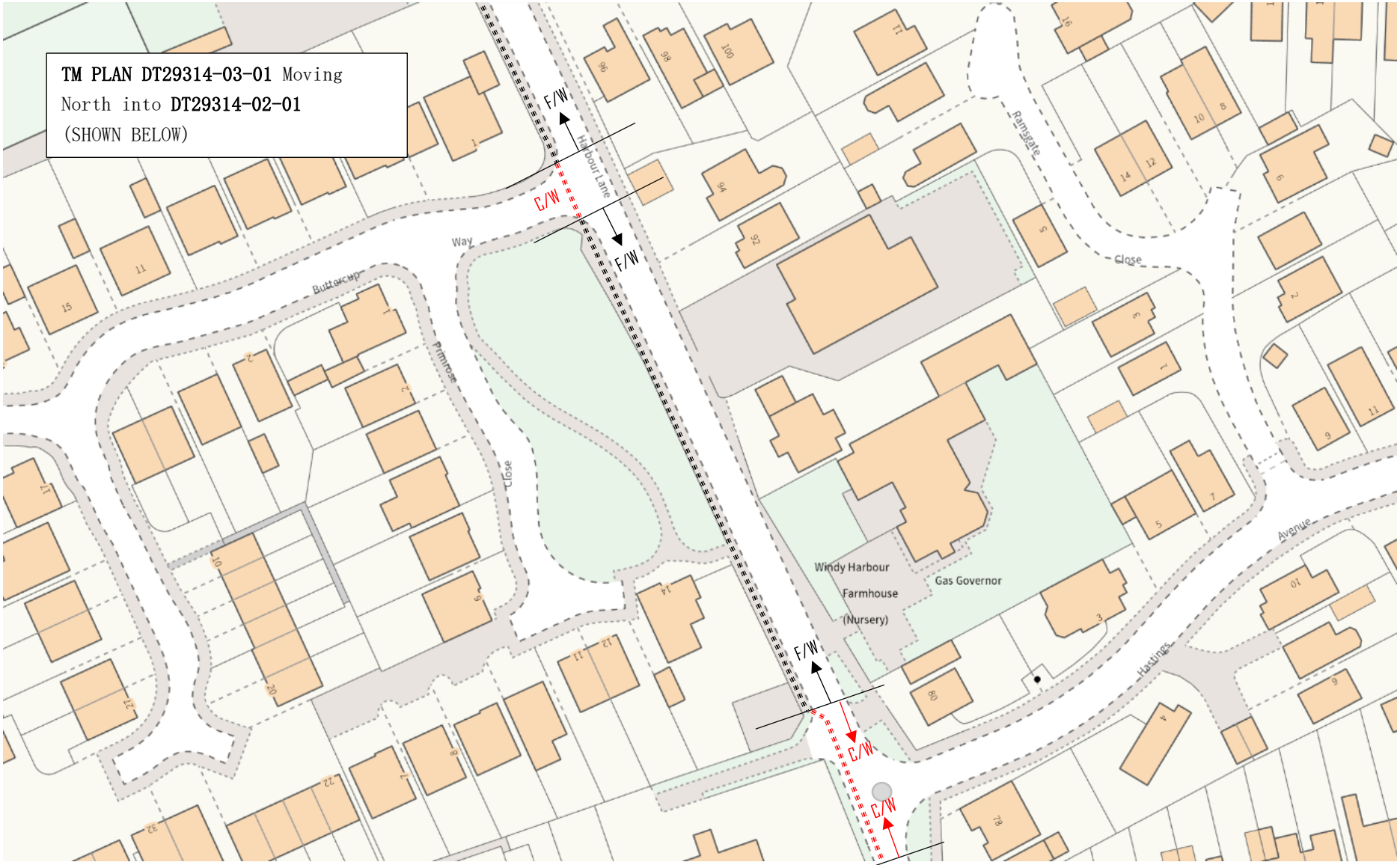
Traffic Lights Phase Table					
Phase	S.Head	T.Flow	Max Green	All Red	Location
1	A		30	15	Harbour Lane
2	B		30	15	Harbour Lane
3	C		30	15	Byron Avenue

(DT29314-04-01) 4 WAY LIGHTS



Traffic Lights Phase Table

Phase	S.Head	T.Flow	Max Green	All Red	Location
1	A		35	15	Harbour Lane
2	B		35	15	Harbour Lane
3	C		25	15	Queresway
4	D		25	15	Moorhead Gardens


TM PLAN DT29314-03-01 Moving North into DT29314-02-01 (SHOWN BELOW)
F/W
C/W
Harbour Lane
Way
Buttercup
Primrose
Close
Ramsgate
Close
Windy Harbour
Farmhouse
(Nursery)
Gas Governor
Avenue
Hastings

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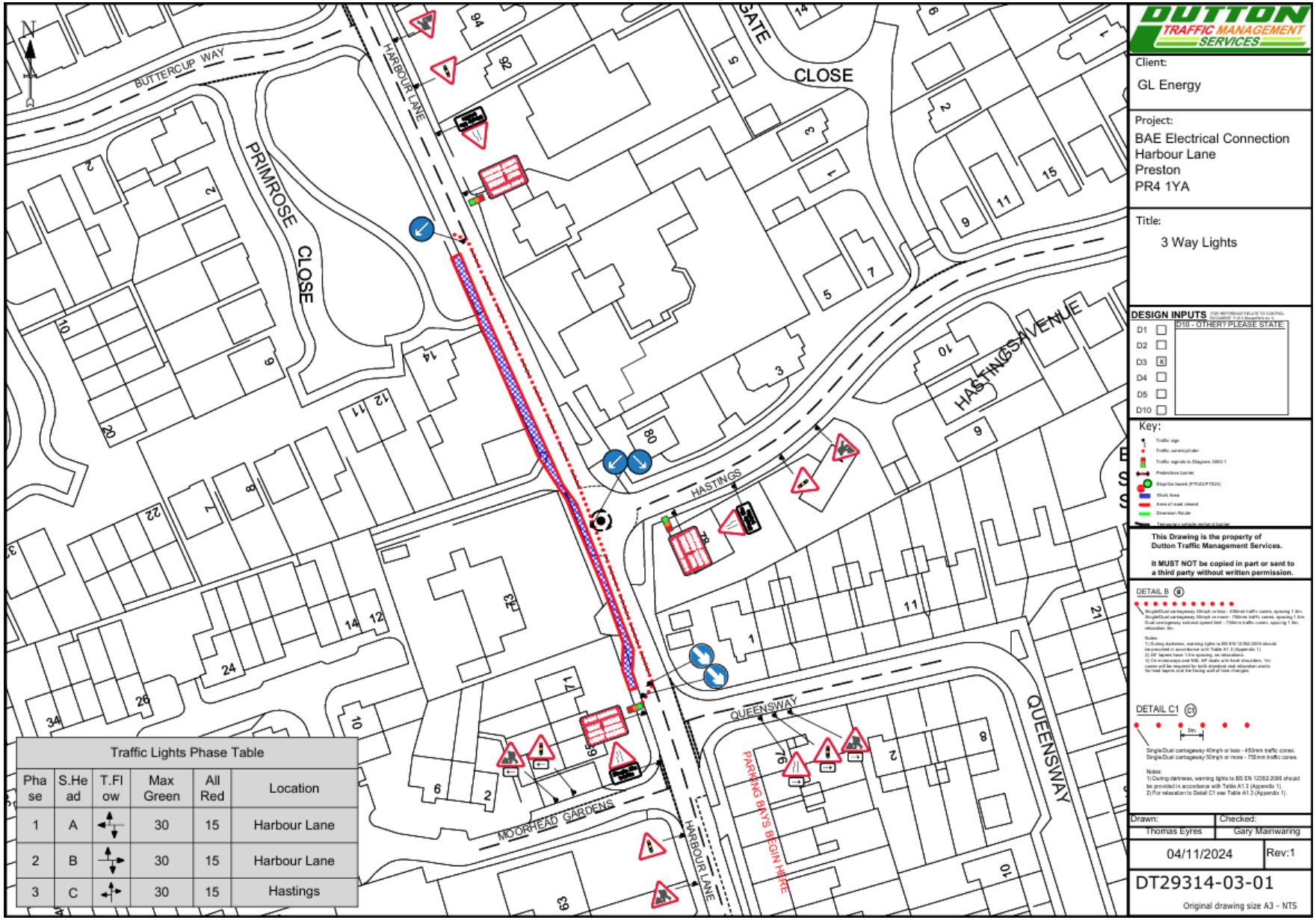
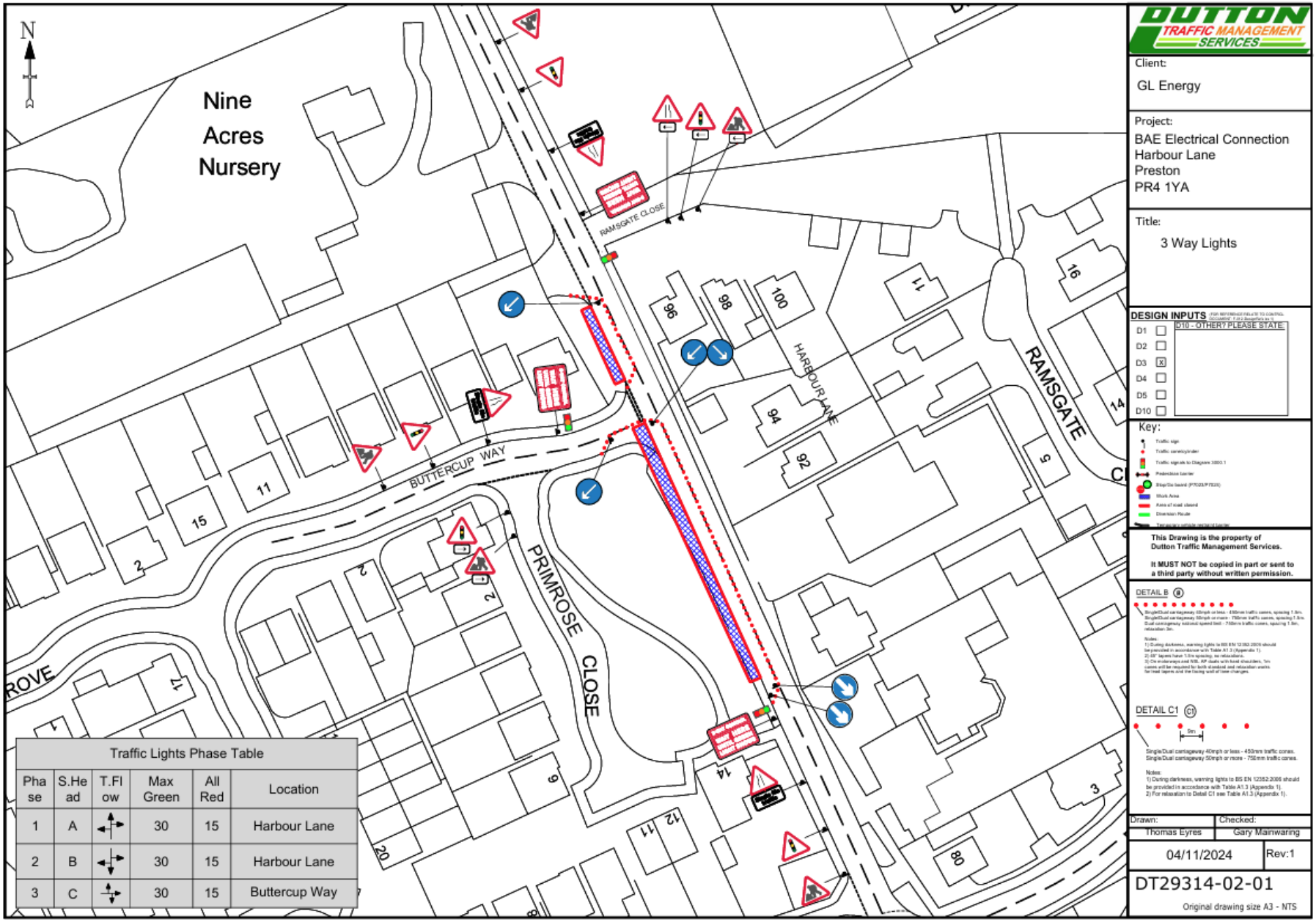
(DT29314-03-01) 3 WAY LIGHTS



(DT29314-02-01) 3 WAY LIGHTS



Traffic Lights Phase Table					
Phase	S.Head	T.Flow	Max Green	All Red	Location
1	A		30	15	Harbour Lane
2	B		30	15	Harbour Lane
3	C		30	15	Buttercup Way

DUTTON TRAFFIC MANAGEMENT SERVICES

Client:
GL Energy

Project:
BAE Electrical Connection
Harbour Lane
Preston
PR4 1YA

Title:
3 Way Lights

DESIGN INPUTS

D1	☐	D10 - OTHER? PLEASE STATE:
D2	☐	
D3	☒	
D4	☐	
D5	☐	
D10	☐	

Key:

DETAIL B

DETAIL C1

Drawn:	Checked:
Thomas Eyres	Gary Mainwaring

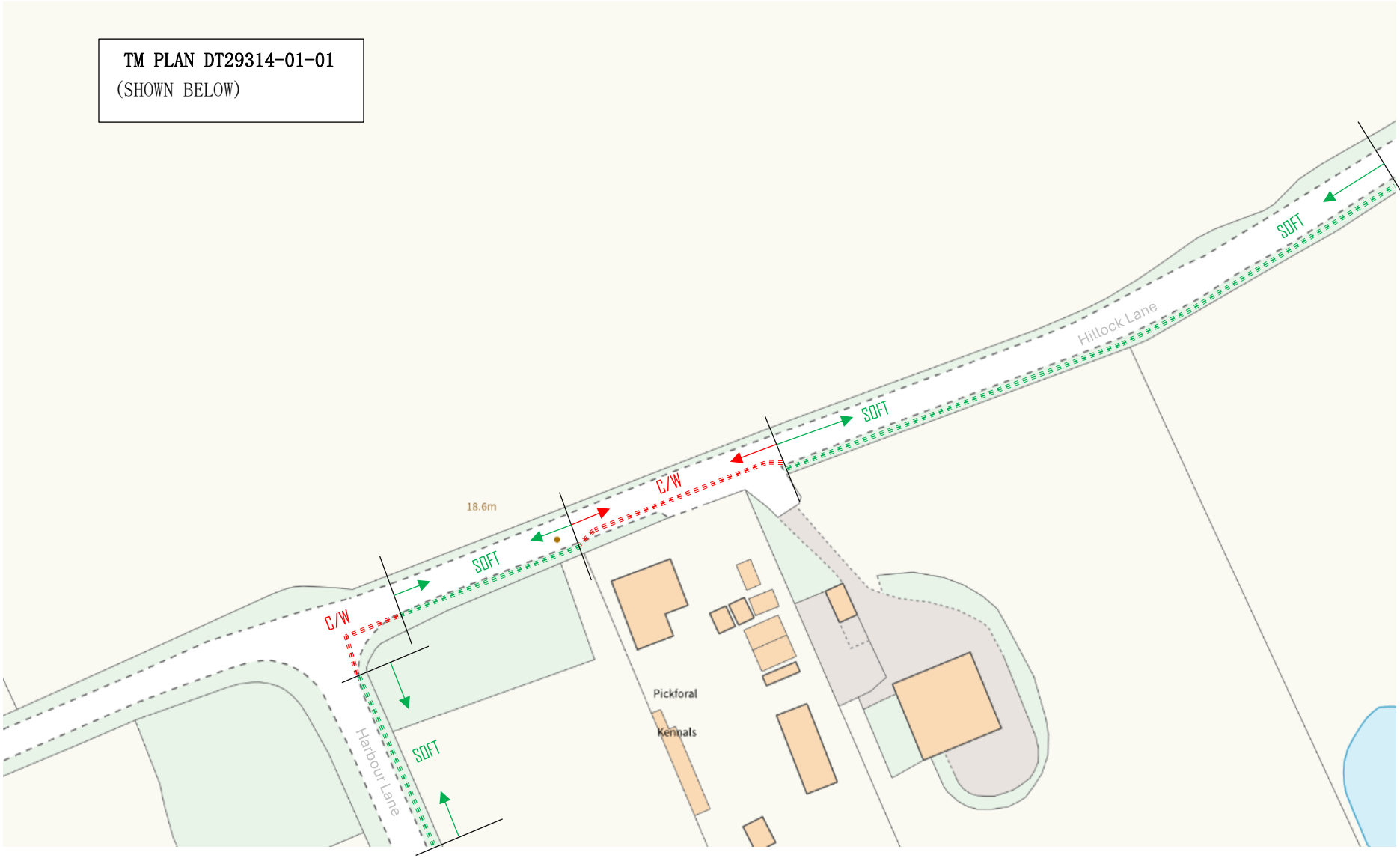
04/11/2024 Rev:1

DT29314-02-01

Original drawing size A3 - NTS


Two Way Traffic Signals for this section (no plan REQ)
Hill House
SOFT
Harbour Lane
Joint Bay #2 To be housed within the highlighted area. Specific location will be identified at dig stage, red marker shows current proposed location.
Fibre joint #1 To be housed in newly erected JMF104 at shown location
Nine
Acres
Nursery
SOFT
C/W
F/W
Pond

TM PLAN DT29314-01-01
(SHOWN BELOW)



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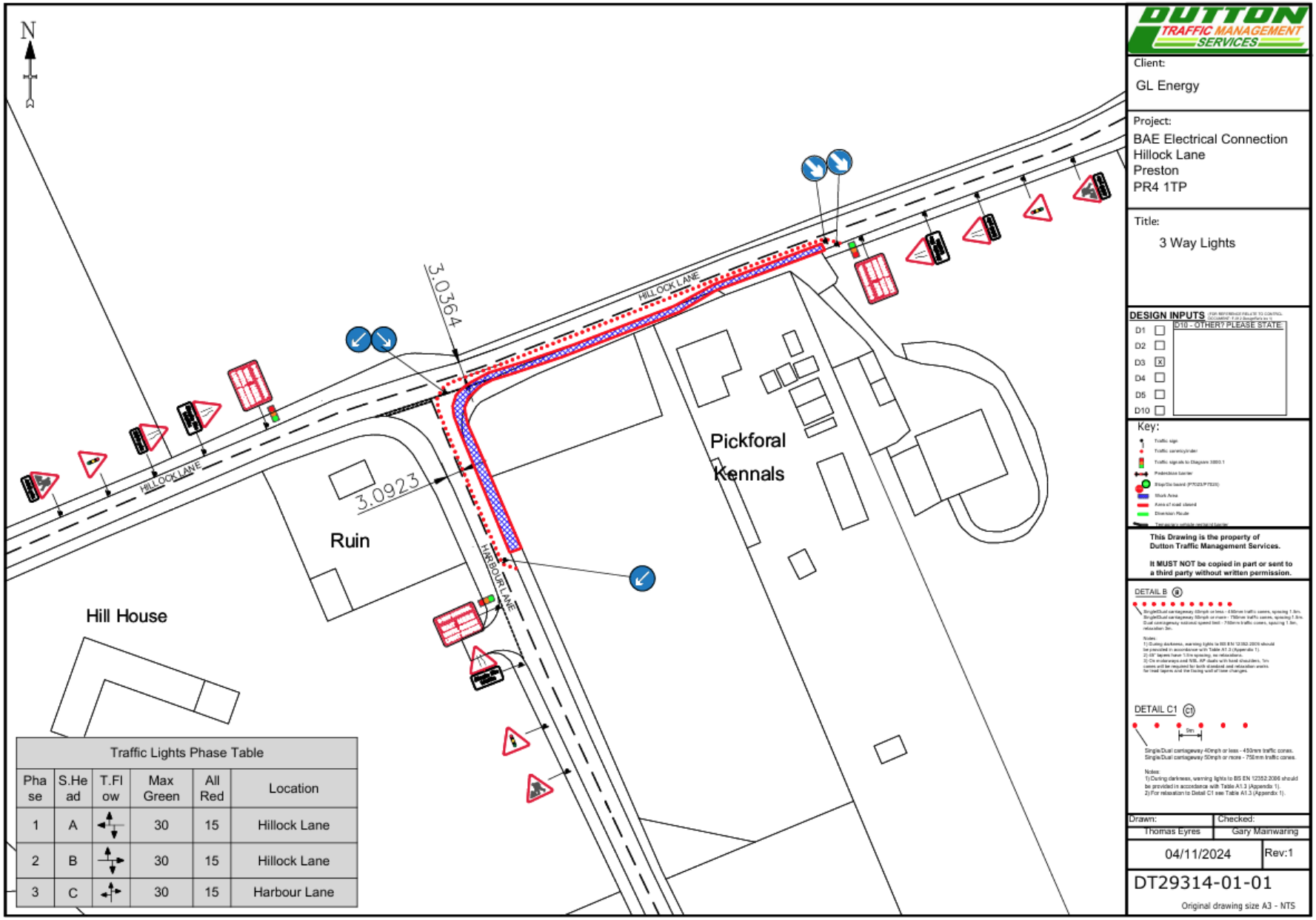
(DT29314-01-01) 3 WAY LIGHTS



Traffic Lights Phase Table					
Phase	S.Head	T.Flow	Max Green	All Red	Location
1	A		30	15	Hillock Lane
2	B		30	15	Hillock Lane
3	C		30	15	Harbour Lane

DUTTON TRAFFIC MANAGEMENT SERVICES

Client:
GL Energy

Project:
BAE Electrical Connection
Hillock Lane
Preston
PR4 1TP

Title:
3 Way Lights

DESIGN INPUTS

D1	☐	D10 - OTHERY PLEASE STATE
D2	☐	
D3	☒	
D4	☐	
D5	☐	
D10	☐	

Key:

DETAIL B

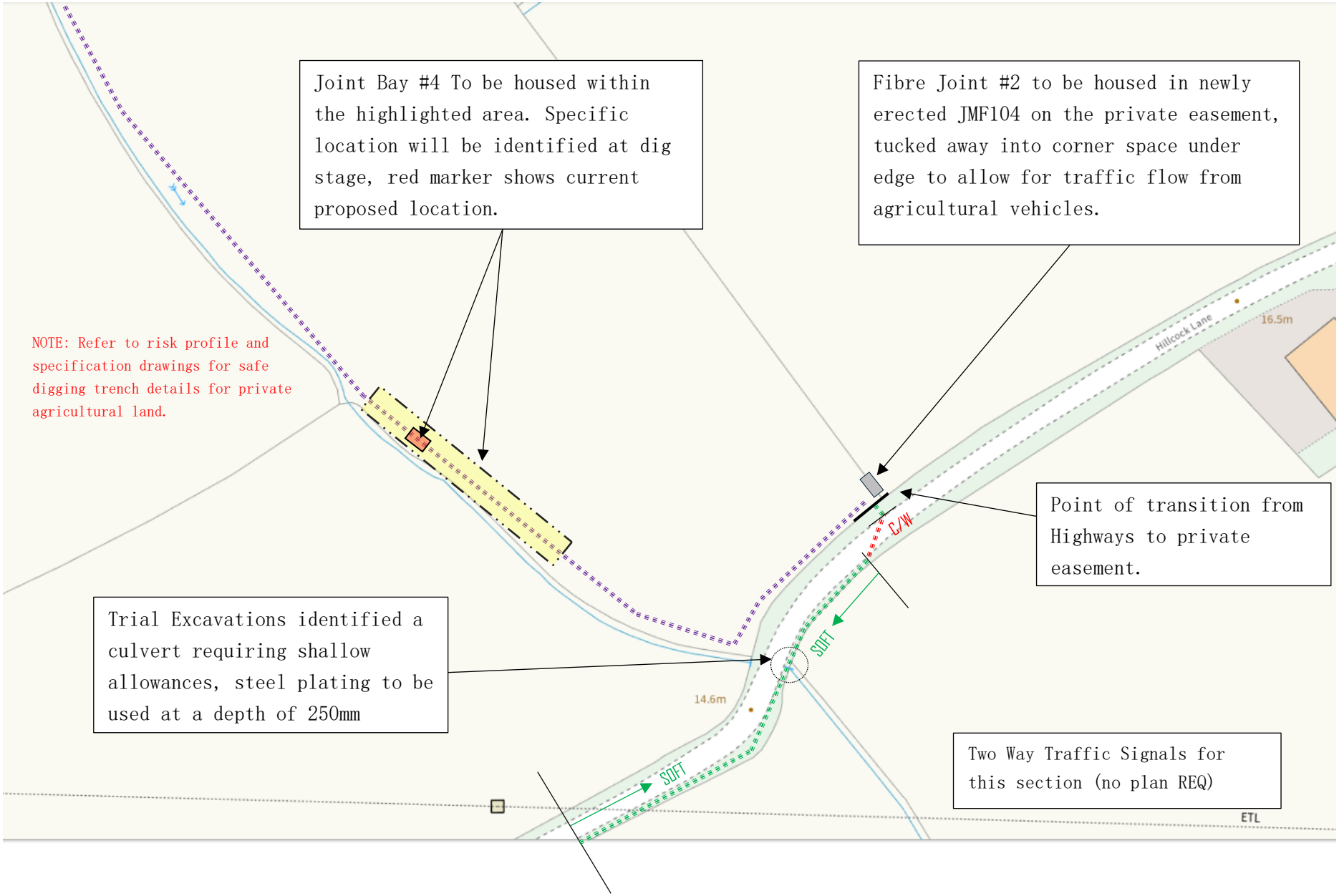
DETAIL C1

Drawn:	Checked:
Thomas Eyres	Gary Mainwaring
04/11/2024	Rev:1

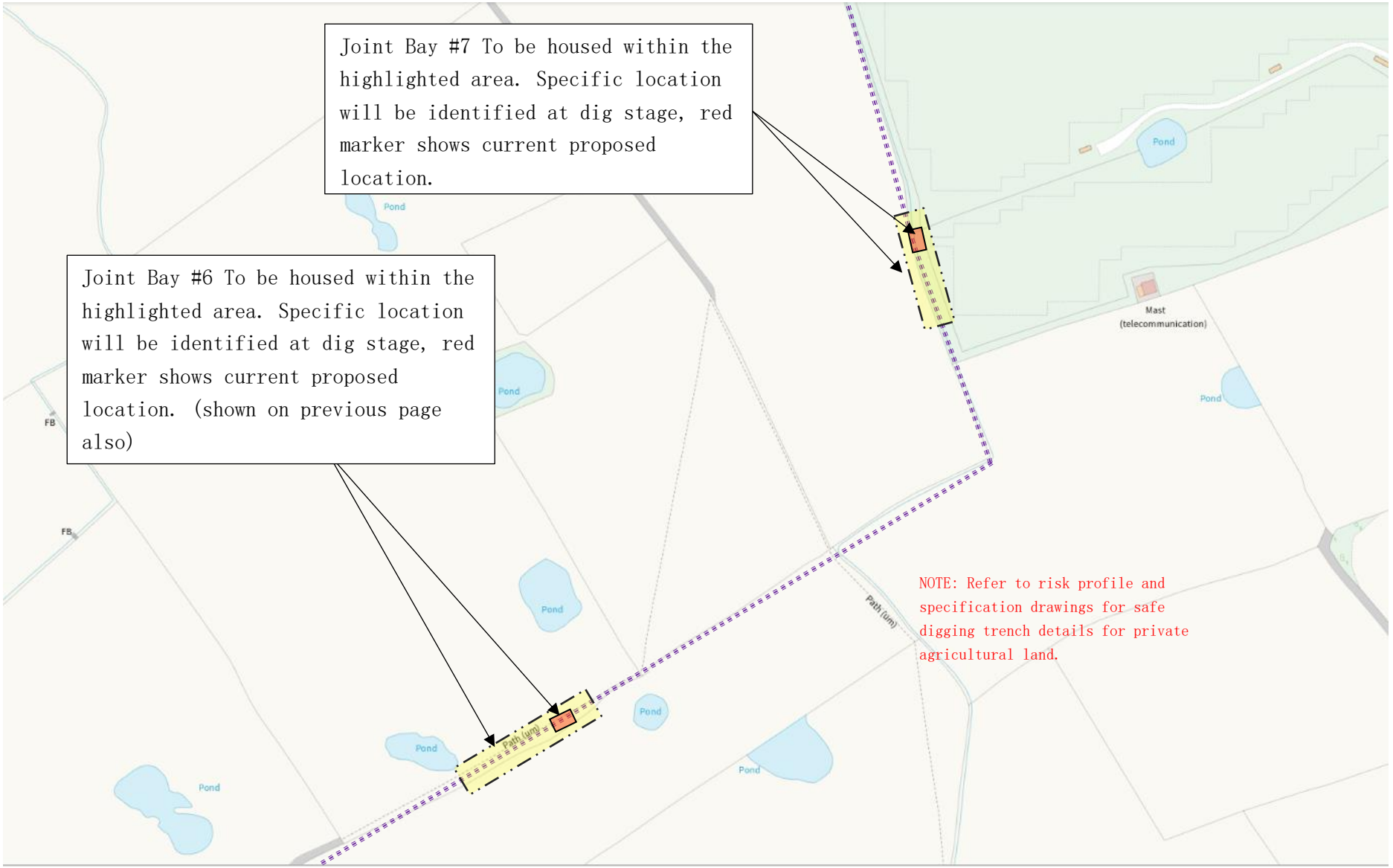
DT29314-01-01

Original drawing size A3 - NTS


Two Way Traffic Signals for this section (no plan REQ)
Joint Bay #3 To be housed within the highlighted area. Specific location will be identified at dig stage, red marker shows current proposed location.
Hillock Lane
SOFT
SOFT


Joint Bay #4 To be housed within the highlighted area. Specific location will be identified at dig stage, red marker shows current proposed location.
Fibre Joint #2 to be housed in newly erected JMF104 on the private easement, tucked away into corner space under edge to allow for traffic flow from agricultural vehicles.
NOTE: Refer to risk profile and specification drawings for safe digging trench details for private agricultural land.
Point of transition from Highways to private easement.
Trial Excavations identified a culvert requiring shallow allowances, steel plating to be used at a depth of 250mm
Two Way Traffic Signals for this section (no plan REQ)
Hillcock Lane
16.5m
14.6m
C/W
SOFT
SOFT
ETL


Joint Bay #5 To be housed within the highlighted area. Specific location will be identified at dig stage, red marker shows current proposed location.
Joint Bay #6 To be housed within the highlighted area. Specific location will be identified at dig stage, red marker shows current proposed location.
NOTE: Refer to risk profile and specification drawings for safe digging trench details for private agricultural land.
Pond
Track
Drain
FB
Path (um)
Path (um)
19.2m


Joint Bay #7 To be housed within the highlighted area. Specific location will be identified at dig stage, red marker shows current proposed location.
Joint Bay #6 To be housed within the highlighted area. Specific location will be identified at dig stage, red marker shows current proposed location. (shown on previous page also)
NOTE: Refer to risk profile and specification drawings for safe digging trench details for private agricultural land.
Pond
Mast (telecommunication)
FB
Path (um)

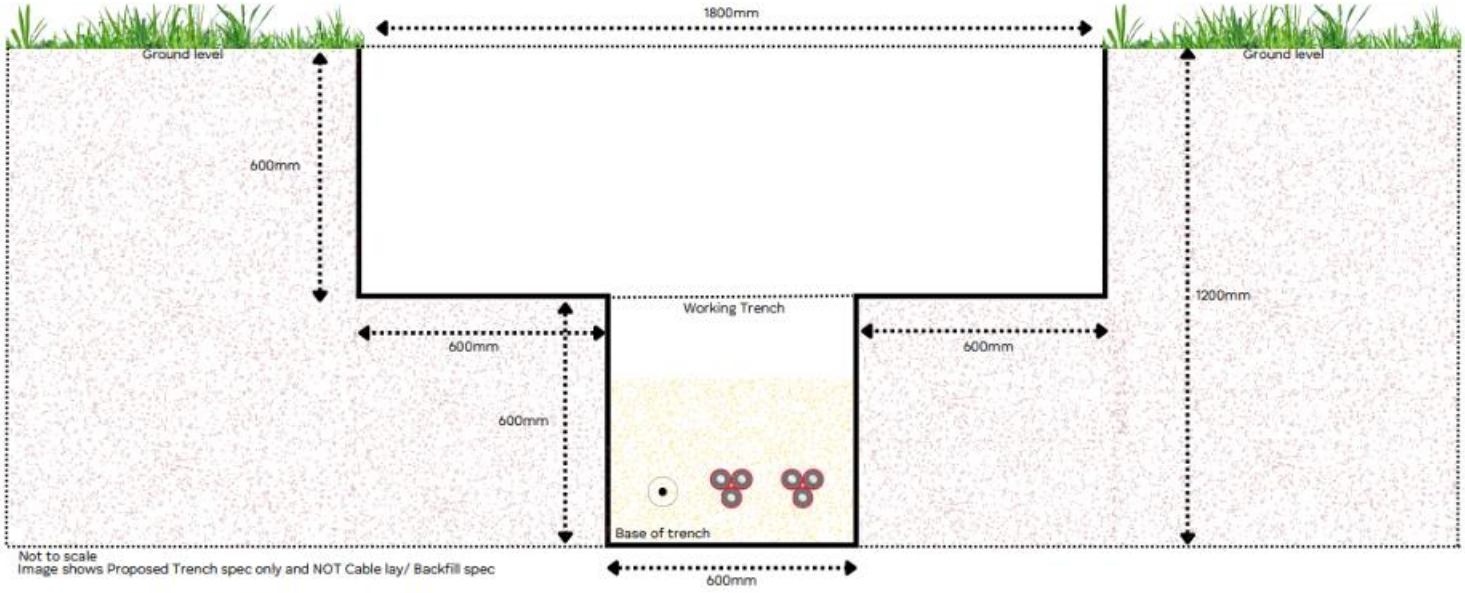

SUB 1
SUB 2
NOTE: Refer to risk profile and specification drawings for safe digging trench details for private agricultural land.
Joint Bay #8 May be required along this length of highlighted section dependant on run and finished length of drum to SUB2, if cable drum reaches SUB2 no Bay required here.
NEW SOLAR FARM
NEW SOLAR FARM
NEW SOLAR FARM
NEW SOLAR FARM
NEW SOLAR FARM
Issues
Track
Pond
Pond
Ford
Lower Wood
Path (um)
Slurry Bed
Tank
Newfold Farm
Ruin
Tank
Tk
Pond
Fairfield Farm
Track
ETL
Track
Pond
Pond
Cooper Hou

GLE-MS-005 Cable pulling in an excavation

The excavation in private Easement land is to be set up as outlined below, not only will this ensure compliance with UK regulations and industry best practices but will also allow for the cable team to position their rollers in the preferred method.

Trenching proposal for private land (ERS TWIN CIRCUIT CABLE LAY)

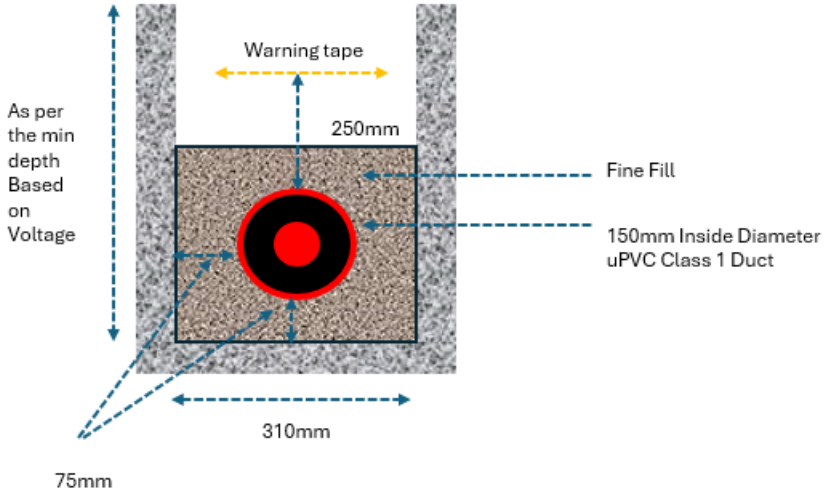
- **Total depth Ground level to base of trench:** 1200m
- **Total Width of EX:** 1800MM
- **Supporting Benched/ Staggered EX:** (W) 1800MM BY (D) 600mm
- **Working trench dimensions**: (W) 600mm BY (D) 600mm

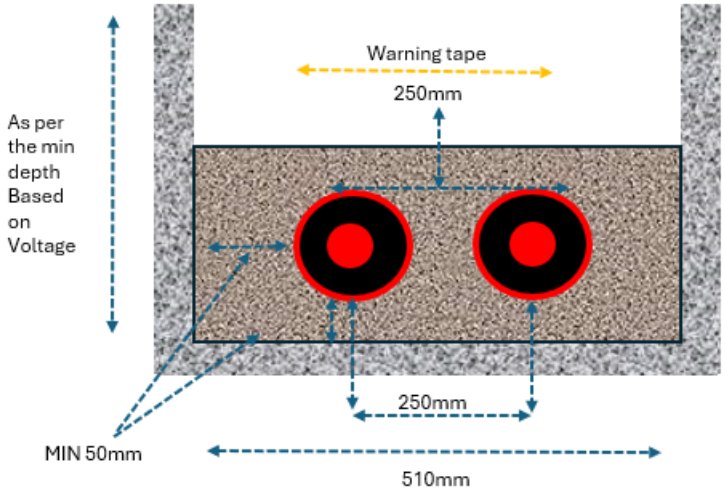


Trenching

- Trench Structures as below for DNO(SPEN ENW) , and as per NJUG for reinstatement and spacing.
- Soft fine fill material shall be as per ENA TS 97-1, of consistent composition under all conditions of humidity and temperature and shall not contain any readily visible foreign matter such as pieces of clay or organic detritus. The material shall not contain any sharp stones or flints
- Not less than 95% by weight of the material shall pass through a British Standard 5mm sieve. The material shall not contain any sharp stones or flints. The dry relative density of the selected sand backfill shall not be less than 1.6 when determined in accordance with Appendix A of ENA TS 97-1

Voltage	Bed/Blinding	Min Surround
LV (><415)	Soft Fine Fill	50mm
HV (><11kV)	Soft Fine Fill or selected sand backfill	75mm
EHV (33kV)	Selected sand backfill	75mm





	Agricultural	Walkway- Pavement- Verge/Garden	Roadway
Cable Type	Depth of Cover	Depth of Cover	Depth of Cover
Low Voltage Service	910mm	450mm	600mm
Low Voltage Mains	910mm	450mm	600mm
High Voltage (><11kV)	910mm	600mm	700mm

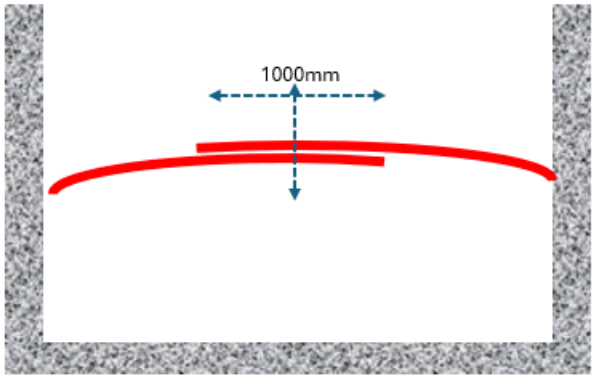
Ducting Key aspects

- All installed ducts are to be RED in colour and embossed “DANGER ELECTRICITY CABLES”.
- A separate draw rope is required in each duct.
- Detailed drawings of all ducts; as laid.*
- Approved warning tapes shall be installed 200mm cables and joints.
- Approved protection tapes shall be installed 250mm above all low voltage and all 11kV cables and joints. Where an 11kV cable is installed directly below another cable, its protection tape shall be installed immediately below the higher cable

Joint Bays

HV cable 200><250m drums

- Joint pits require 1><1.5m overlap of cable



Voltage	Joint Type	Min Joint Bay size (L*W
LV	Service joints	900mm x 600mm
	All Mians joints except breech with>240mm cab les	1200mm x 900mm
	Breech joint >240mm	1500mm x 900mm
11kV	All 11kV except breech and loops	2200mm x 1200mm
	11kV & Loop	2500mm x1200mm
Agricultural Land	All 33kV	2700mm x 1500mm