SCOTTISHPOWER

SP Transmission Ltd

East Coast 400kV Reinforcement Project (Blairingone to Kincardine)

Environmental Statement
Volume 2: Figures Plates and Technical Drawings

October 2013

This document has been produced for Scottish Power Energy Networks to support a planning application for an upgrade of the existing overhead line route between Kincardine and the SHETL Boundary at Blairingone.

The document has been compiled by

In conjunction with the following Companies

Document Status	CLb ! [
EnviroCentre Document No	5596
EnviroCentre Project No	163328J
Document No	02
Revision No	00

Upgrade of Existing XL Overhead Line Route from Kincardine to SHETL Boundary at Blairingone

Environmental Statement
Volume 2: Figures, Plates and Technical Drawings

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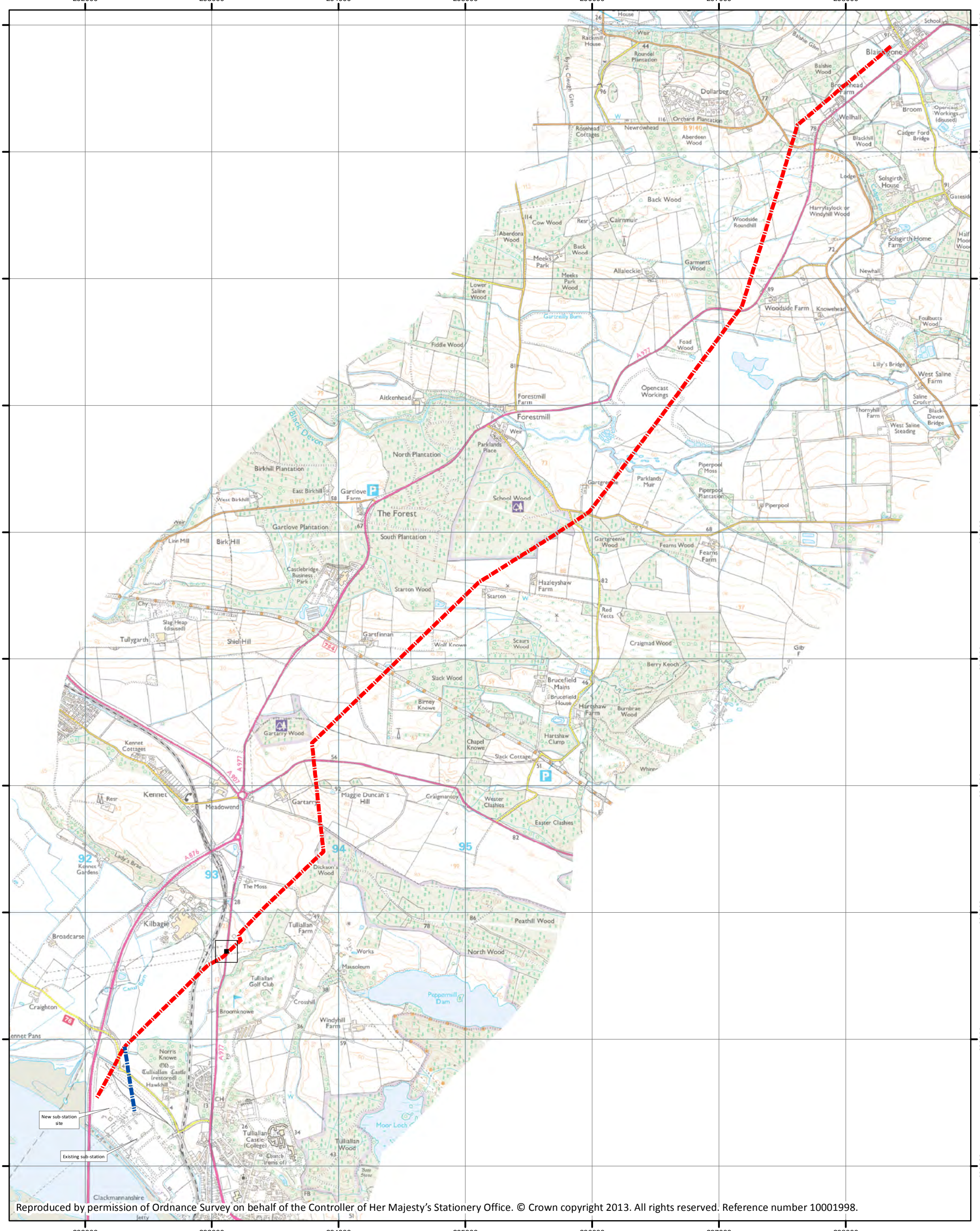
Figures



Do not scale this map

Legend

- Proposed Changes to Undergrounding at this Location
- Proposed Power Line Corridor
- Tower Line to be Removed

Client: Scottish Power Energy Networks

Project: Proposed Upgrade of Existing Overhead Line from kincardine to SHETL Boundary at Blairingone

Title: Figure 1- OHL Route and Substation Location

Status: FINAL

Drawing No.: 163328_004

Revision:

Scale: 1:28,000

A3

Date: 1st Oct 2013

Drawn: SD

Checked: MN

Approved: PD

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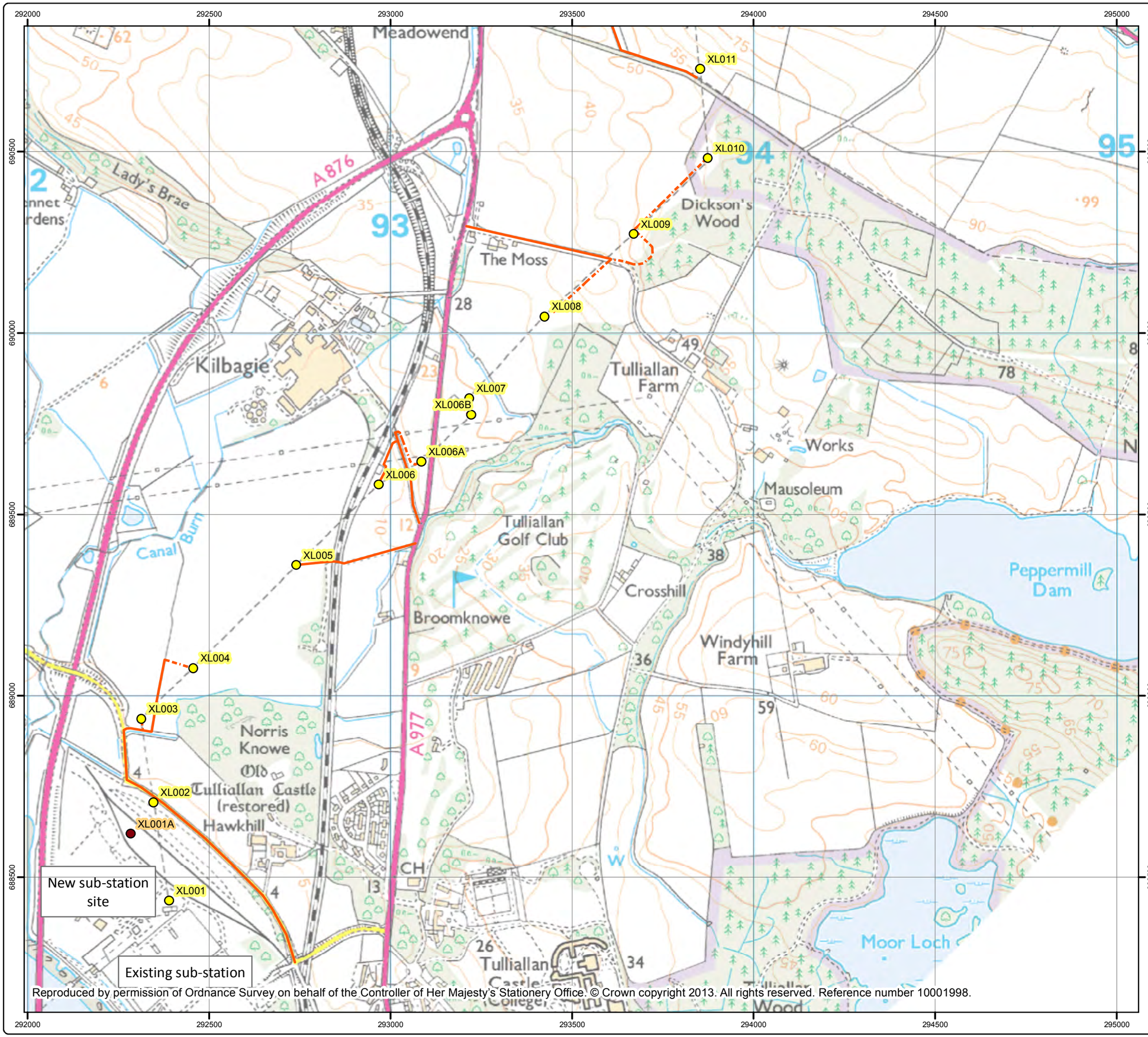

Legend

- Proposed Towers
- Existing Towers
- Open Ground Access
- Established Access Route

Do not scale this map

Client
SP Energy Networks

Project
Kincardine to Blairingone Overhead Line Upgrade: Environmental Statement

Title
Figure 2a: Proposed Access Routes: XL001-XL011

Status
FINAL

Drawing No.
163328-11

Revision

Scale
1:10,000

A3

Date
19 Sept 2013

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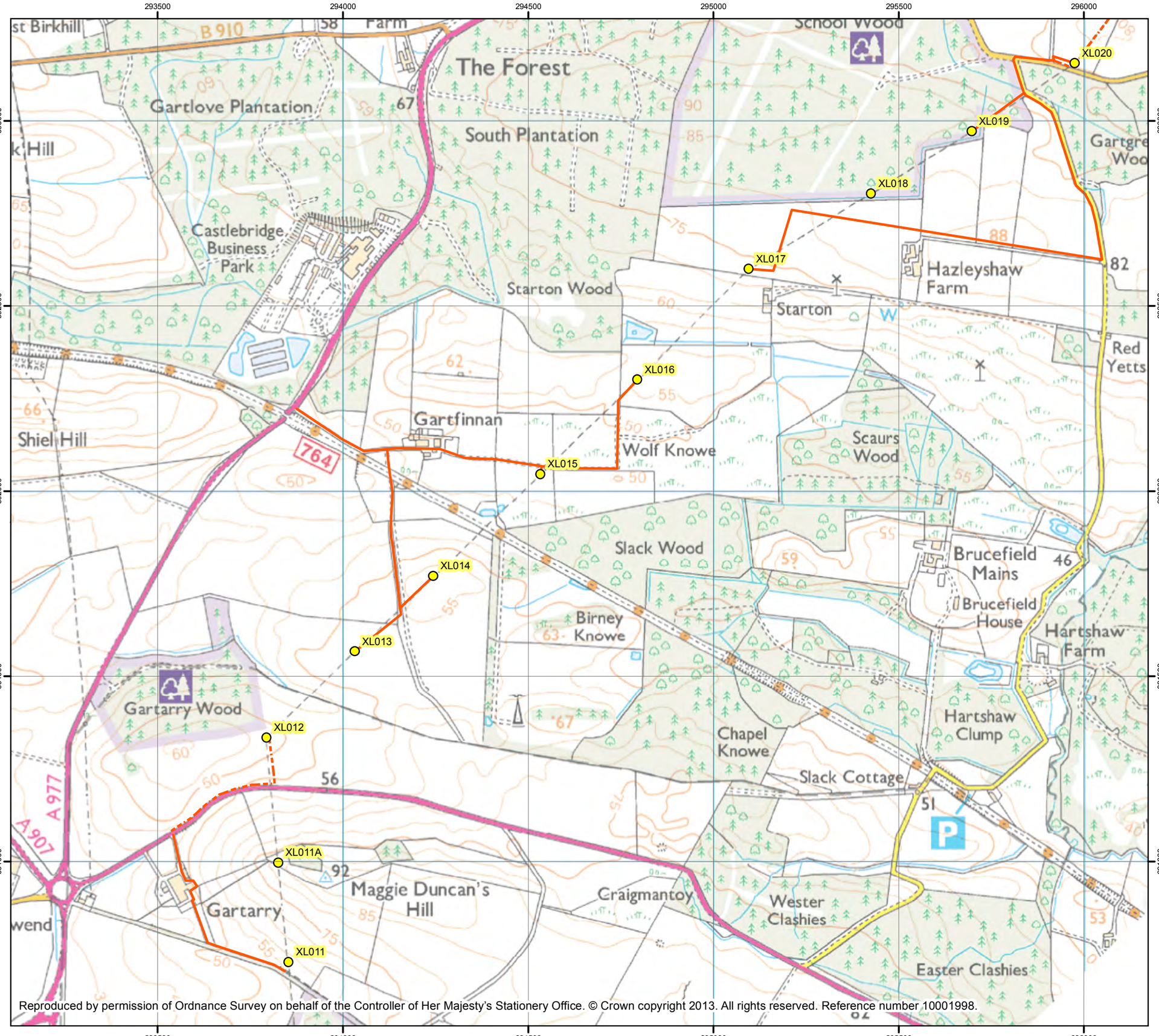

Legend

- Existing Towers
- Open Ground Access
- Established Access Route

Do not scale this map

Client
SP Energy Networks

Project
Kincardine to Blairingone Overhead Line Upgrade: Environmental Statement

Title
Figure 2b: Proposed Access Routes: XL011-XL020

Status
FINAL

Drawing No.	Revision
163328_12	

Scale		Date
1:10,000	A3	27 Sept 2013

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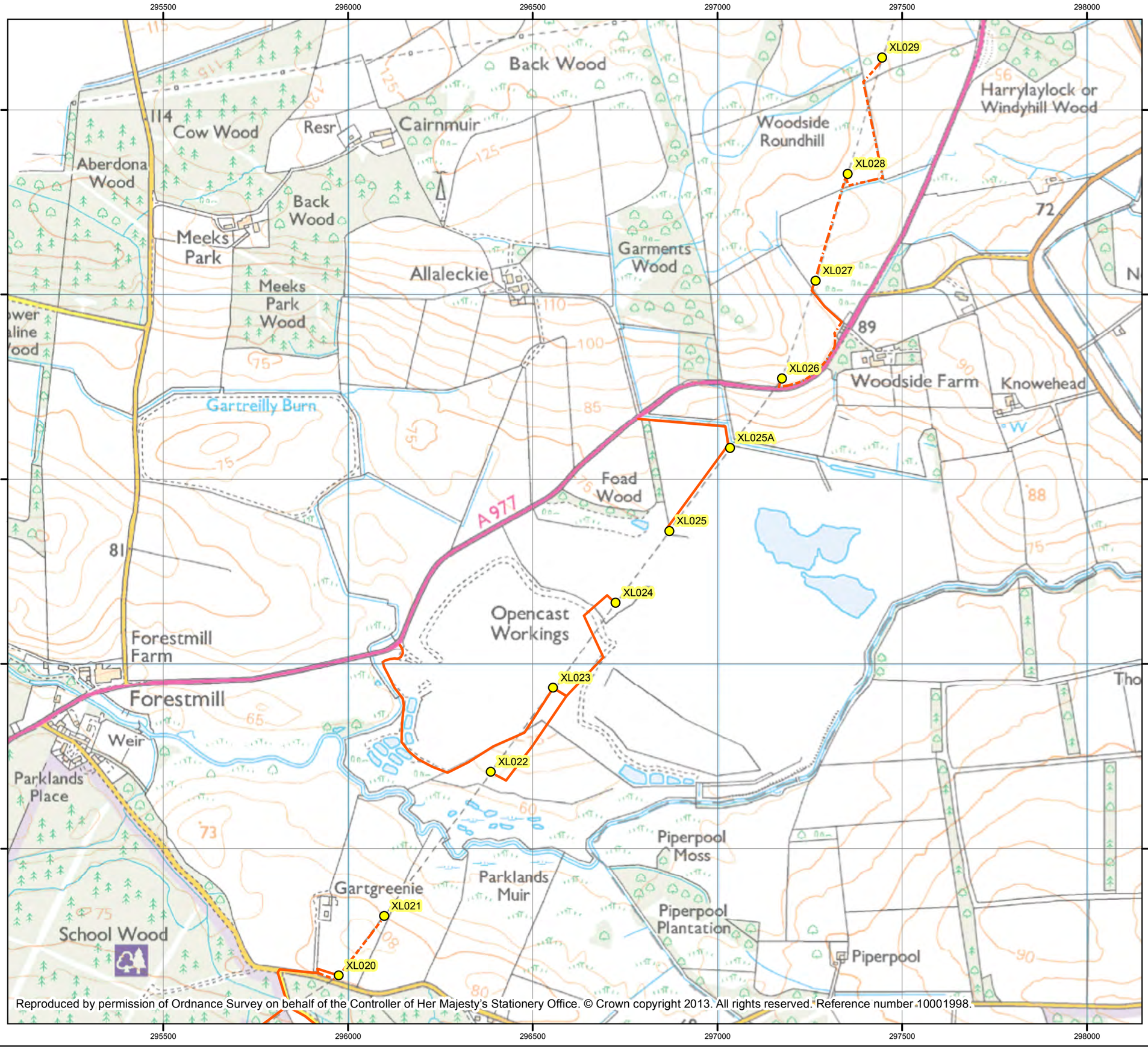

Legend

- Existing Towers
- Open Ground Access
- Established Access Route

Do not scale this map

Client
SP Energy Networks

Project
Kincardine to Blairingone Overhead Line Upgrade: Environmental Statement

Title
Figure 2c: Proposed Access Routes: XL020-XL029

Status
FINAL

Drawing No.	Revision
163328_13	

Scale		Date
1:10,000	A3	27 Sept 2013

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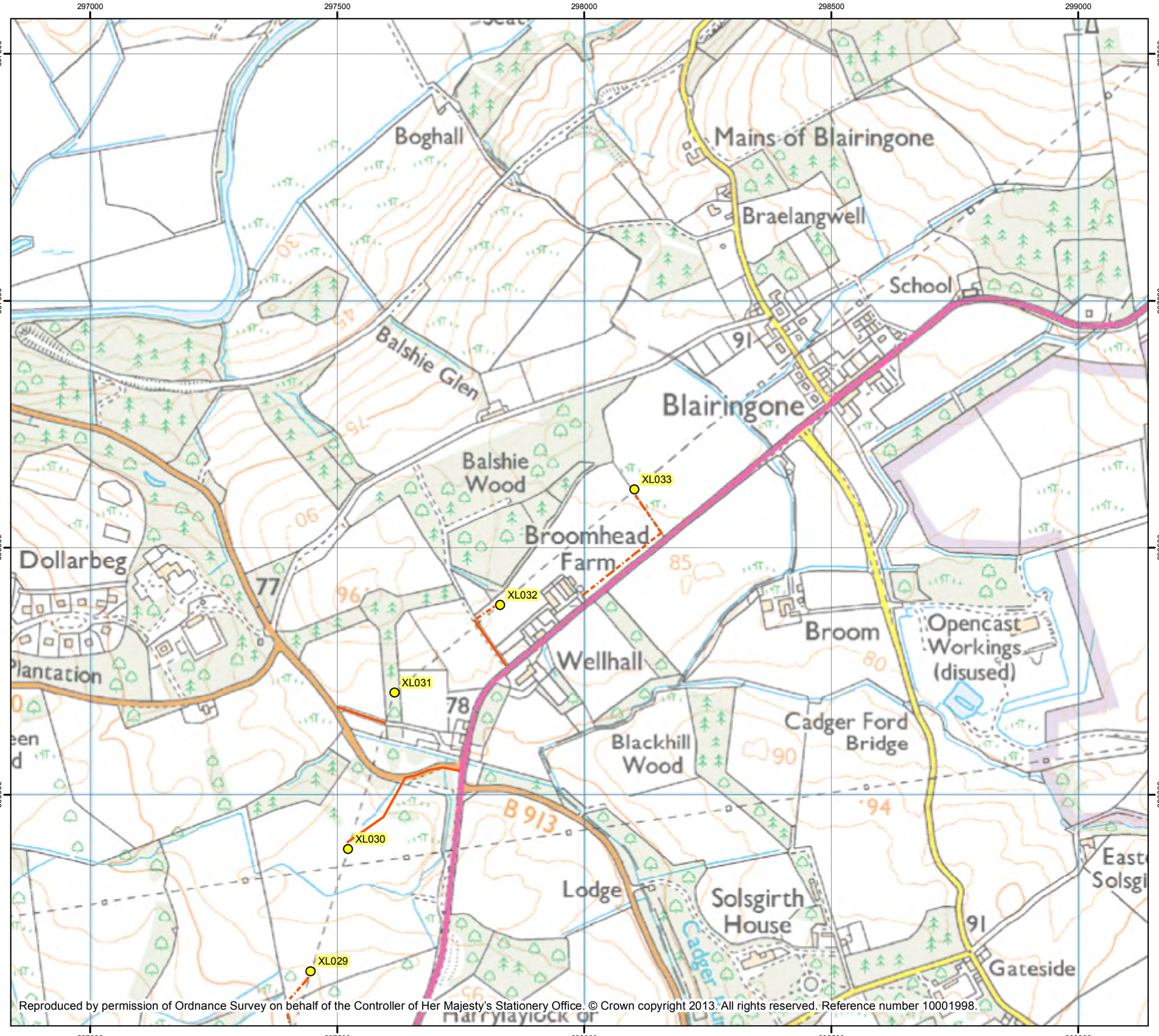

Legend

- Existing Towers
- Open Ground Access
- Established Access Route

Do not scale this map

Client
SP Energy Networks

Project
Kincardine to Blairingone Overhead Line Upgrade: Environmental Statement

Title
Figure 2d: Proposed Access Routes: XL029-XL033

Status
FINAL

Drawing No.
163328_16

Revision

Scale
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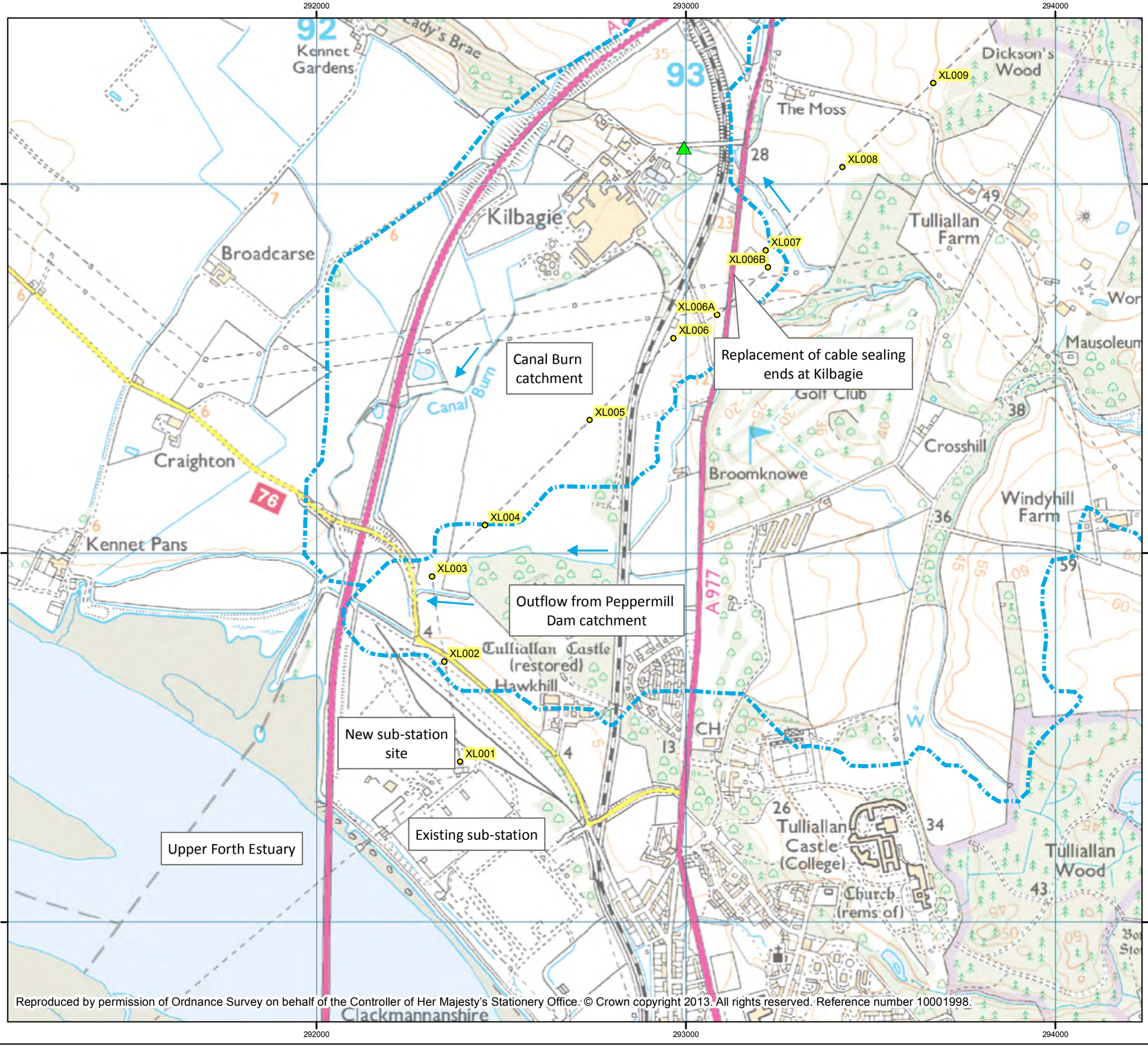

Legend

- Existing Towers
- Catchment Boundaries
- Flow Direction
- CAR licenced abstraction at Kilbagie (surface water)

Do not scale this map

Client: SP Energy Networks

Project: Kincardine to Blairingone Overhead Line Upgrade: Environmental Statement

Title: Figure 5.1a: Hydrological Features

Status: FINAL

Drawing No.: 163328_007

Revision:

Scale: 1:10,000

A3

Date: 19 Sept 2013

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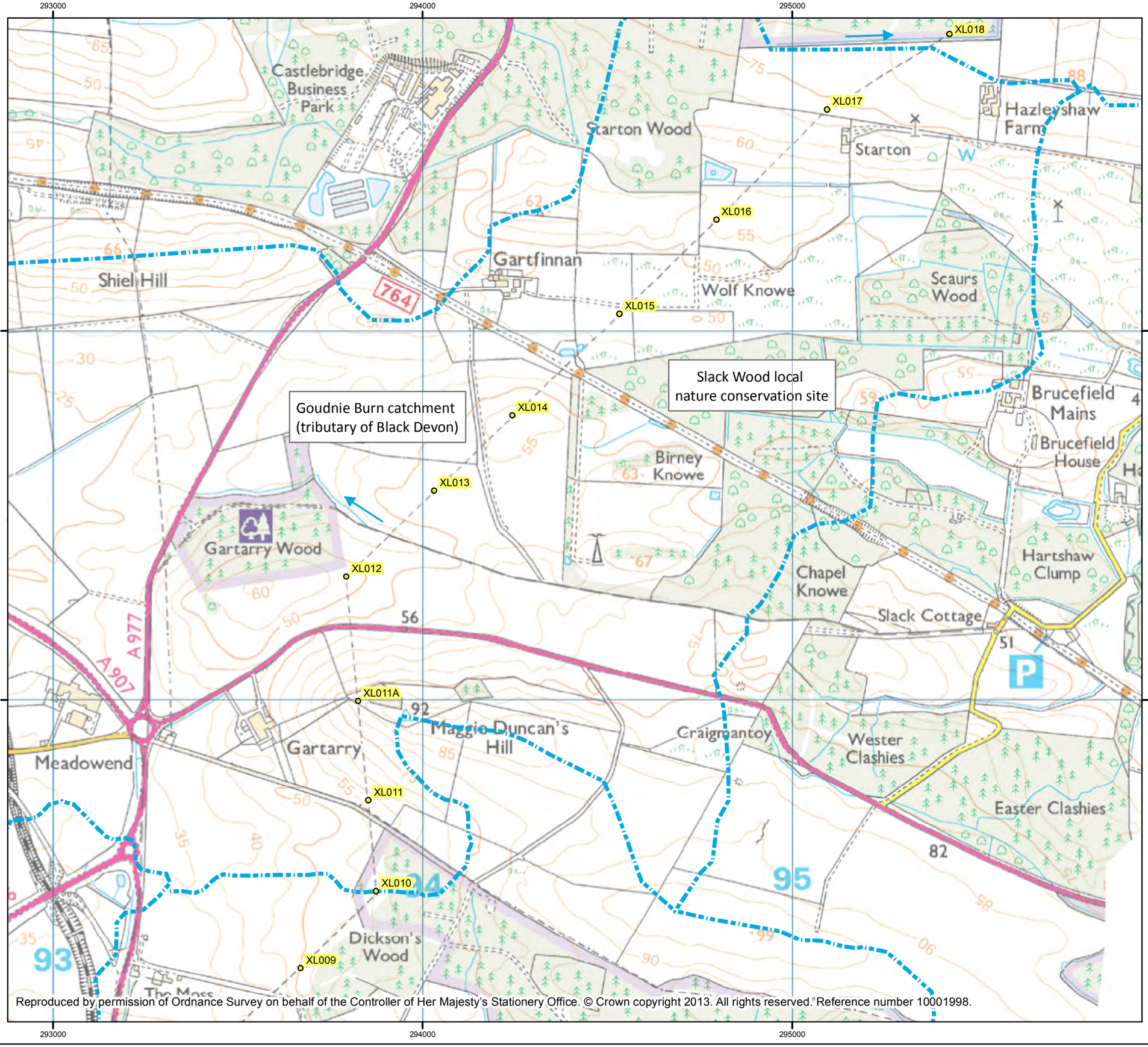

Legend

- Existing Towers
- Catchment Boundaries
- Flow Direction

Do not scale this map

Client
SP Energy Networks

Project
Kincardine to Blairingone Overhead Line Upgrade: Environmental Statement

Title
Figure 5.1b: Hydrological Features

Status
FINAL

Drawing No.
163328_008

Revision

Scale
1:10,000

A3

Date
19 Sept 2013

Drawn	Checked	Approved
HB	MN	LL

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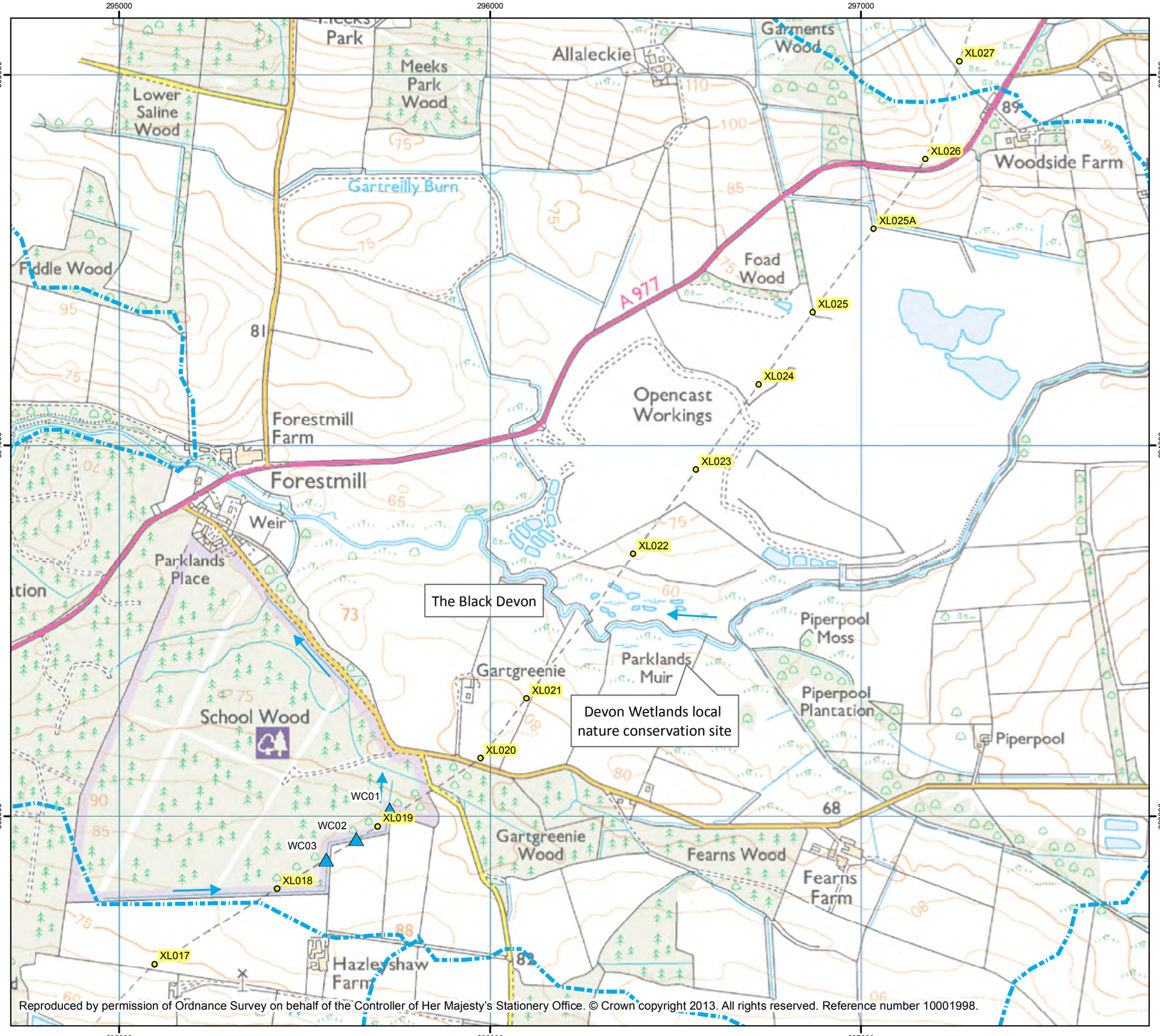

Legend

- Existing Towers
- Catchment Boundaries
- Flow Direction
- Temporary Water Crossings

Do not scale this map

Client
SP Energy Networks

Project
Kincardine to Blairingone Overhead Line Upgrade: Environmental Statement

Title
Figure 5.1c: Hydrological Features

Status
FINAL

Drawing No.
163328_009

Revision

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1:10,000

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19 Sept 2013

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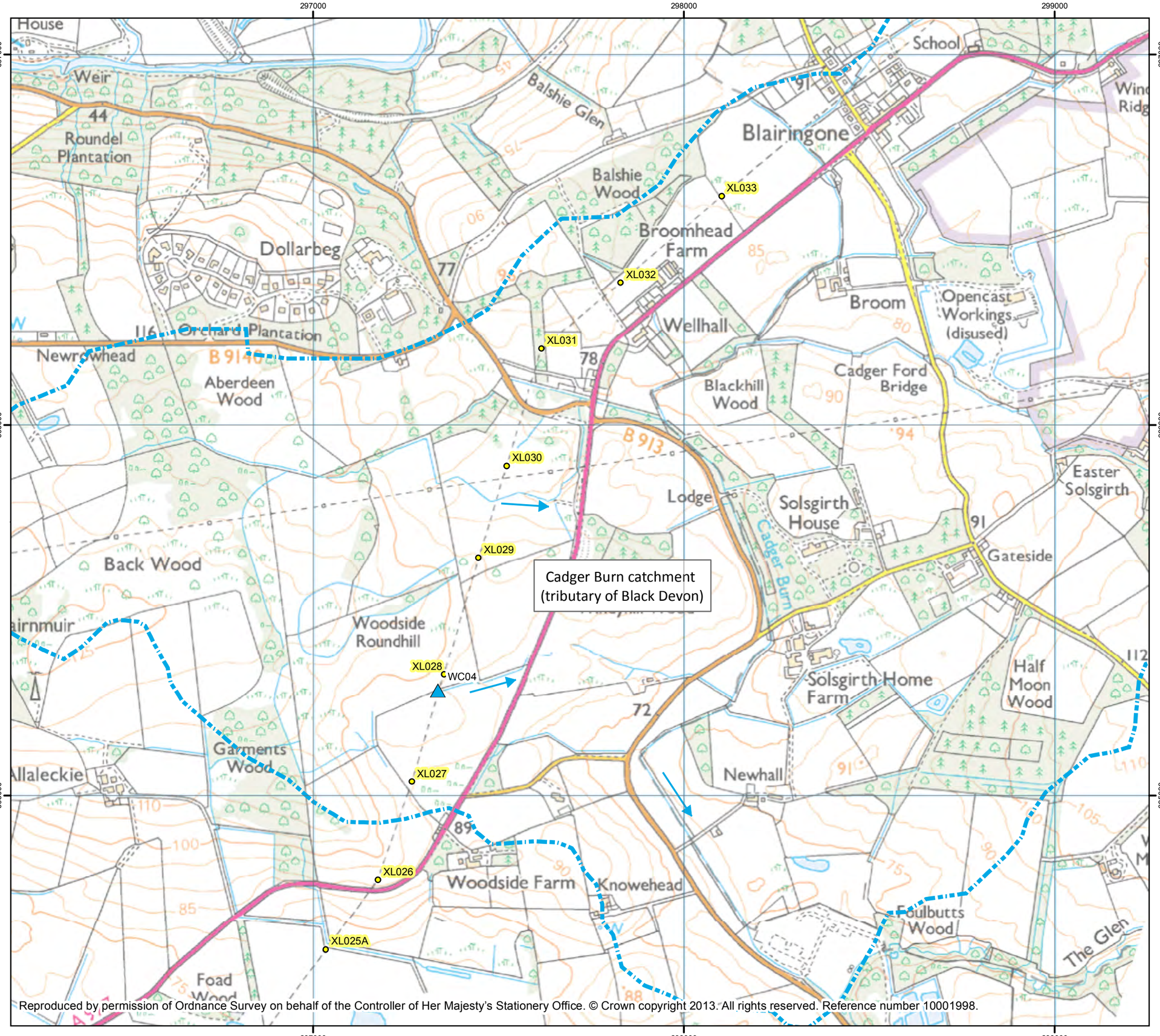

Legend

- Existing Towers
- Catchment Boundaries
- Flow Direction
- Temporary Water Crossings

Do not scale this map

Client
SP Energy Networks

Project
Kincardine to Blairingone Overhead Line Upgrade: Environmental Statement

Title
Figure 5.1d: Hydrological Features

Status
FINAL

Drawing No.
163328_010

Revision

Scale
1:10,000

A3

Date
19 Sept 2013

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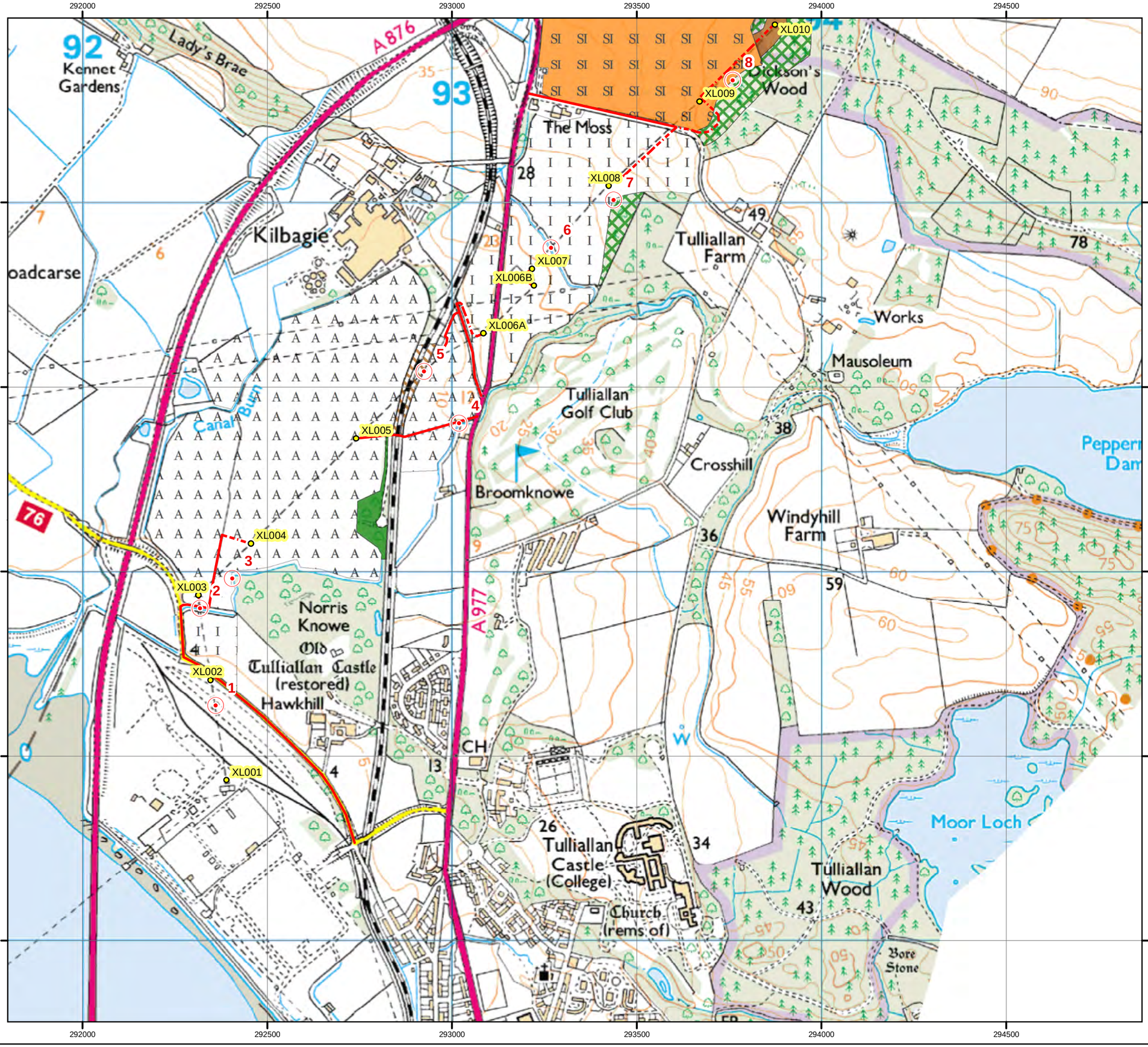

Legend

- Target Note
- Tower Ref
- Open Ground Access
- Established Access Route

Phase1Habitat_SPEN_163328

JNCC Code

- A1.1.1 Broadleaf semi-natural woodland
- A2.1 Coniferous semi-natural woodland
- A2.2 Coniferous scrub woodland
- B2.1 Unimproved natural grassland
- B2.1/B5 Mosaic
- B2.2 Semi improved natural grassland
- B4 Improved grassland
- B5 Marsh/marshy grassland
- B5/D1.1 Mosaic
- C1.1 Continuous bracken
- C3.1 Tall ruderal
- J1.1 Arable cultivated/ disturbed land
- J1.3 Cultivated/ distured ephemeral/ short perennial

Do not scale this map

Client
Scottish Power Transmittion Ltd

Project
Upgrade of XL Overhead Line Route

Title
Figure 6.1a- Habitat Maps

Status
FINAL

Drawing No.
163328-014

Revision

Scale
1:10,000

A3

Date
1st Oct 2013

Drawn	Checked	Approved
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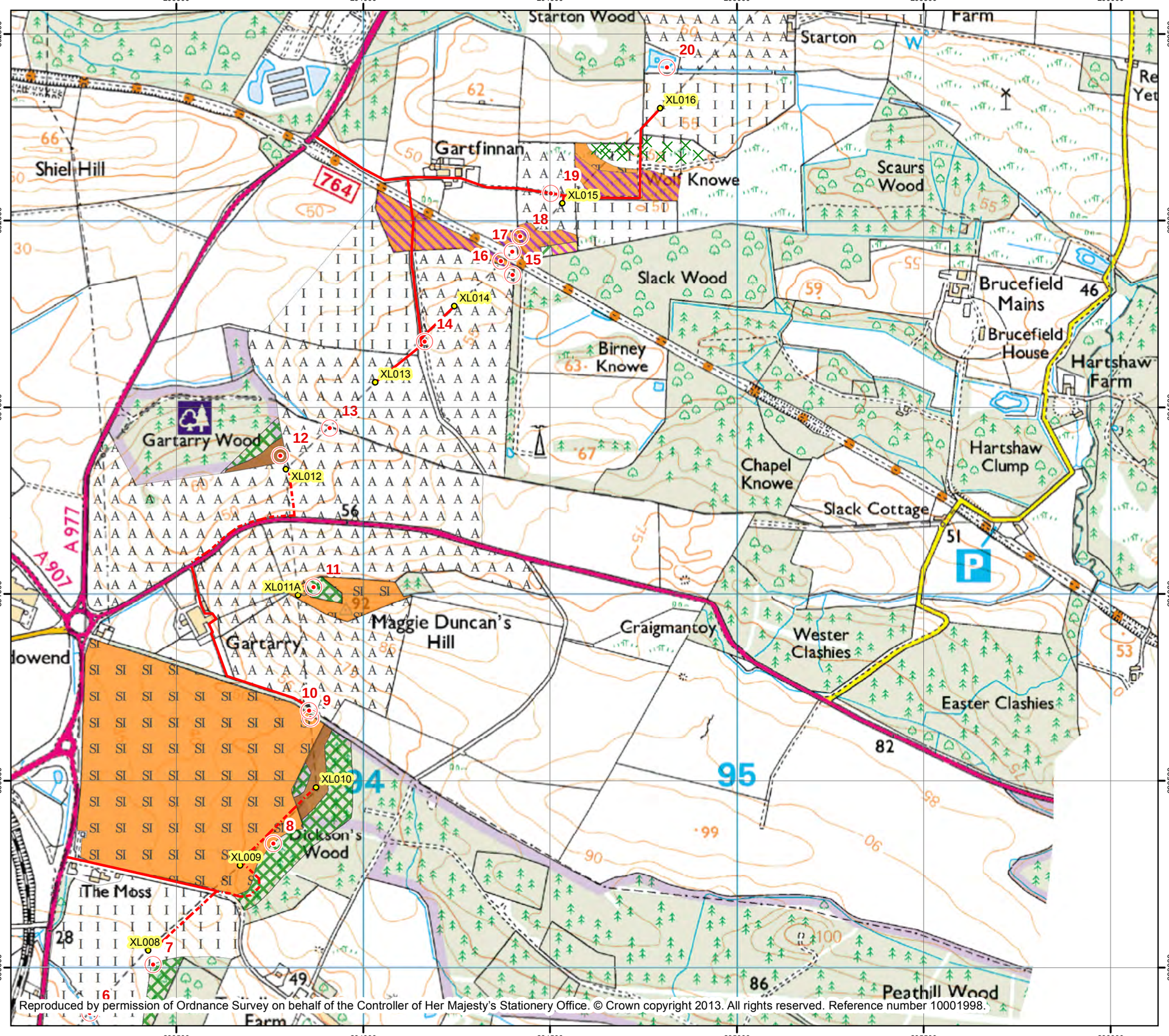

Legend

- Target Note
- Tower Ref
- Open Ground Access
- Established Access Route
- A2.2 Scattered Scrub

JNCC Code

- A1.1.1 Broadleaf semi-natural woodland
- A1.1.2 Broadleaf semi-natural plantation
- A1.2.1 Broadleaf coniferous woodland
- A1.2.2 Broadleaf coniferous plantation
- A1.3.1 Broadleaf mixed woodland
- A1.3.2 Broadleaf mixed plantation
- A2.1 Coniferous semi-natural woodland
- A2.2 Coniferous scrub woodland
- B2.1 Unimproved natural grassland
- B2.1/B5 Mosaic
- B2.2 Semi improved natural grassland
- B4 Improved grassland
- B5 Marsh/marshy grassland
- B5/D1.1 Mosaic
- C1.1 Continuous bracken
- C3.1 Tall ruderal
- D2 Wet dwarf shrub heath
- F1 Swamp
- J1.1 Arable cultivated/ disturbed land
- J1.3 Cultivated/distured ephemeral/short perennial

Do not scale this map

Client
Scottish Power Transmission Ltd

Project
Upgrade of XL Overhead Line Route

Title
Figure 6.1b- Habitat Maps

Status
FINAL

Drawing No.
163328-015

Revision

Scale
1:10,000

A3

Date
27th Sep 2013

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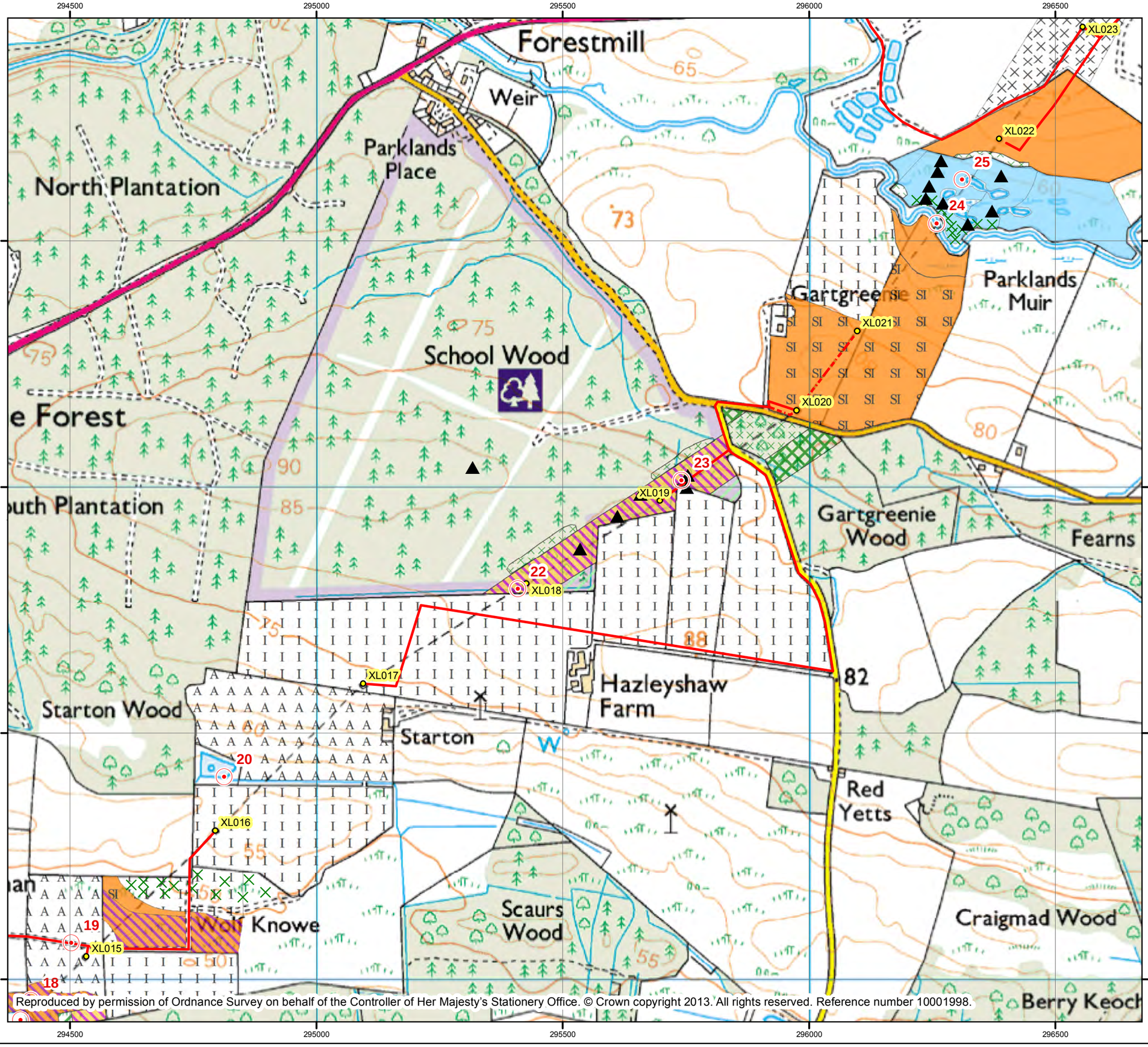

Legend

- Target Note
- GWDTEs
- Tower Ref
- Open Ground Access
- Established Access Route
- A2.2 Scattered Scrub

JNCC Code

- A1.1.1 Broadleaf semi-natural woodland
- A1.1.2 Broadleaf semi-natural plantation
- A1.2.1 Broadleaf coniferous woodland
- A1.2.2 Broadleaf coniferous plantation
- A1.3.1 Broadleaf mixed woodland
- A1.3.2 Broadleaf mixed plantation
- A2.1 Coniferous semi-natural woodland
- A2.2 Coniferous scrub woodland
- B2.1 Unimproved natural grassland
- B2.1/B5 Mosaic
- B2.2 Semi improved natural grassland
- B4 Improved grassland
- B5 Marsh/marshy grassland
- B5/D1.1 Mosaic
- C1.1 Continuous bracken
- C3.1 Tall ruderal
- D2 Wet dwarf shrub heath
- F1 Swamp
- J1.1 Arable cultivated/ disturbed land
- J1.3 Cultivated/distured ephemeral/short perennial

Do not scale this map

Client
Scottish Power Transmission Ltd

Project
Upgrade of XL Overhead Line Route

Title
Figure 6.1c- Habitat Maps

Status
FINAL

Drawing No.
163328-004

Revision

Scale
1:7,500

A3

Date
27th Sep 2013

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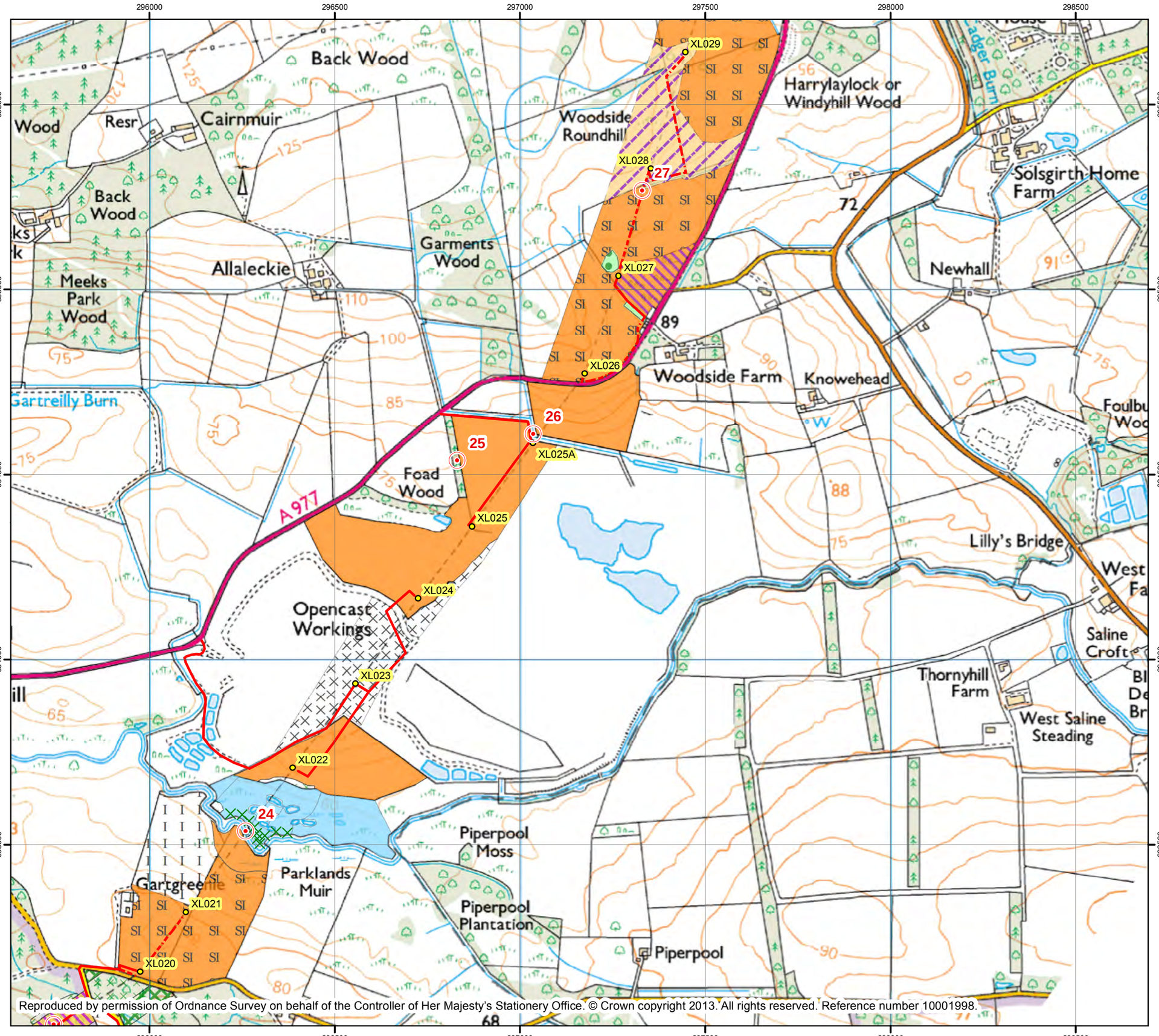

Legend

- Target Note
- Tower Ref
- Open Ground Access
- Established Access Route

JNCC Code

- A1.1.1 Broadleaf semi-natural woodland
- A1.1.2 Broadleaf semi-natural plantation
- A1.2.1 Broadleaf coniferous woodland
- A1.2.2 Broadleaf coniferous plantation
- A1.3.1 Broadleaf mixed woodland
- A1.3.2 Broadleaf mixed plantation
- A2.1 Coniferous semi-natural woodland
- A2.2 Coniferous scrub woodland
- B2.1 Unimproved natural grassland
- B2.1/B5 Mosaic
- B2.2 Semi improved natural grassland
- B4 Improved grassland
- B5 Marsh/marshy grassland
- B5/D1.1 Mosaic
- C1.1 Continuous bracken
- C3.1 Tall ruderal
- D2 Wet dwarf shrub heath
- F1 Swamp
- J1.1 Arable cultivated/ disturbed land
- J1.3 Cultivated/distured ephemeral/short perennial

Do not scale this map

Client
Scottish Power Transmission Ltd

Project
Upgrade of XL Overhead Line Route

Title
Figure 6.1d- Habitat Maps

Status
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Drawing No.
163328-005

Revision

Scale
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A3

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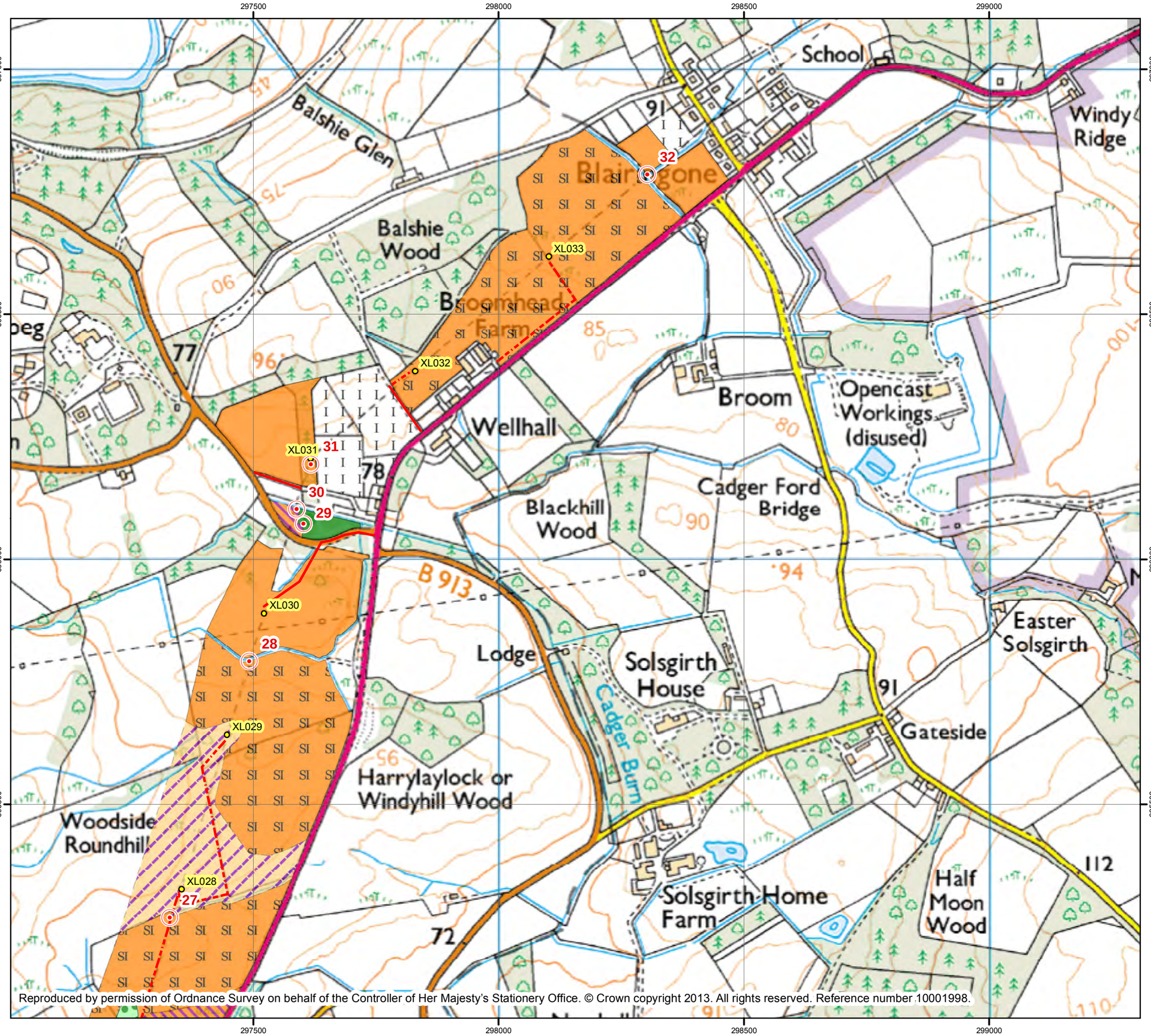

Legend

- Target Note
- Tower Ref
- Open Ground Access
- Established Access Route

JNCC Code

- A1.1.1 Broadleaf semi-natural woodland
- A1.1.2 Broadleaf semi-natural plantation
- A1.2.1 Broadleaf coniferous woodland
- A1.2.2 Broadleaf coniferous plantation
- A1.3.1 Broadleaf mixed woodland
- A1.3.2 Broadleaf mixed plantation
- A2.1 Coniferous semi-natural woodland
- A2.2 Coniferous scrub woodland
- B2.1 Unimproved natural grassland
- B2.1/B5 Mosaic
- B2.2 Semi improved natural grassland
- B4 Improved grassland
- B5 Marsh/marshy grassland
- B5/D1.1 Mosaic
- C1.1 Continuous bracken
- C3.1 Tall ruderal
- D2 Wet dwarf shrub heath
- F1 Swamp
- J1.1 Arable cultivated/ disturbed land
- J1.3 Cultivated/distured ephemeral/short perennial

Do not scale this map

Client
Scottish Power Transmission Ltd

Project
Upgrade of XL Overhead Line Route

Title
Figure 6.1e- Habitat Maps

Status
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Drawing No.
163328-006

Revision

Scale
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27th Sep 2013

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Plates

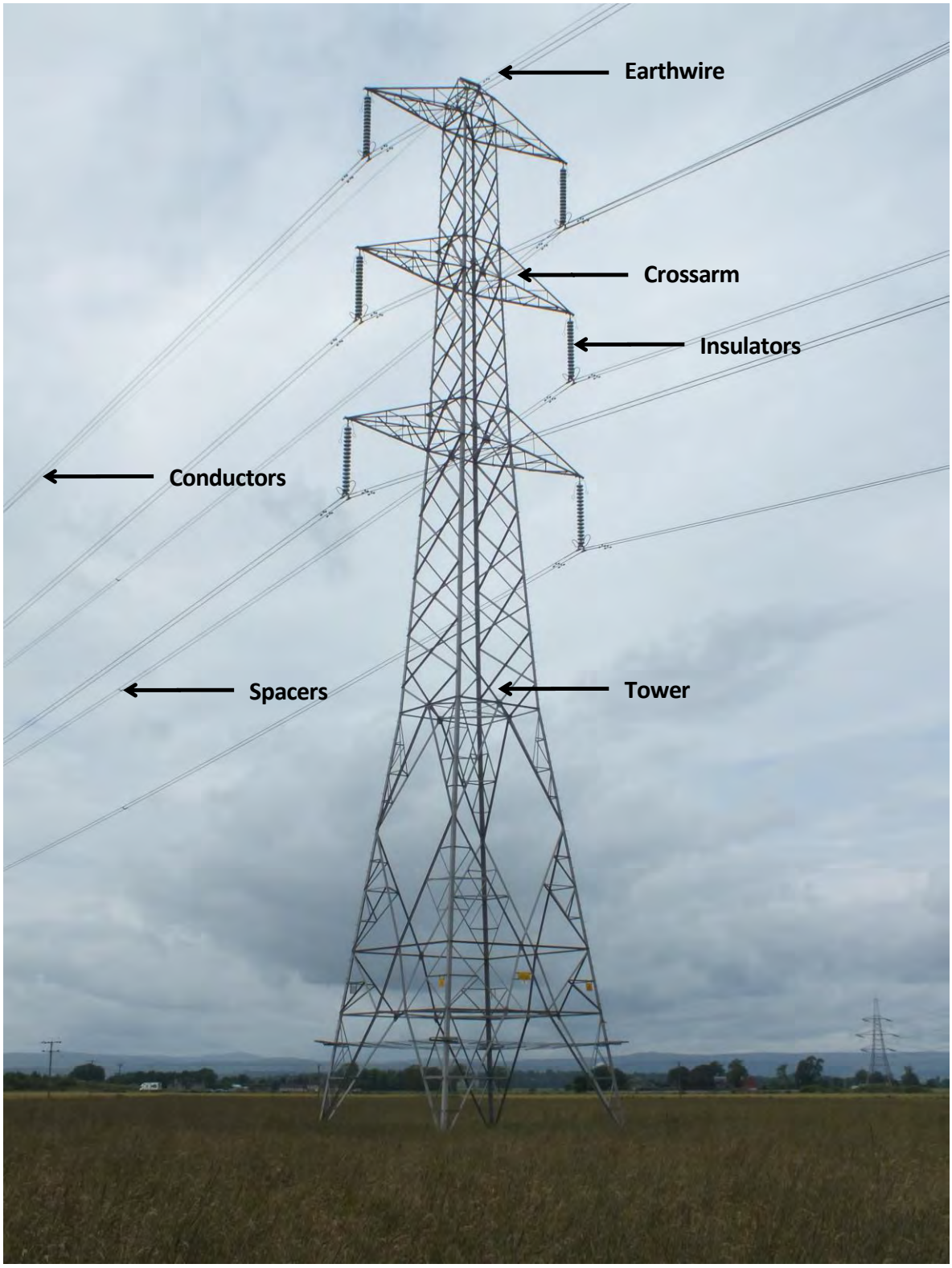


Plate 1: The typical arrangement of the L2 tower design and its various component parts.

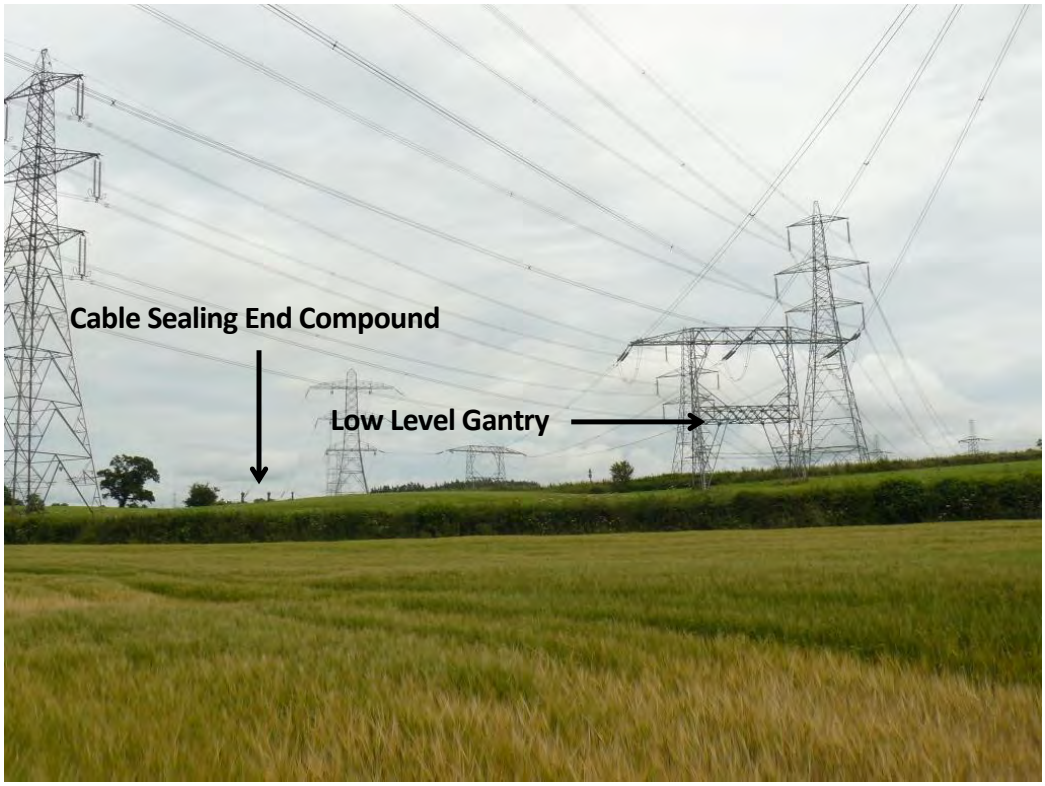


Plate 2: The existing 275 kV Low Level Gantries and Cable Sealing End Compounds.

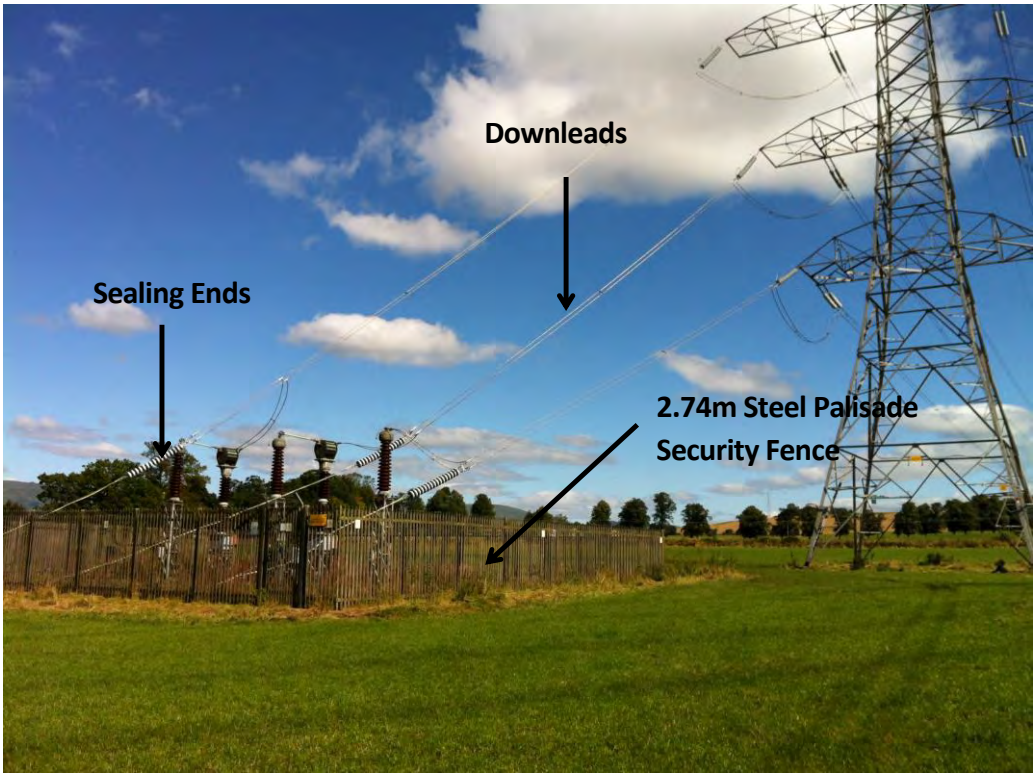


Plate 3: One of the existing 275 kV Cable Sealing End Compounds.

Plate 4: Typical 132kV GIS Building. It should be noted that the proposed substation at Kincardine would have a capacity of 275kV and would therefore be larger in size.

Plate 5: SF_6 switchgear inside a typical 132kV GIS building.

Plate 6: The existing substation at Kincardine, which contains an air insulated switchgear (AIS).

Plate 7: Linesmen replacing a tower insulator

Plate 8: A typical tractor and winch

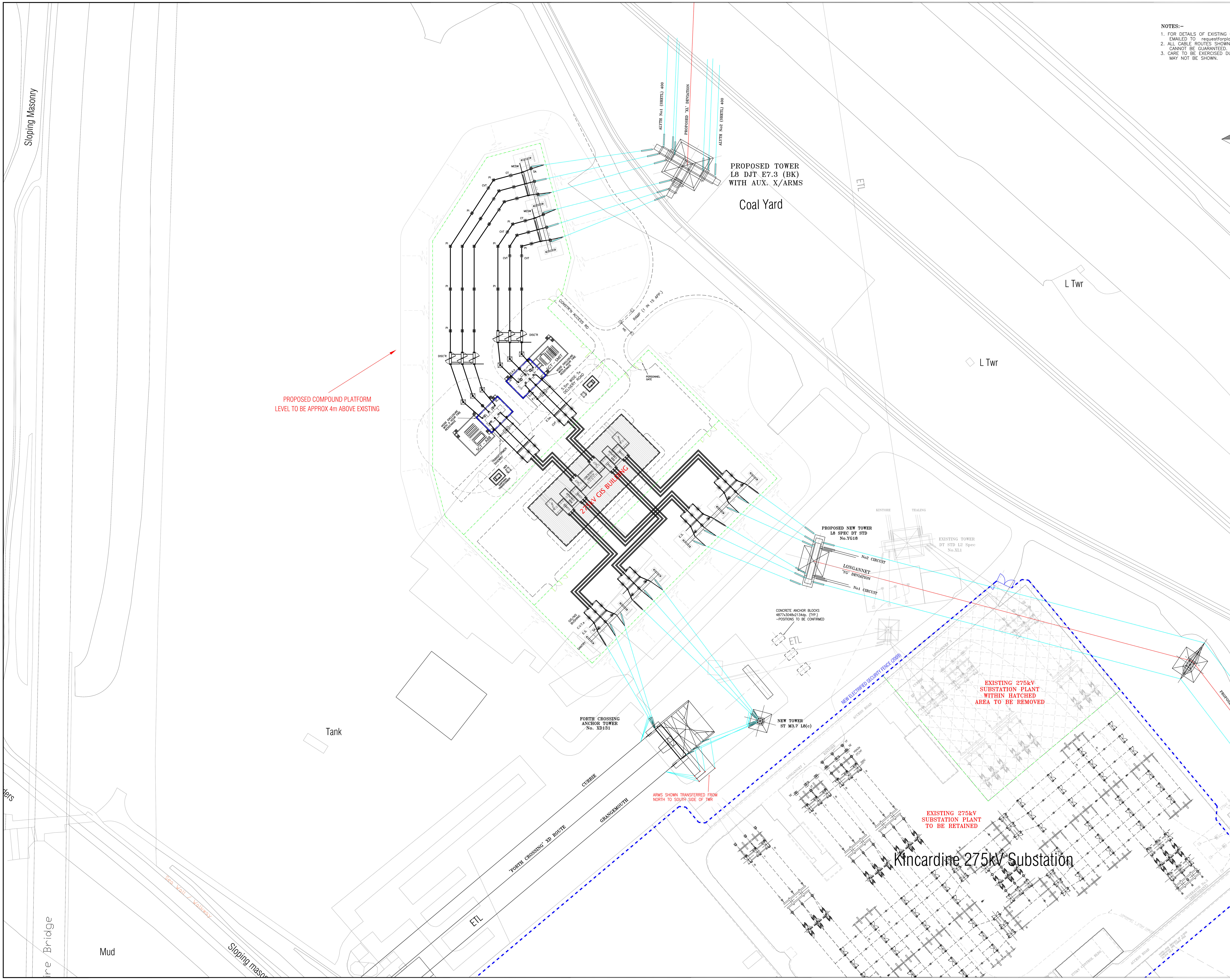
Plate 9: An example of scaffolding erected to protect a road

Plate 10: An example of typical tower foundation works

Plate 11: An example of a conductor drum and tensioner winch

Plate 12: A typical pulling winch

Technical Drawings



NOTES:–

1. FOR DETAILS OF EXISTING CABLE AND OHL INFRASTRUCTURE, ENQUIRIES SHOULD BE EMAILED TO requestforplansscotland@scottishpower.com
2. ALL CABLE ROUTES SHOWN ARE TAKEN FROM EXISTING RECORDS BUT ACCURACY CANNOT BE GUARANTEED.
3. CARE TO BE EXERCISED DURING ANY EXCAVATION AS ALL UNDERGROUND SERVICES MAY NOT BE SHOWN.

MINIMUM ELECTRICAL CLEARANCES:–

VOLTAGE	EARTH (E)	PHASE (P)	SECTION (S)
400kV	2800	3600	5500
275kV	2100	2400	4800
132kV	1100	1400	3800
33kV	500	500	3200

SCALE

0m 10m 20m 30m 40m

Rev.	Date	Drawn	Checked	Approved	Description
4.0	27/08/13	JFM	SJ	SJ	EXISTING 275kV SUBSTATION TO BE PARTIALLY RETAINED FOR TRAINING PURPOSES - PLANT IN PROXIMETY OF NEW SECTION OF O.H.L. TO BE REMOVED.
3.0	19/06/13	ASH	JFM	SJ	MINOR ADJUSTMENTS TO INTERNAL FENCE LINES TO ACCOMMODATE AIS CVT's. ALYTH 1 & 2 LINE ENTRY MOD'S FOR ADDITION OF AIS CT's. 400kV DISCONNECTOR POSIT'N ADJUSTED TO IMPROVE FUTURE WORKING SPACE.
2.0	14/06/13	ASH	JFM	SJ	DRAWING TITLE REVISED. PROPOSED 'XL' TERMINAL TWR & GANTRIES REPOSITIONED. PLATFORM AREA REDUCED.

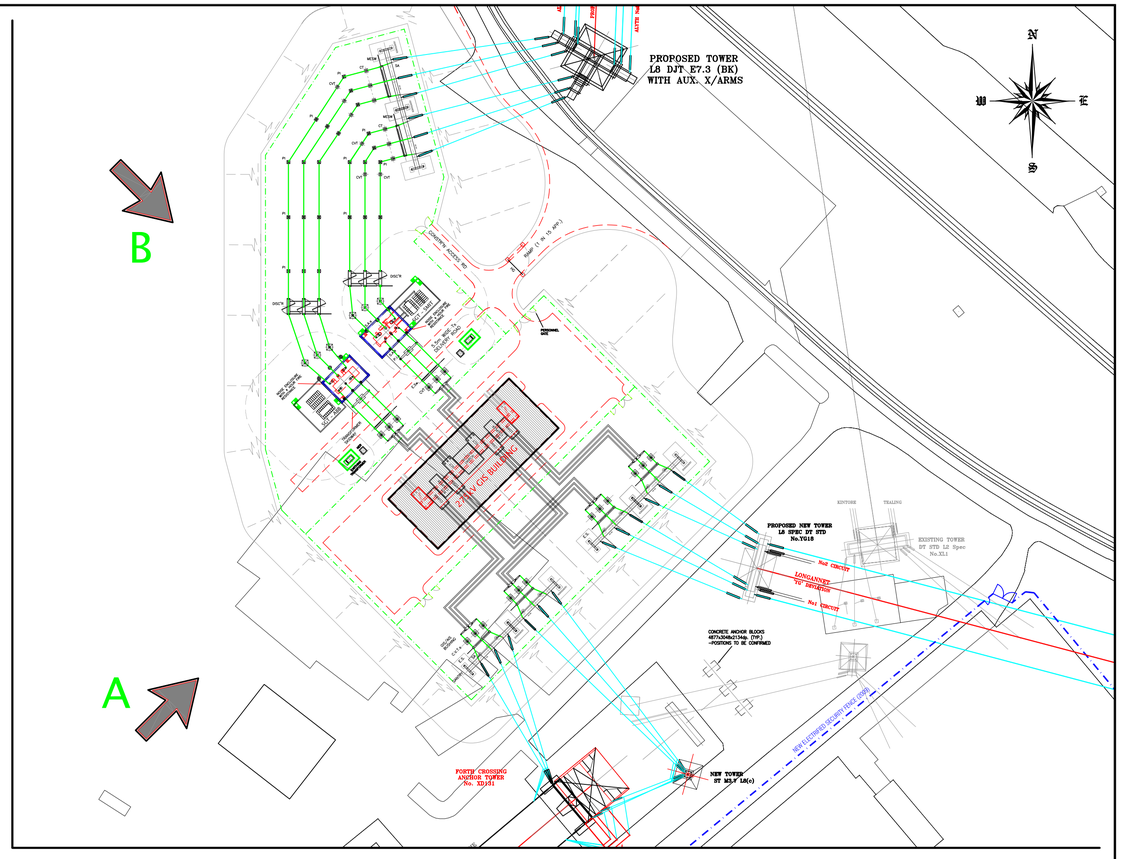
SP ENERGY NETWORKS

Project: ENSG (EAST COAST)	TRS No.
Title: KINCARDINE 400/275kV GIS SUBSTATION FEASIBILITY PROPOSAL PLANNING LAYOUT	
Location: KINCARDINE	Voltage: 400kV

Drawn	Date	Checked	Date	Approved	Date
ASH	14/06/13	JFM	27/08/13	SJ	27/08/13

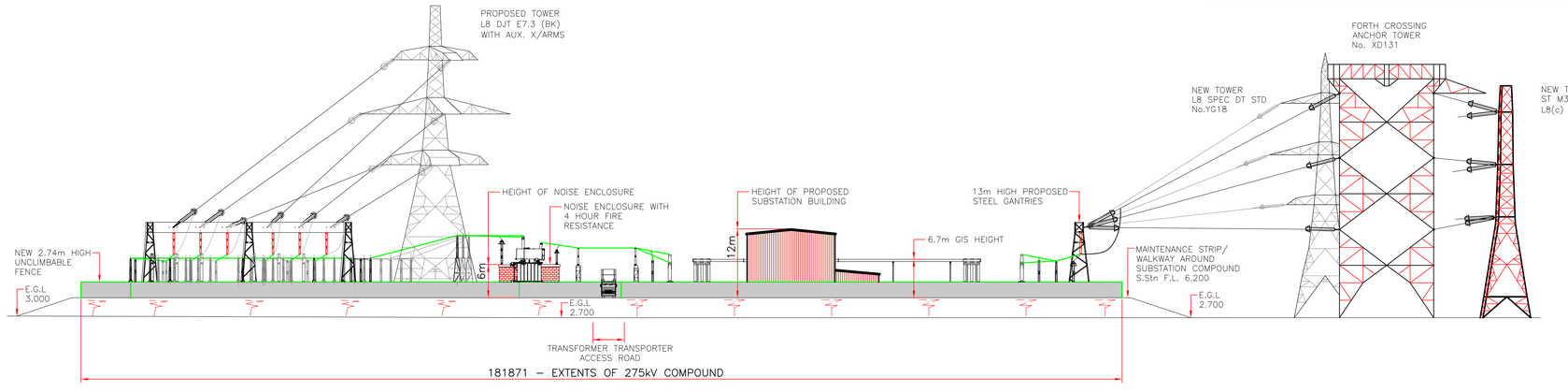
Status	Drg. No.	Rev.
FOR ISSUE	SP4105140	4.0

Scale 1:500 | Size A0

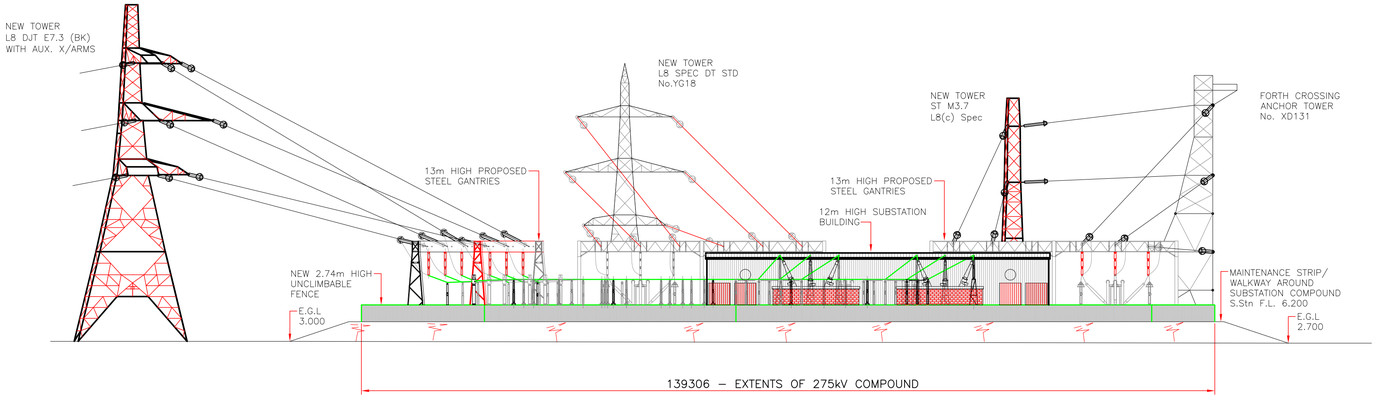


LOCATION PLAN

SCALE 1:1000



VIEW ON ARROW 'A' FROM FIRTH OF FORTH SEA WALL/ WALKWAY LOOKING TO NORTH-EAST



VIEW ON ARROW 'B' FROM CLACKMANNANSHIRE BRIDGE A876 LOOKING TO SOUTH-EAST

SCALE AT 1:500

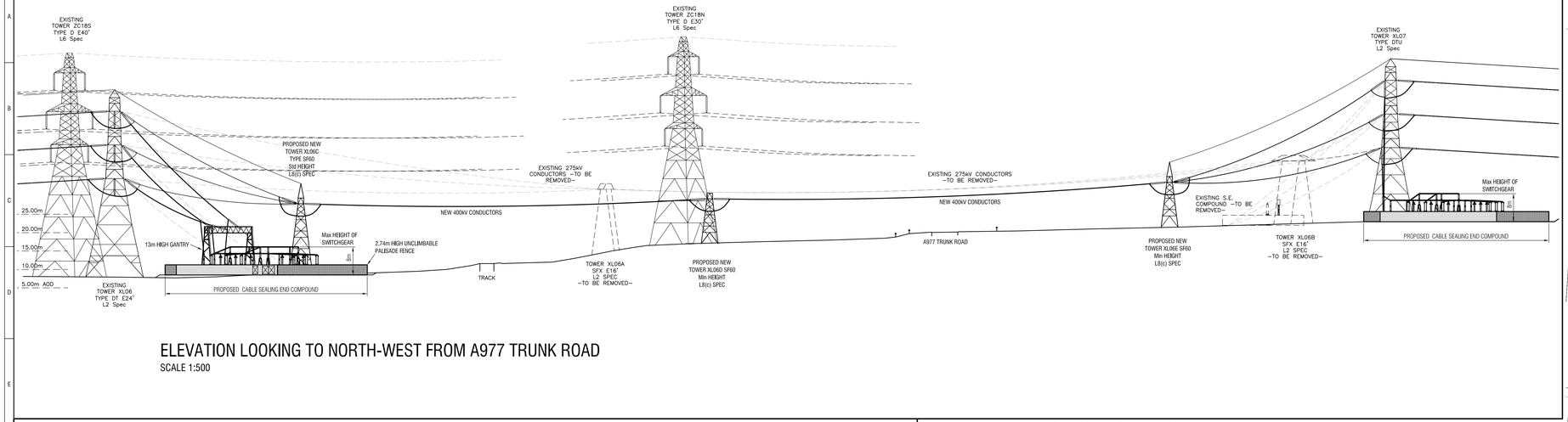
0m 5m 10m 50m

ASSOCIATED DRAWING:
SP4105140 – PLANNING LAYOUT

Rev.	Date	
3.0	21.08.13	LINE ENTRY SWITCHGEAR CLARIFIED ON BOTH VIEWS. NOISE ENCLOSURE HEIGHT WAS SHOWN AS 9m, NOW 6m. EGL ADDED.
Drawn	JFM	
Checked		
Approved		
Rev.	Date	
2.0	12.08.13	ADDITIONAL HEIGHTS ADDED
Drawn	EM	
Checked	SJ	
Approved	SJ	

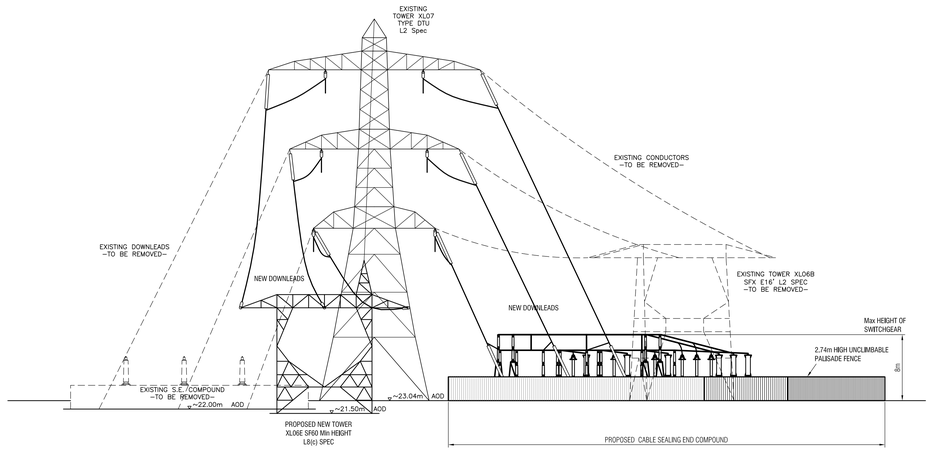
SP ENERGY NETWORKS

Project					TRS No.
ENSG (EAST COAST)					
Title					
KINCARDINE 400/275kV GIS SUBSTATION FEASIBILITY PROPOSAL PLANNING ELEVATIONS AND KEY PLAN OF WORKS					
Location				Voltage	
KINCARDINE				400kV	
Drawn	Date	Checked	Date	Approved	Date
EM	05/08/13				
Status		Drg. No.			Rev.
PRELIMINARY		**SP4106267**			**3.0**
			Scale	AS SHOWN	Size **A1**



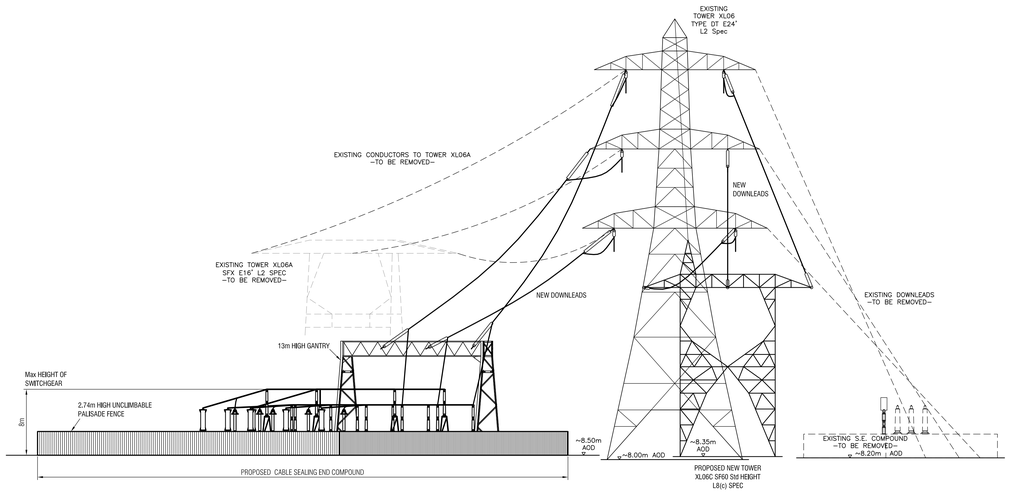
ELEVATION LOOKING TO NORTH-WEST FROM A977 TRUNK ROAD

SCALE 1:500



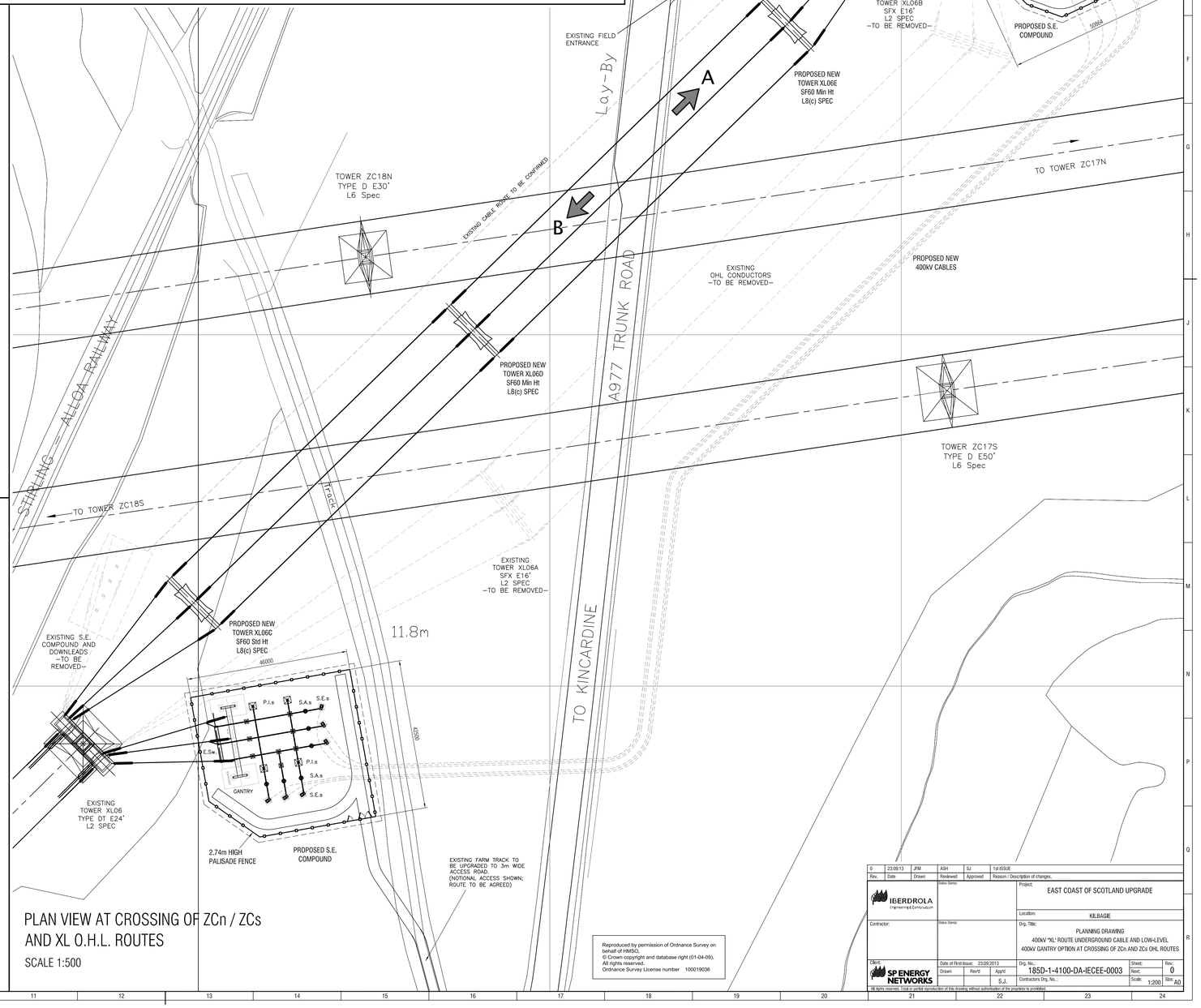
ELEVATION LOOKING TO NORTH-EAST ON ARROW 'A' FROM A977 TRUNK ROAD

SCALE 1:250



ELEVATION LOOKING TO SOUTH-WEST ON ARROW 'B' FROM A977 TRUNK ROAD

SCALE 1:250



PLAN VIEW AT CROSSING OF ZCn / ZCs AND XL O.H.L. ROUTES

SCALE 1:500

Rev.	Date	Drawn	Reviewed	Approved	Reason / Description of changes.
0	23/09/13	JHM	ASH	SJ	1st ISSUE

IBERDROLA Engineering & Construction

Project: EAST COAST OF SCOTLAND UPGRADE

Location: KILBAGIE

Drg. Title: PLANNING DRAWING
400kV "XL" ROUTE UNDERGROUND CABLE AND LOW-LEVEL 400kV GANTRY OPTION AT CROSSING OF ZCn AND ZCs OHL ROUTES

Contractor:

Client: SP ENERGY NETWORKS

Date of First Issue: 23/09/2013			
Drawn	Revtd	Apptd	
		SJ	

Drg. No.: 185D-1-4100-DA-IECEE-0003

Contractors Drg. No.:

Sheet: Next:

Rev. 0

Scale: 1:200 Size: A0