Appendix C FINAline Crossing Specification

1. Fosse Green Energy circuit Voltage
   a. The Fosse Green Energy circuit is to be rated at 400 kV_{RMS} (Line – Line).

2. Fosse Green Energy circuit Current
   a. The Fosse Green Energy circuit is to be rated to 240 MW or 347 A (Line – Line).

3. Modelled fault parameters
   a. Ground return current associated with a phase – earth fault on 4ZM OHL is assumed to be 11.56 kA.
   b. The ground return current was injected into the earthing system of NGET tower designation 4ZM525.
   c. Touch Potentials for the safety Voltage assessment on FINAline during a fault scenario assumes the fault on the OHL is cleared within 0.2 s.

4. Fosse Green Energy circuit cable size and specification
   a. The grid connection circuit is assumed to comprise of three Aluminium 1200 mm^2 (conductor cross sectional area) 400 kV cables.
   b. The grid connection circuit cables are to be to IEC 62067.
   c. Final cable characteristics to align with the characteristics below to ensure that the calculated current density values, presented in this document, are as accurate as possible. This assessment is to be reviewed against the final cable selection to ensure the limitations in this document are satisfied.

	Conductor Properties				Insulation Properties			
Component Name	Inner Radius (m)	Outer Radius (m)	Relative Resistivity	Relative Permeability	Outer Radius (m)	Resistivity (Ωm)	Relative Permittivity	Relative Permeability
Core	0	0.019544	1.273	1	0.052044	1E+12	2.3	1
Sheath	0.052044	0.054944	2.09819	1	0.060944	1E+10	7	1

5. Fosse Green Energy circuit phase arrangement
   a. The Fosse Green Energy cables are to be laid in trefoil arrangement up to 15m from the nearest jointing bay either side of the FINAline crossing.
   b. The Fosse Green Energy cables are to be laid flat arrangement at joint bays.

6. Clearance between FINALINE and Fosse Green Energy circuit joint bays
   a. Joint bays associated with the Fosse Green Energy circuit are not to be situated within land 100 metres either side of FINAline.

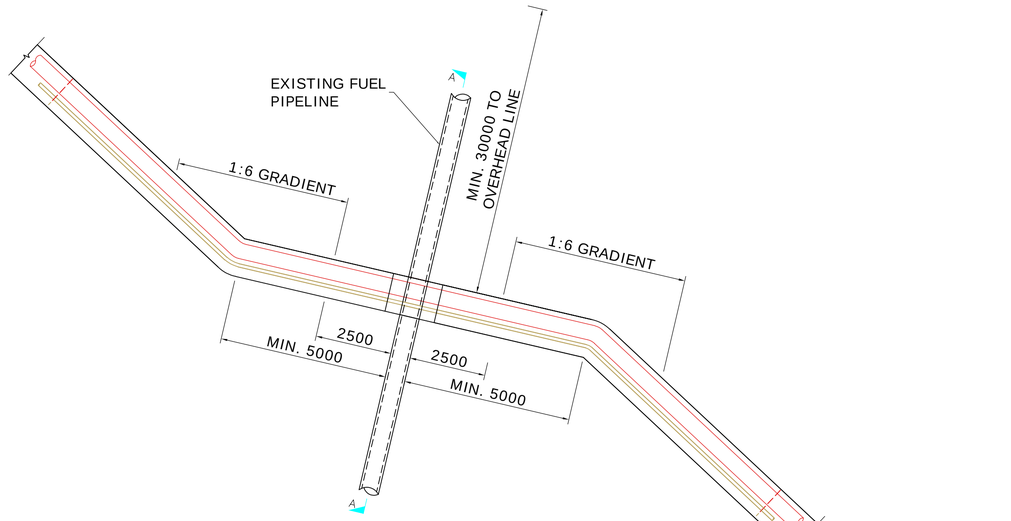
7. Fosse Green Energy circuit joint bay earthing resistance
   a. Joint bays associated with the Fosse Green Energy circuit are have a maximum resistance of 10 Ω.

8. FINAline and Fosse Green Energy circuit crossing angle
    a. The Fosse Green Energy circuit is to cross FINAline at 90 °. This 90 ° angle is to be maintained for a minimum of 5 m either side of the crossing.

9. FINALINE and Fosse Green Energy circuit minimum separation
    a. The Fosse Green Energy circuit to FINAline separation is to be a minimum of 600 mm.

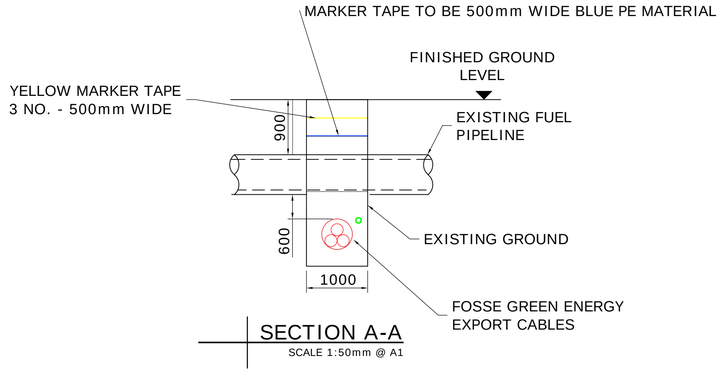
10. Fosse Green Energy circuit
    a. The Fosse Green Energy circuit assumed to be laid in ducts. Concrete encasement is acceptable.

11. Separation between Fosse Green Energy circuit and existing NGET OHL
    a. The minimum separation between the Fosse Green Energy circuit and the outermost conductor of the existing NGET OHL is to be 30 m.



PLAN VIEW - PIPELINE UNDERCROSSING

SCALE 1:100mm @ A1



SECTION A-A

SCALE 1:50mm @ A1

NOT FOR CONSTRUCTION

FOR INFORMATION ONLY

400kV Cable Characteristics								
	Conductor Properties				Insulation Properties			
Component Name	Inner Radius (m)	Outer Radius (m)	Relative Resistivity	Relative Permeability	Outer Radius (m)	Resistivity (Ωm)	Relative Permittivity	Relative Permeability
Core	0	0.0195	1.2730	1	0.0520	1.0000E+12	2.3000	1
Sheath	0.0520	0.0549	2.0982	1	0.0609	1.0000E+10	7	1

Fosse Green Energy

PROJECT

Fosse Green Energy

CLIENT

Fosse Green Energy Ltd

CONSULTANT

AECOM
1 TANFIELD
EDINBURGH, EH3 5DA
+44 (0) 131 301 8600 TEL 1699 FAX
www.AECOM.com

LEGEND

- PE CABLE DUCT
- HDPE COMMUNICATION DUCT
- RED MARKER STRIP OR STEEL PLATES
- YELLOW MARKER WARNING TAPE

A = XLPE APPROVED DUCT, SDR=11, DIAMETER TBC
B = XLPE APPROVED DUCT, SDR=11, DIAMETER TBC

NOTES

1. DRAWING IS FOR INDICATIVE PURPOSE ONLY.
2. DO NOT SCALE FROM THIS DRAWING USE ONLY PRINTED DIMENSIONS.
3. ALL DIMENSIONS ARE IN MILLIMETERS, ALL CHAINAGES, LEVELS AND CO-ORDINATES ARE IN METERS UNLESS DEFINED OTHERWISE.
4. NO EXCAVATION SHALL COMMENCE UNTIL THE CONTRACTOR HAS CONSULTED UP TO DATE SERVICES DRAWINGS AND CARRIED OUT AN ELECTROMAGNETIC LOCATOR (EML) SCAN.
5. HAND DIG ONLY WITHIN 500mm OF EXISTING SERVICES.
6. NO JOINT BAYS WILL BE LOCATED WITHIN 100M OF THE PIPELINE.
7. CROSSING WILL BE PERFORMED WITH A CROSSING ANGLE OF 90 DEGREES. THIS ALIGNMENT WILL BE MAINTAINED FOR 5M EITHER SIDE OF THE PIPELINE.
8. CROSSING FINALINE THE CABLES WILL PASS UNDER THE PIPELINE WITH A MINIMUM SEPARATION OF 600MM.

0 1250 2500 mm

1:50

LEGISLATION

Regulation 5(2)(a) Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009.

ISSUE PURPOSE

DCO Submission

PROJECT NUMBER

60700987

FIGURE TITLE

400kV PIPELINE CROSSING

FIGURE NUMBER REV.

Figure 1-1 01

DOCUMENT REFERENCE

EN010154/APP/X.X