02/1322

National Wind Power

Proposed Wind Farm Ffynnon Oer, Neath, Port Talbot

Environmental Statement

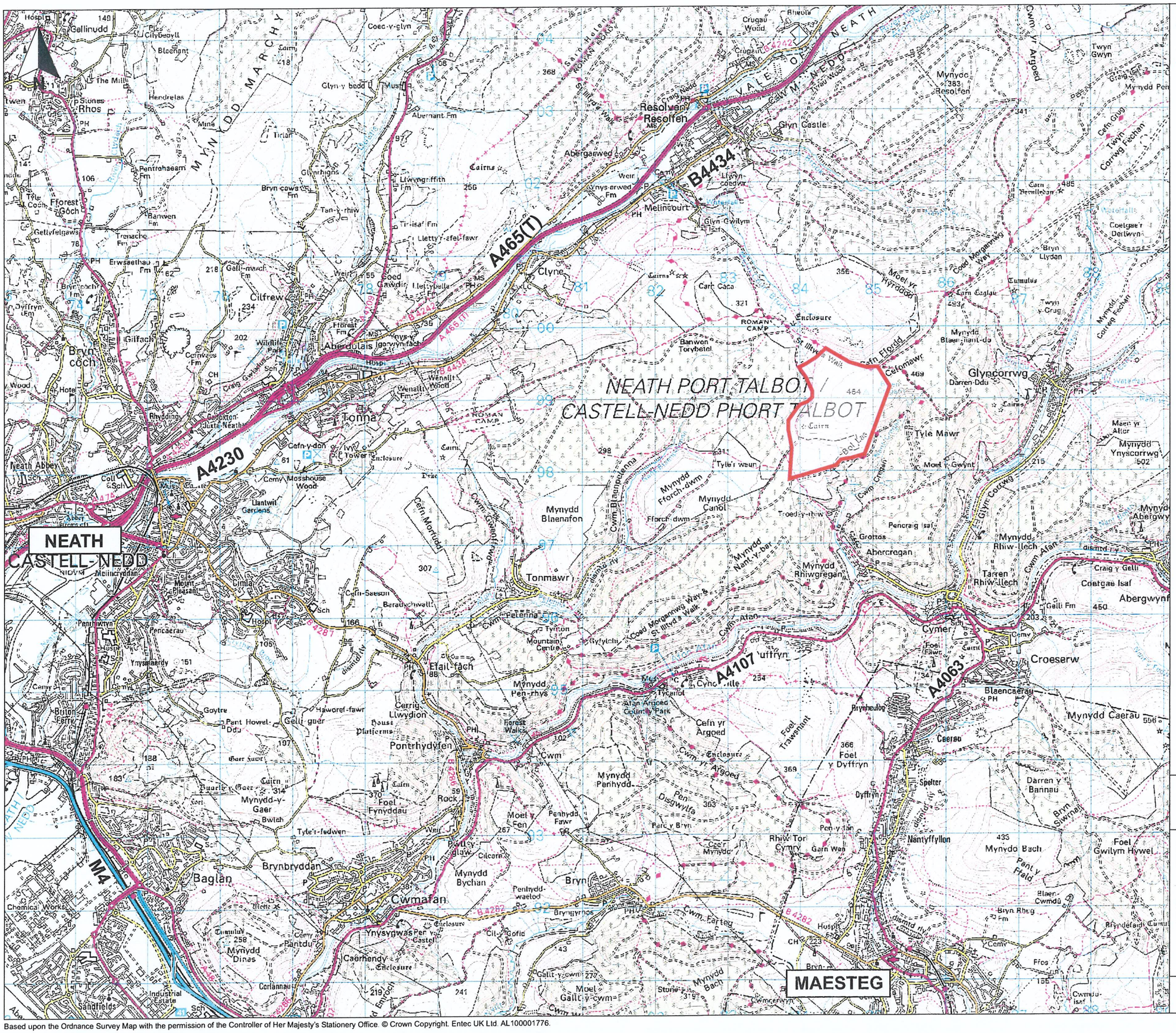
Volume 2 - Figures

25 October 2002

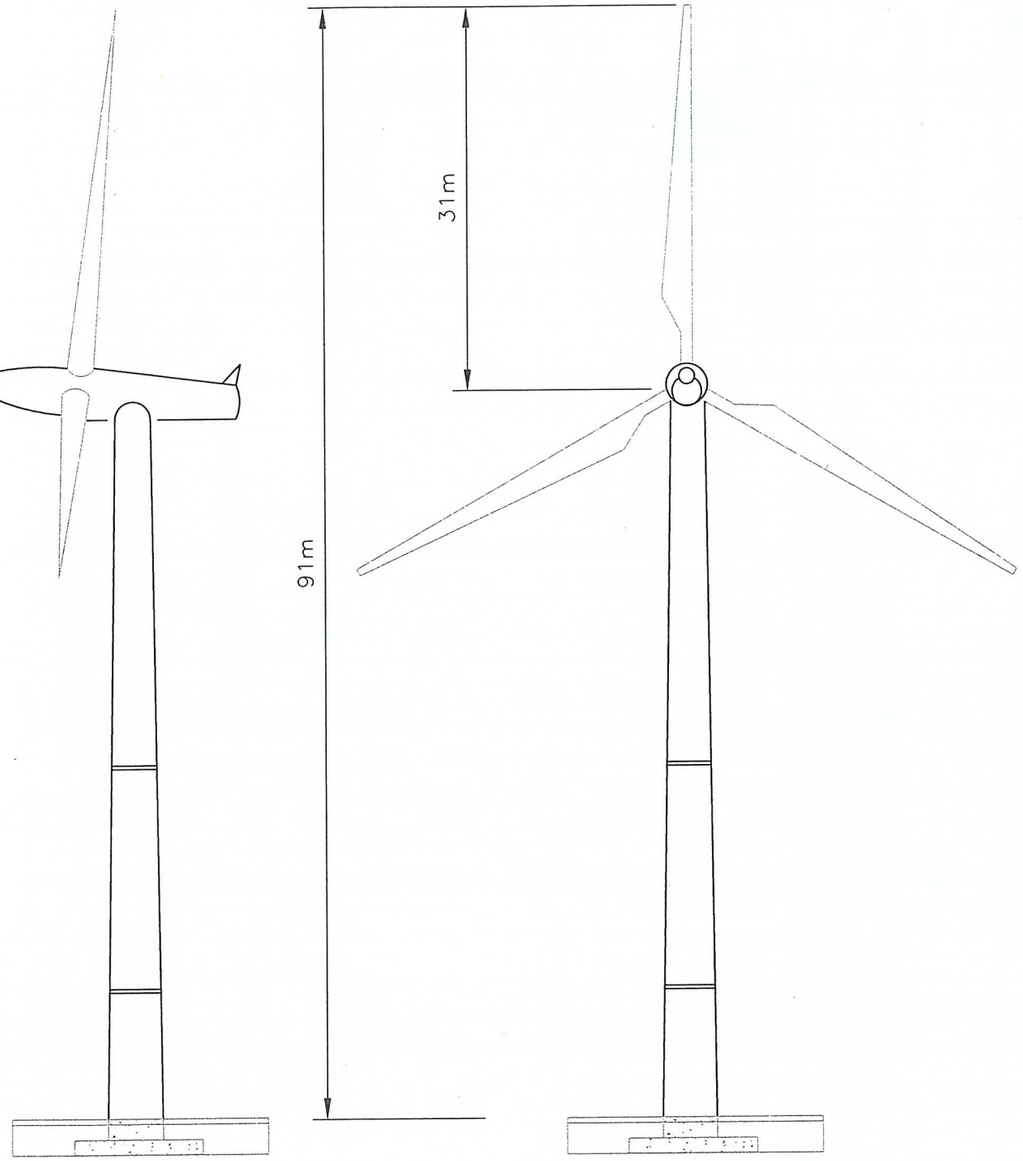
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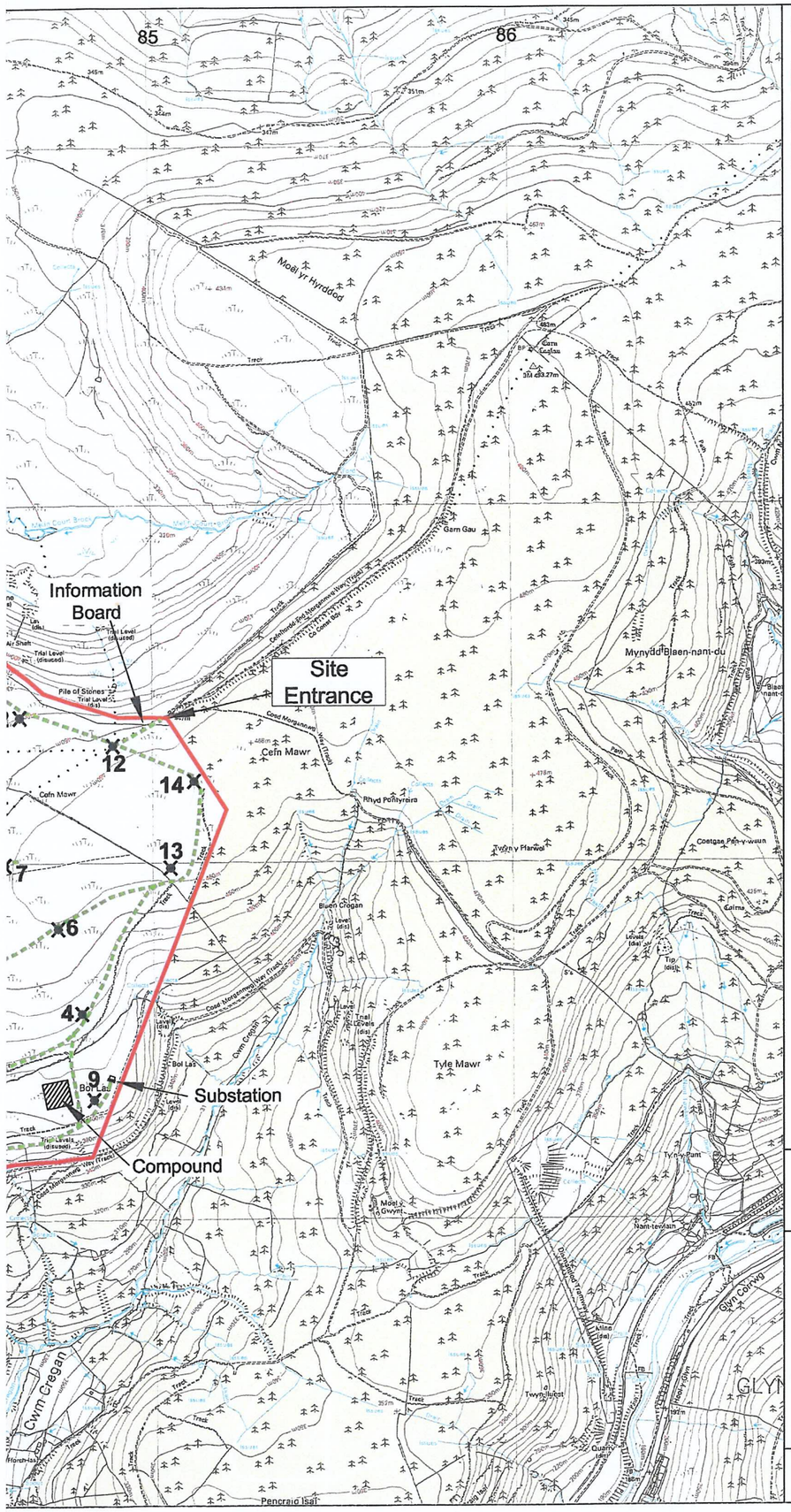
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Environmental Assessment

Figure 2.1
Structure of a Wind Turbine

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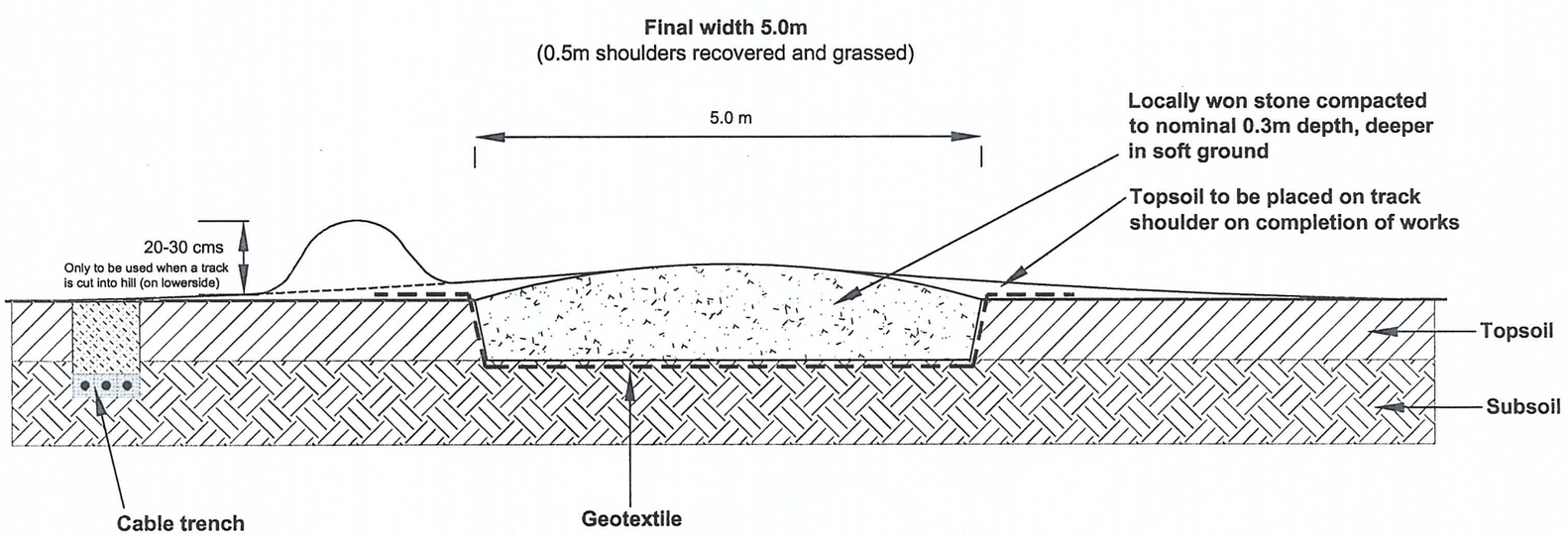
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Environmental Assessment

Figure 2.3
Proposed Turbine Locations and Access Tracks

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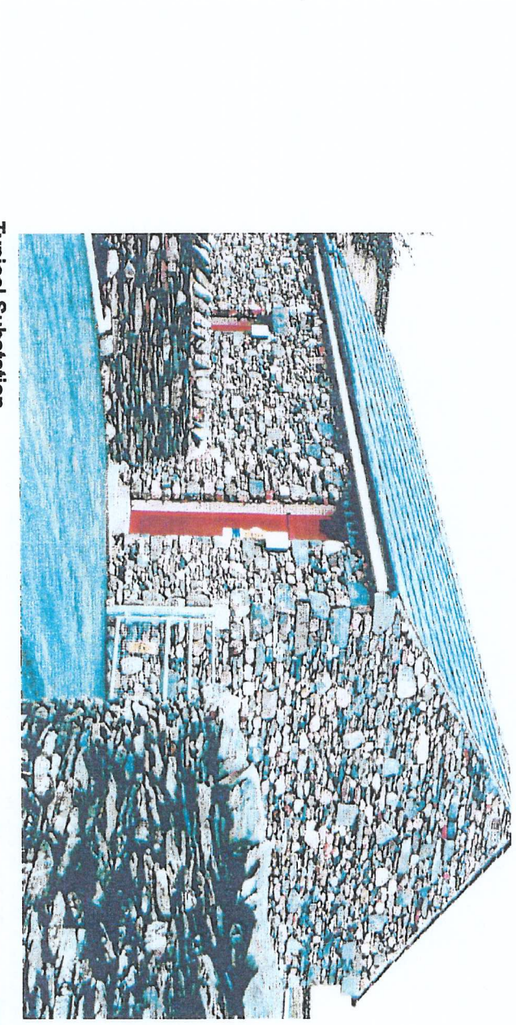
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Figure 2.4
Proposed Track Formation

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Typical Substation

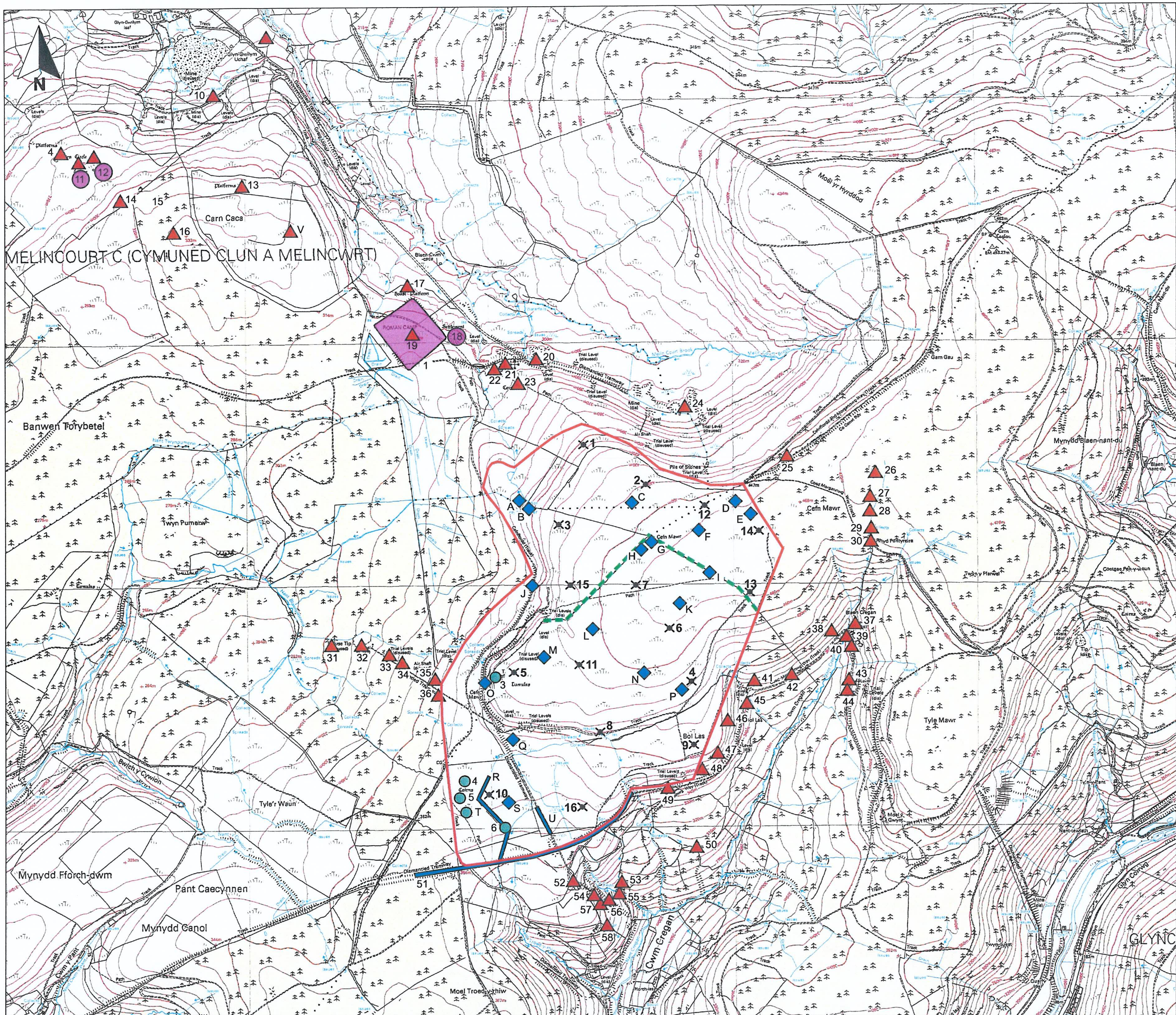
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Figure 2.6
Design of a Substation

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Key

- Application area
- ✕4 Location of wind turbines
- ▲24 Recorded features of Cultural Heritage interest outside application area
- ●5 Recorded features of Cultural Heritage interest inside application area
- ◆S Features of Cultural Heritage interest recorded during this assessment
- (12) Scheduled Ancient Monument
- Dry stone wall

0 m — 800 m

Scale 1:15,000 @ A3

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Figure 8.1
Features of Cultural Heritage Interest Identified within the Application Area and 500m Study

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07568-S12a.cdr drewc

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Key

- Application area
- 13 - 16 Turbines visible
- 9 - 12 Turbines visible
- 5 - 8 Turbines visible
- 1 - 4 Turbines visible

0 km — 8 km

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Figure 9.1
ZVI to Blade Tip

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N

Key

- Application area
- 13 - 16 Turbines visible
- 9 - 12 Turbines visible
- 5 - 8 Turbines visible
- 1 - 4 Turbines visible

0 km 8 km

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Ffynnon Oer Windfarm
Environmental Assessment

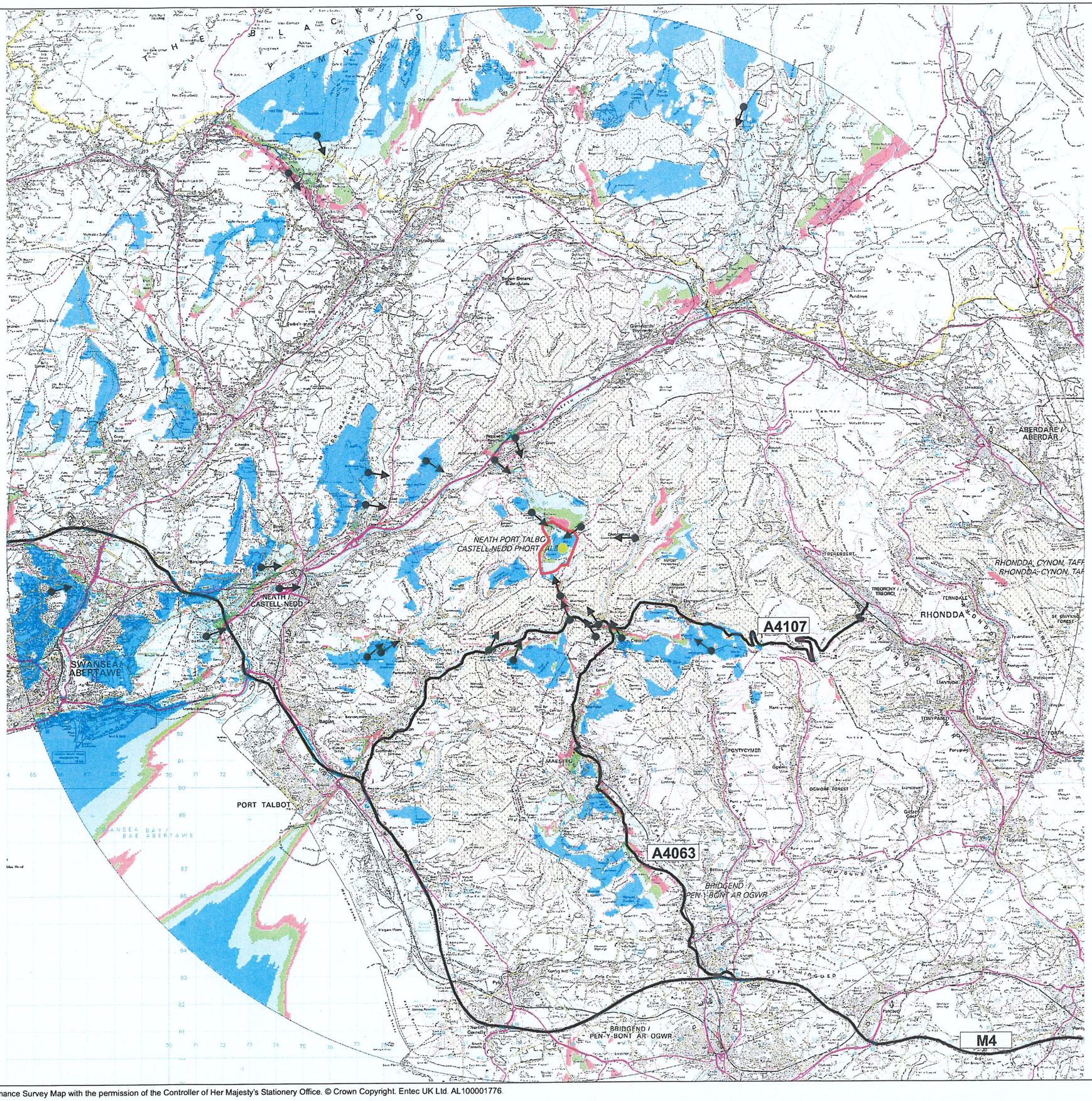
Figure 9.1a
ZVI to Blade Tip - no Forestry

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N



Key

- Application area
- 13 - 16 Turbines visible
- 9 - 12 Turbines visible
- 5 - 8 Turbines visible
- 1 - 4 Turbines visible
- Receptor
- Route

0 km — 8 km

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Figure 9.2
ZVI and Associated Receptors

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N

Key

- Application area
- 36 - 47 Turbines visible
- 24 - 35 Turbines visible
- 12 - 23 Turbines visible
- 1 - 11 Turbines visible
- 1 Ffynnon Oer
- 2 Proposed Morgan/Lluest Wen Windfarms
- 3 Taff Ely

0 km 8 km

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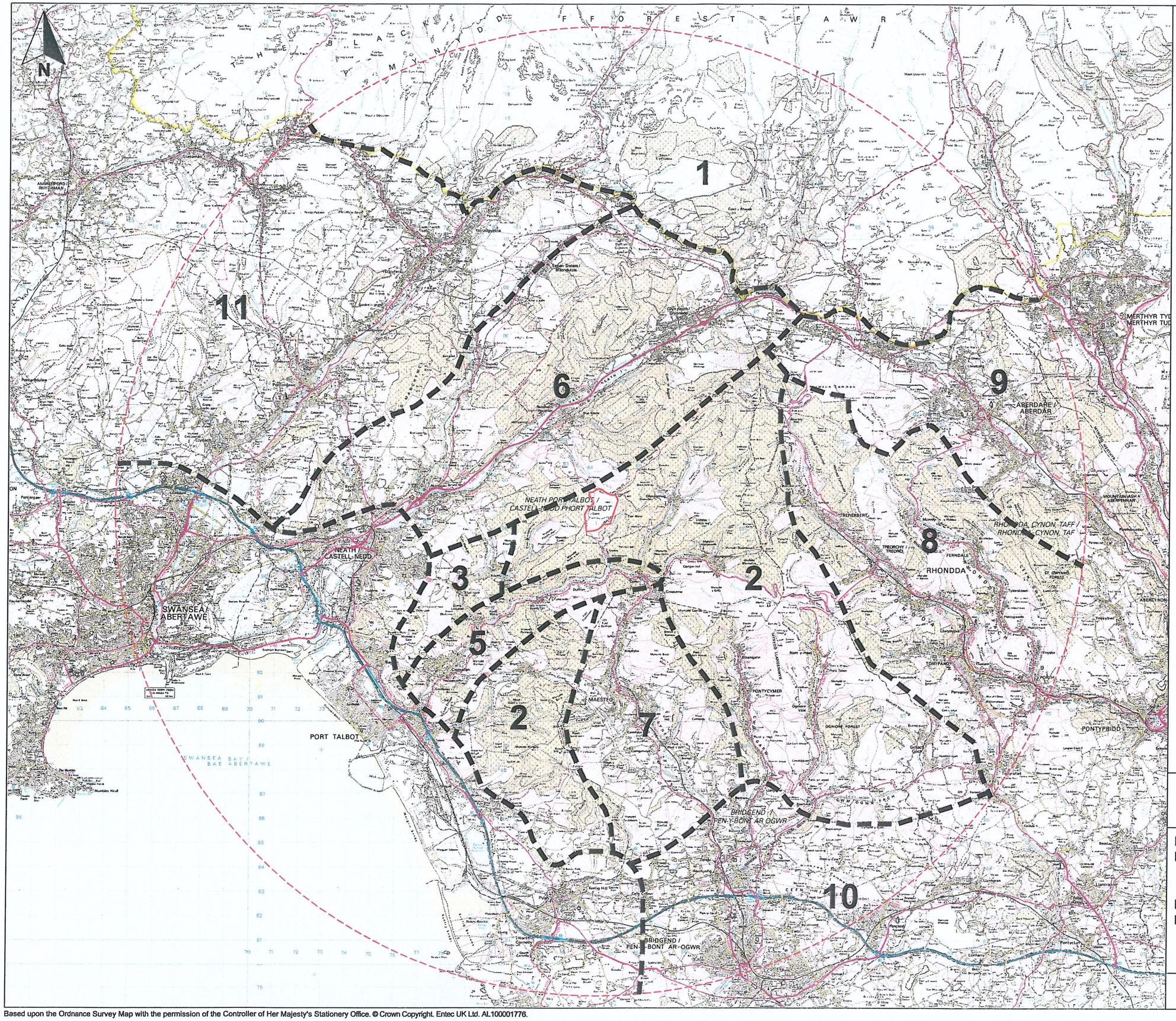
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Figure 9.3
Cumulative ZVI

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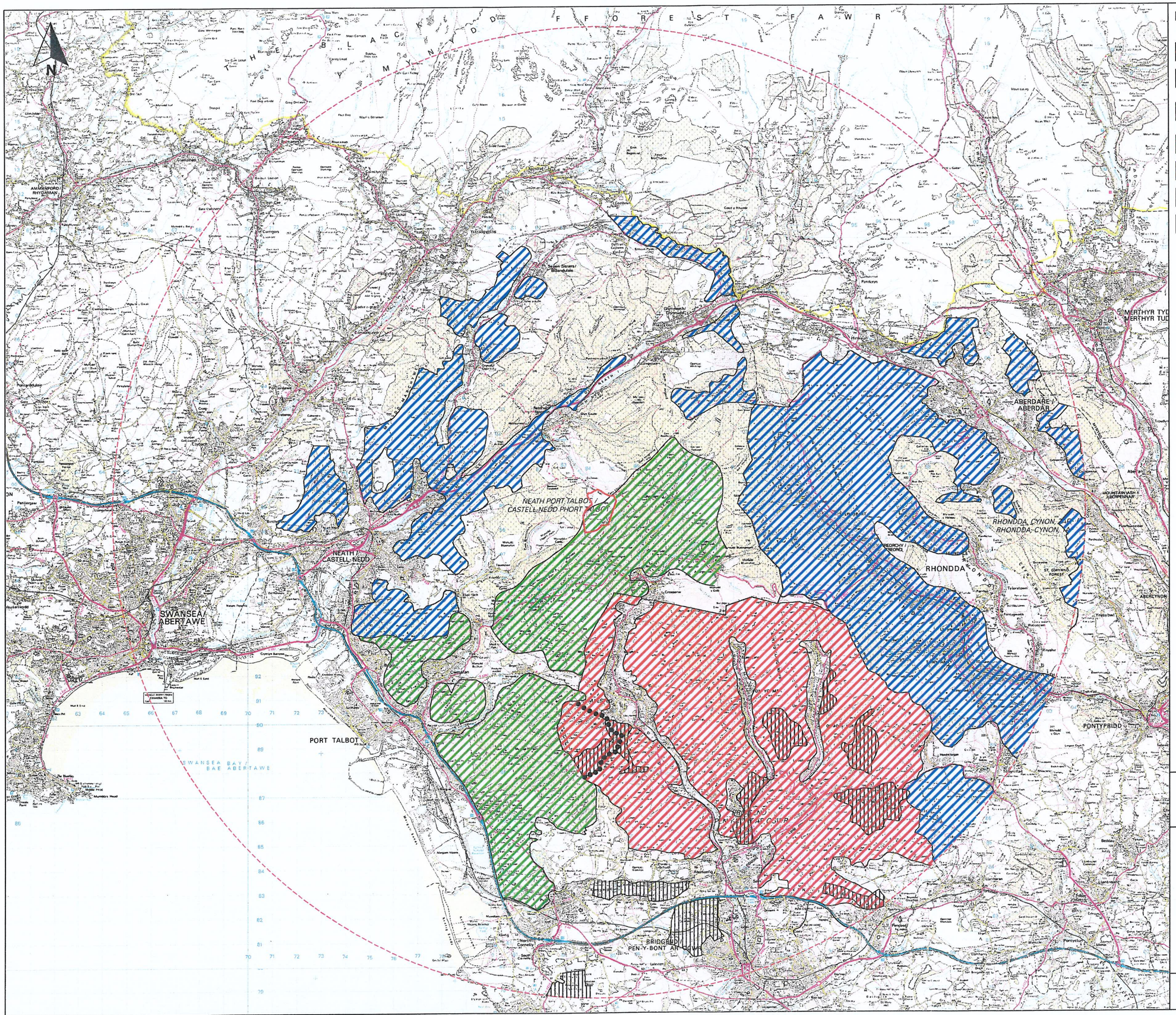
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Figure 9.4
Landscape Character Areas

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Key

- Application area
- 20 km Study area
- Landscape protection area (unadopted)
- Strategic coalfield plateau
- Special landscape area
- Landscape conservation area
- Historic landscape

0 km 8 km

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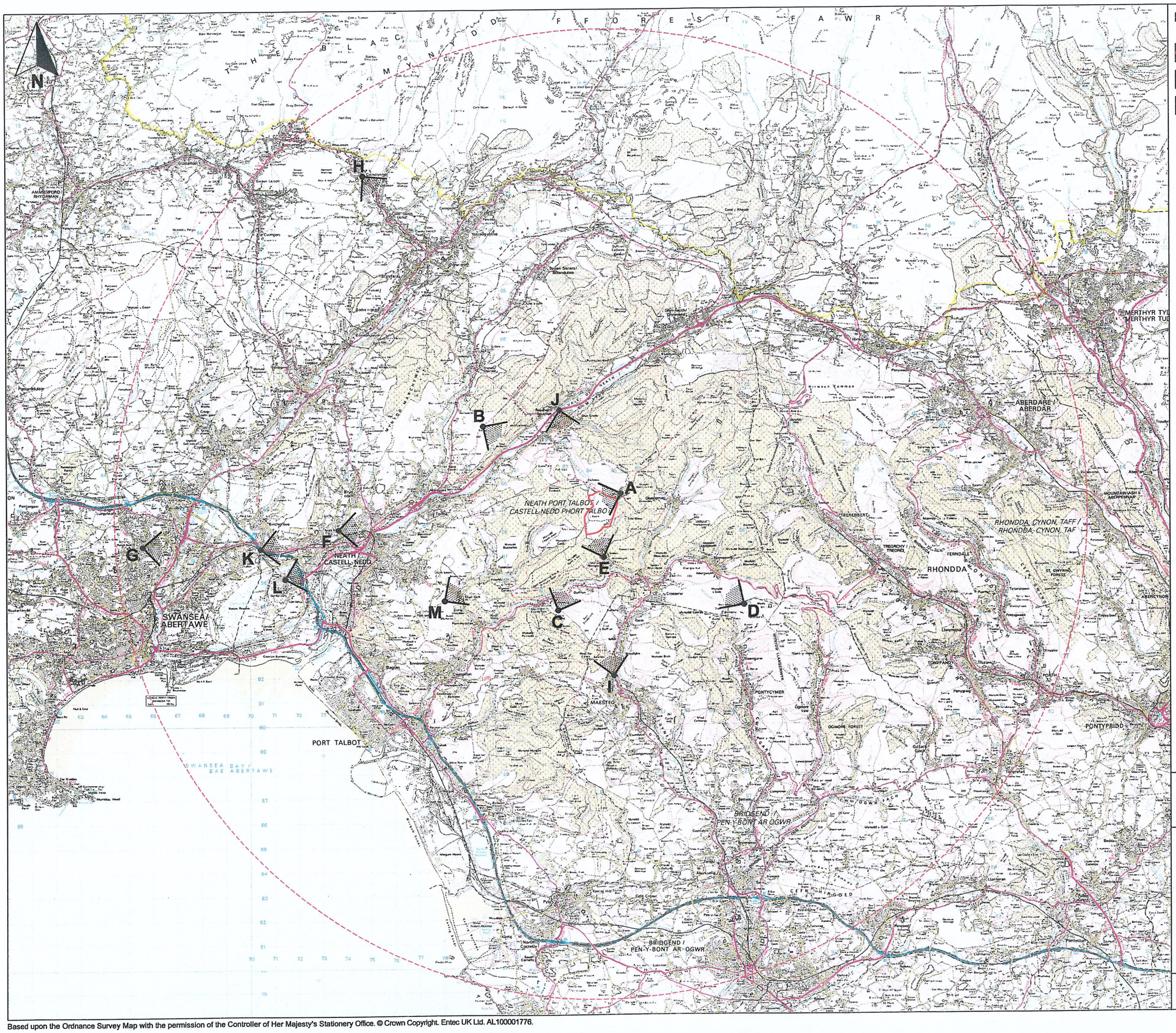
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Figure 9.5
Landscape Planning Designations

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Figure 9.6
Wireframe Location Plan

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Wireframe looking south-west from Coed Morgannwg Way

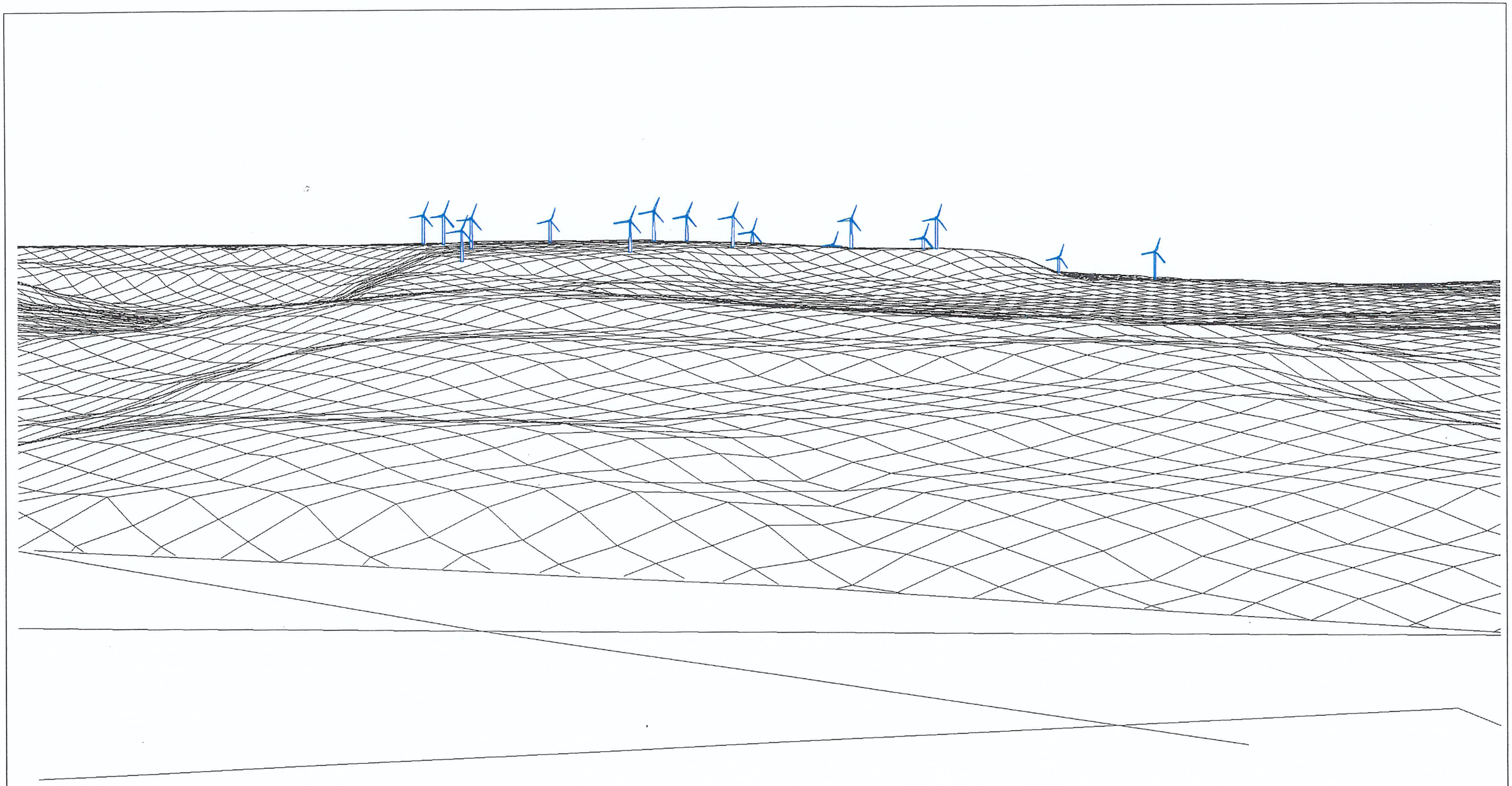
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Figure 9.6a
Wireframe A

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Wireframe looking south-east from Sarn Helen (approximately 3km north-east of Tonna)

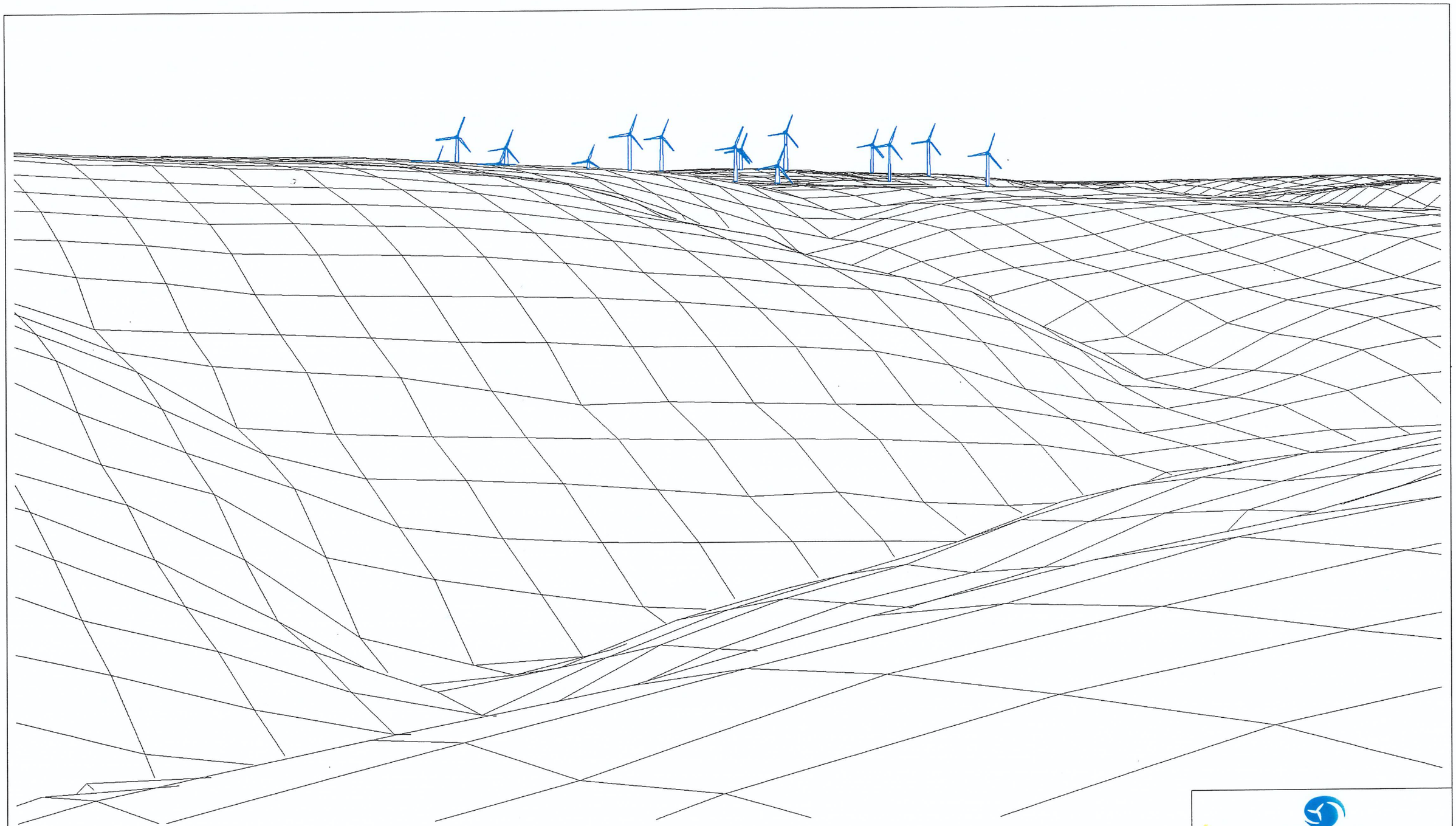
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Figure 9.6b
Wireframe B

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Wireframe looking north north-east from the junction of two rights of way on Foel Trawsnant

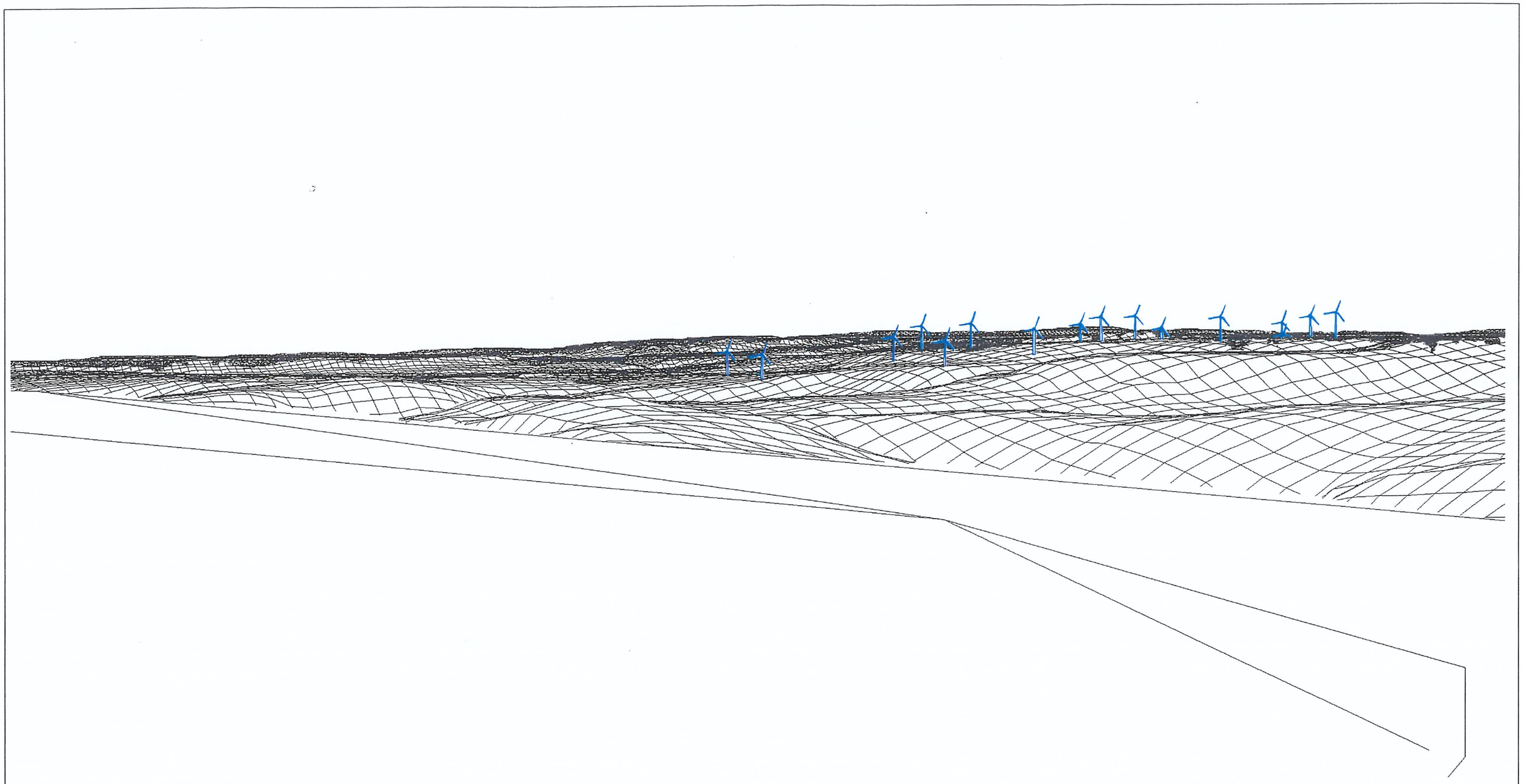
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Figure 9.6c
Wireframe C

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Wireframe looking north-west from public footpath on Wefra

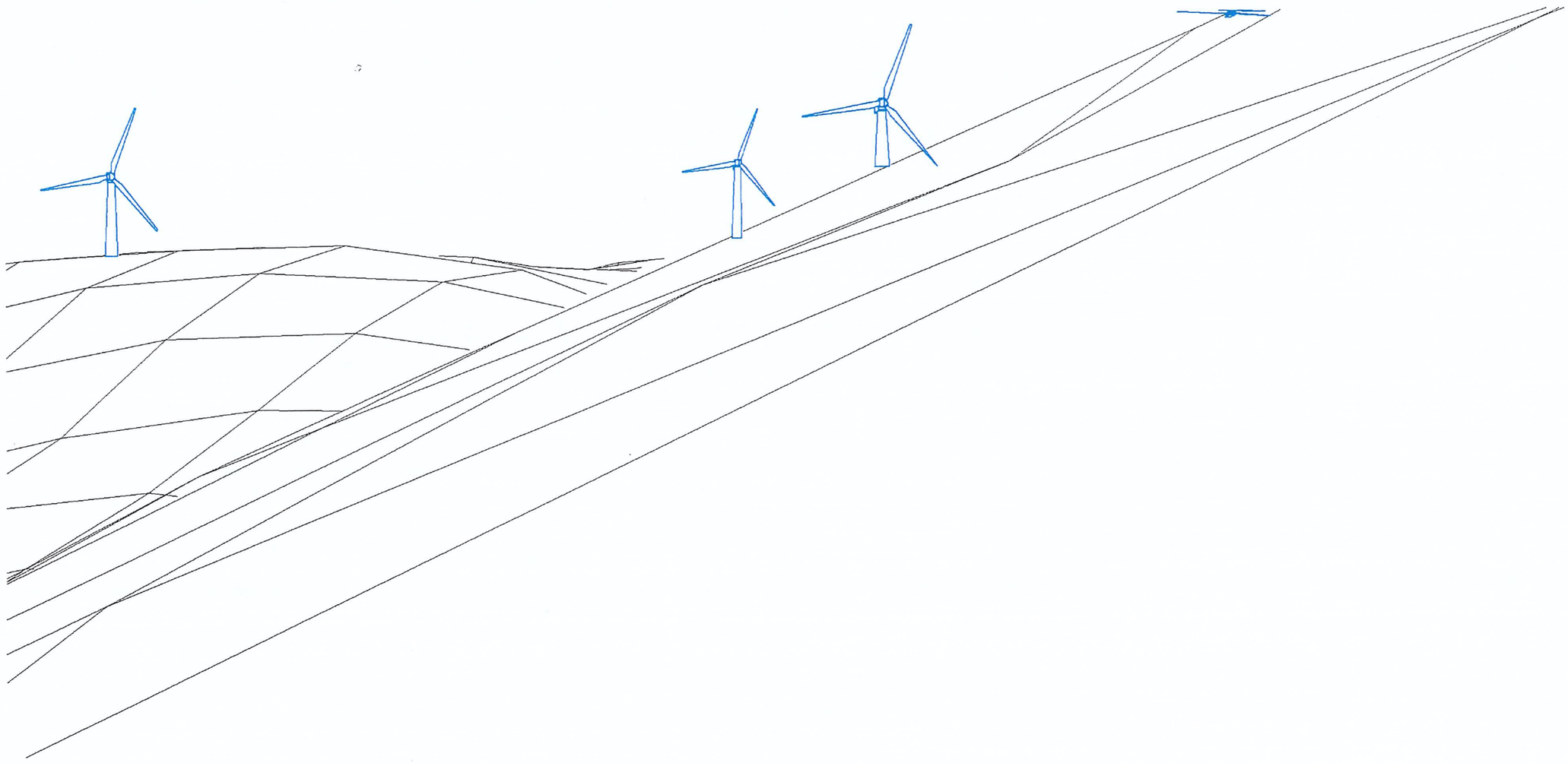
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Figure 9.6d
Wireframe D

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Wireframe view looking north from Abercregan

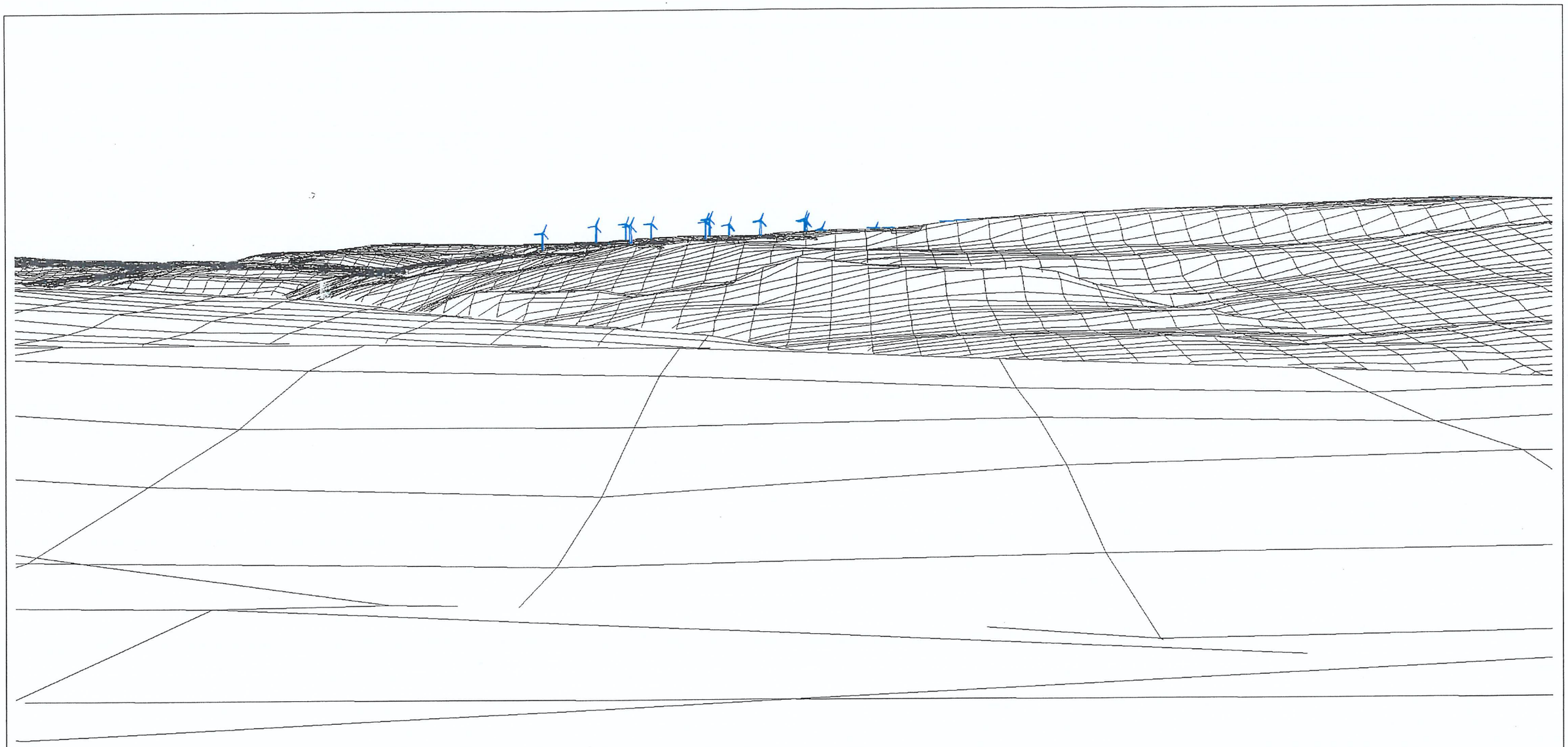
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Figure 9.6e
Wireframe E

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Wireframe view from northern edge of Neath looking east

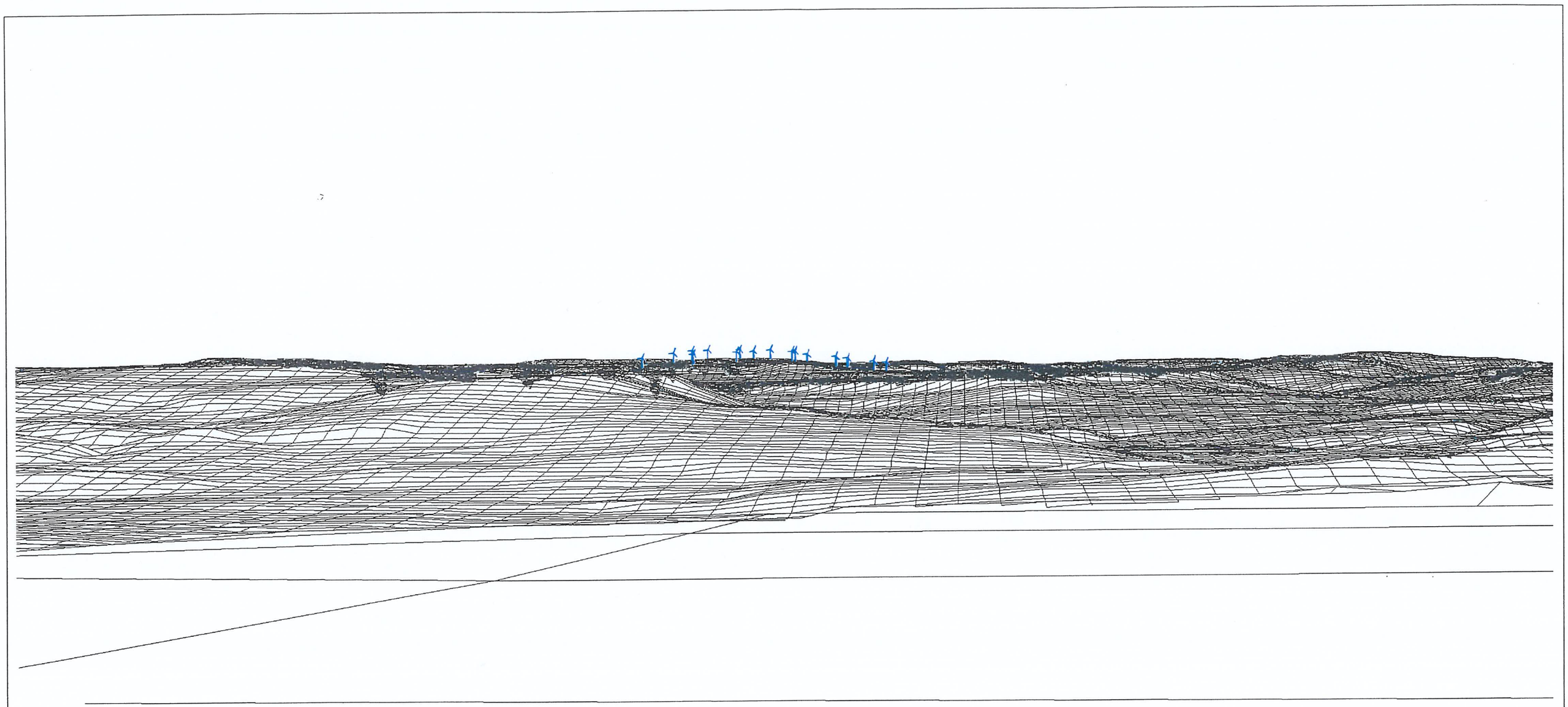
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Figure 9.6f
Wireframe F

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Wireframe view looking east from the northern quarter of Swansea

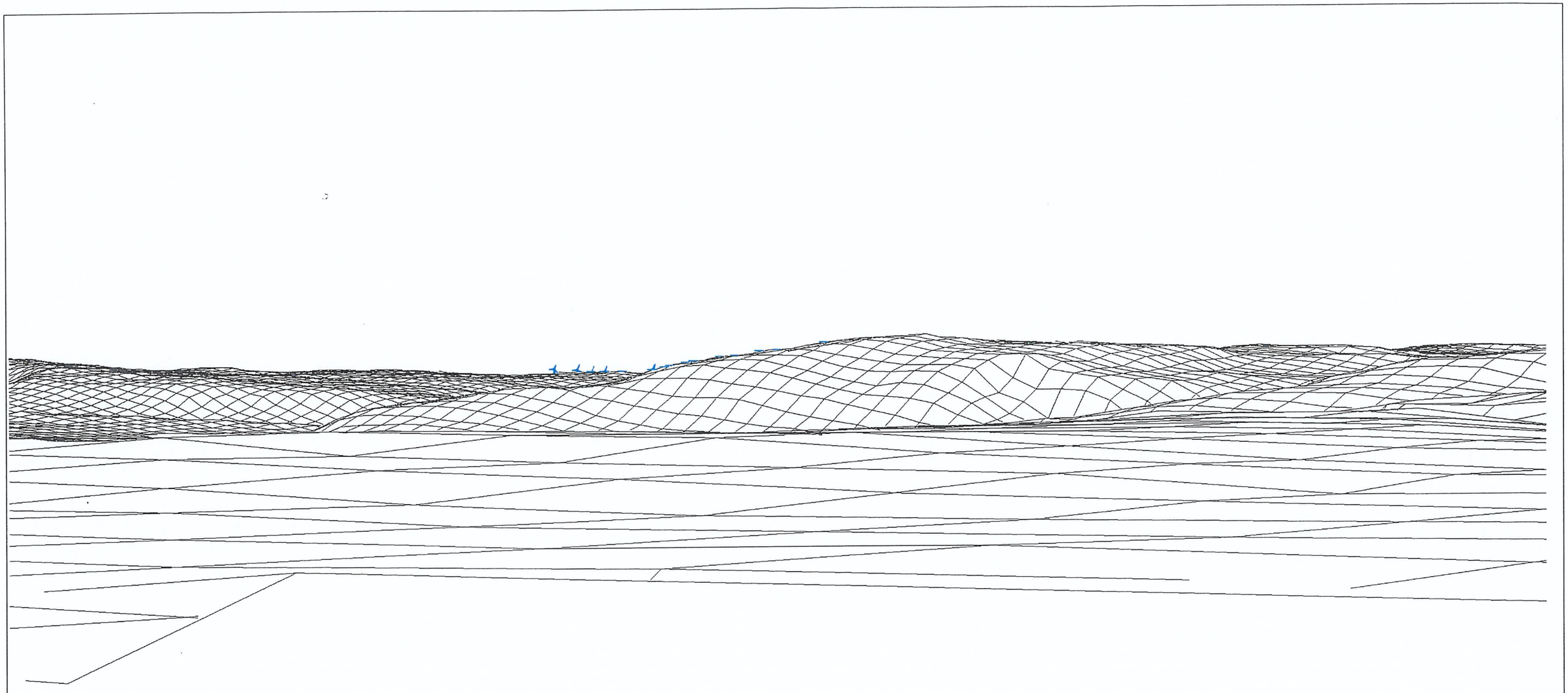
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Figure 9.6g
Wireframe G

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Wireframe view south-east from Cwmllynfell

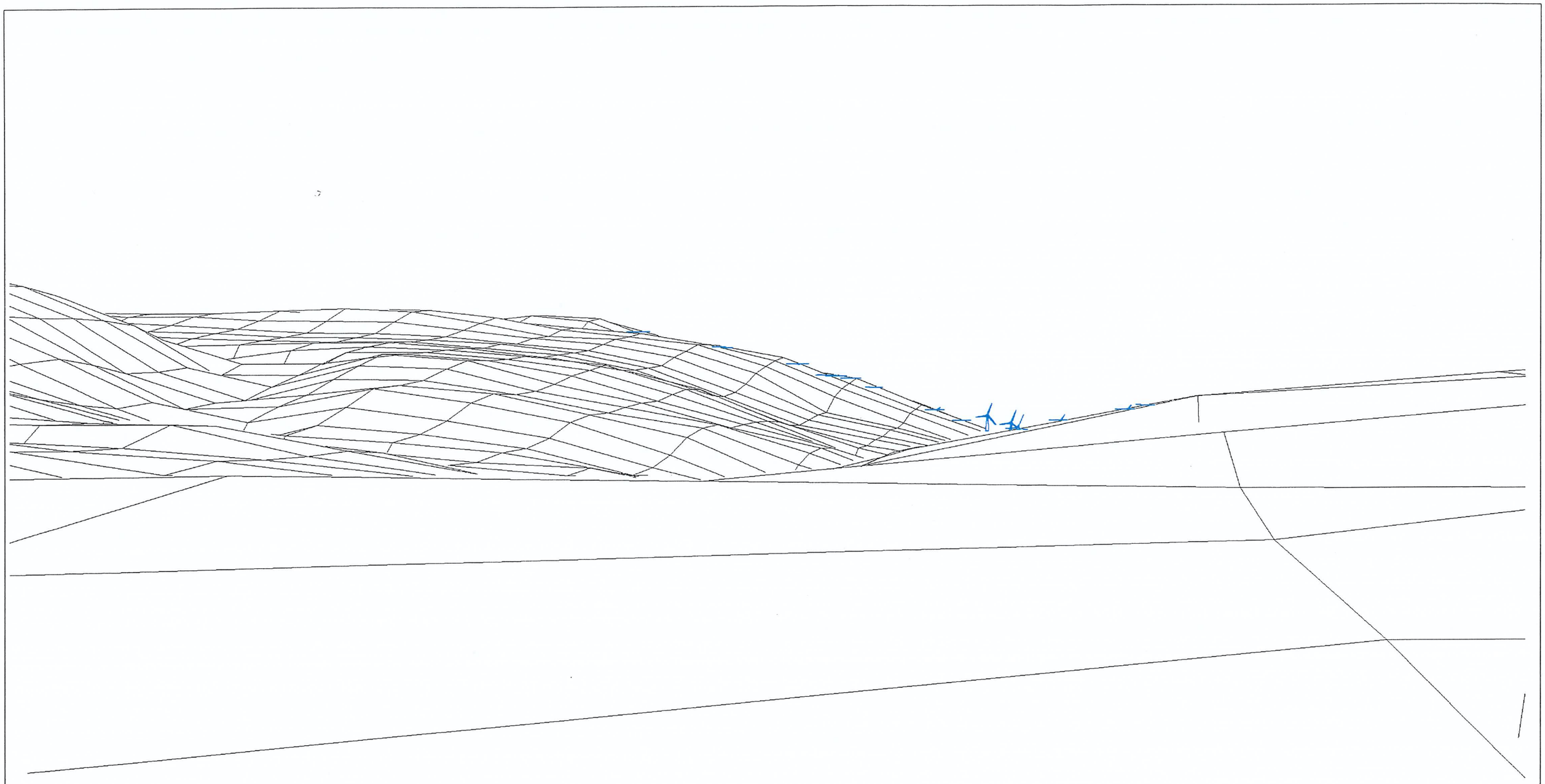
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Figure 9.6h
Wireframe H

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Wireframe view from A4063 running through Maesteg looking north

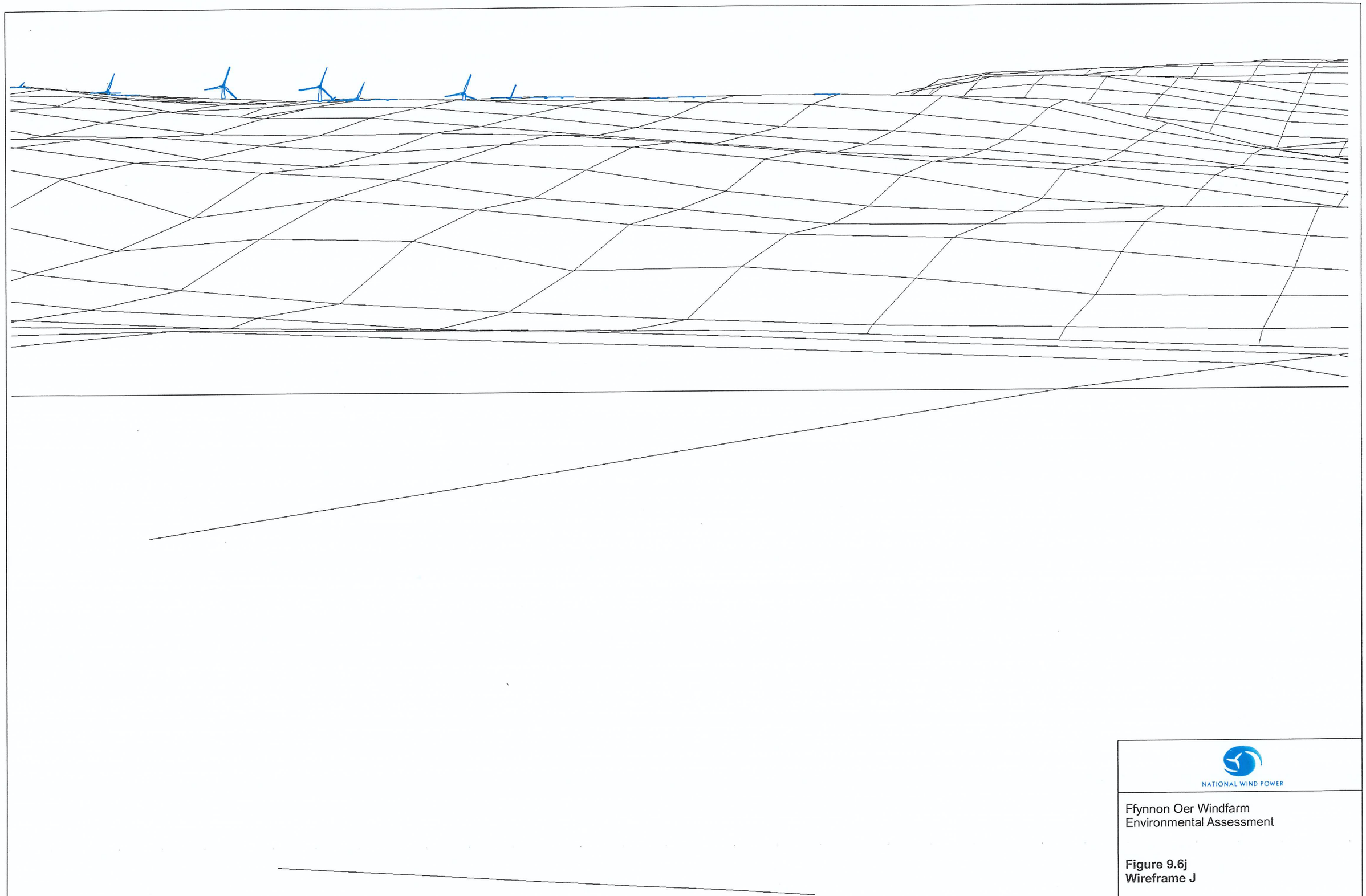
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Figure 9.6i
Wireframe I

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Wireframe view from A 465(T) near Resolvyn looking south south-east

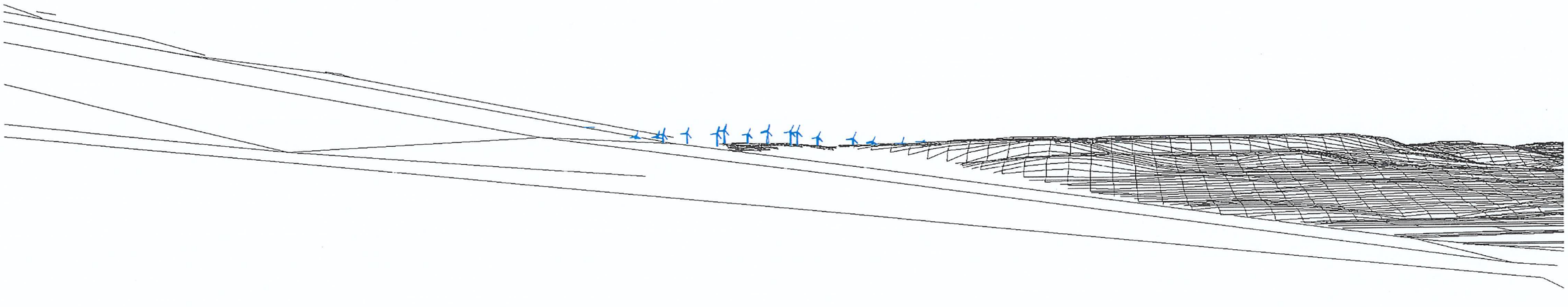
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Figure 9.6j
Wireframe J

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Wireframe view looking east from M4 near Junction 44

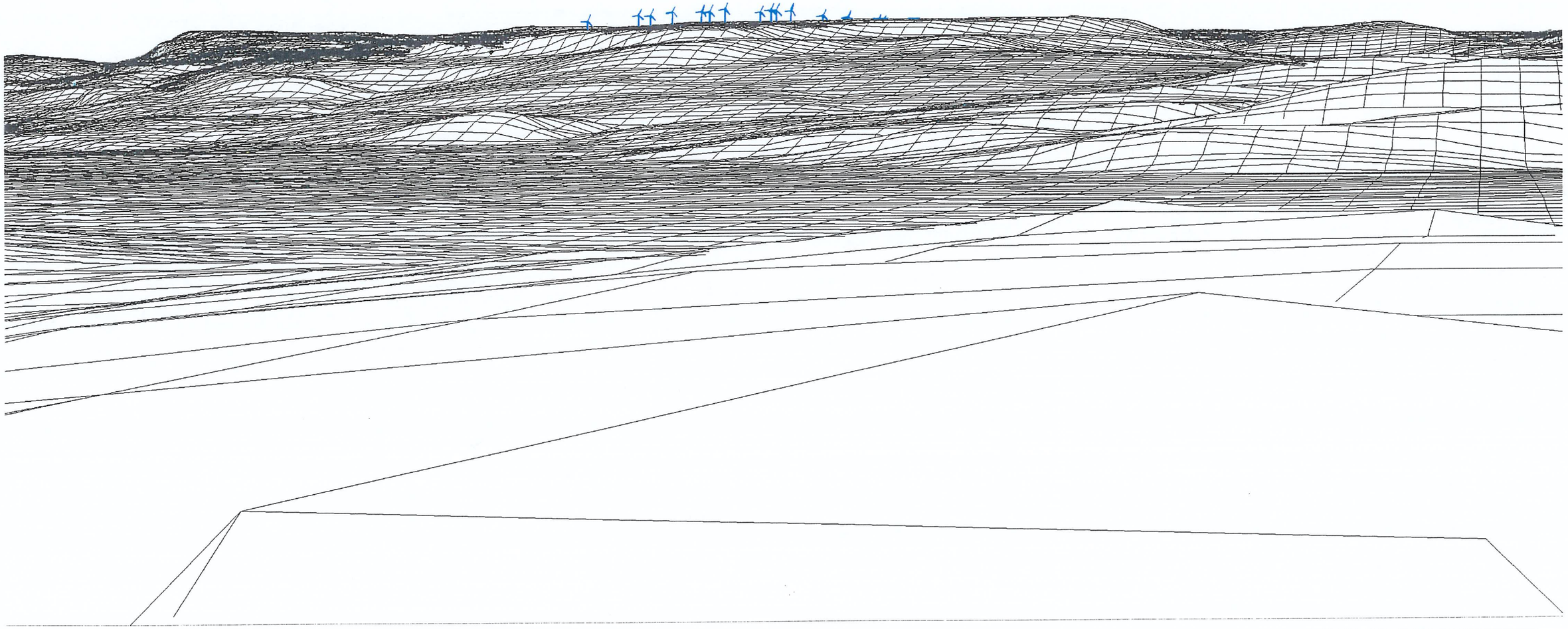
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Figure 9.6k
Wireframe K

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Wireframe view looking east north-east from oil refinery situated on the west coast of Neath

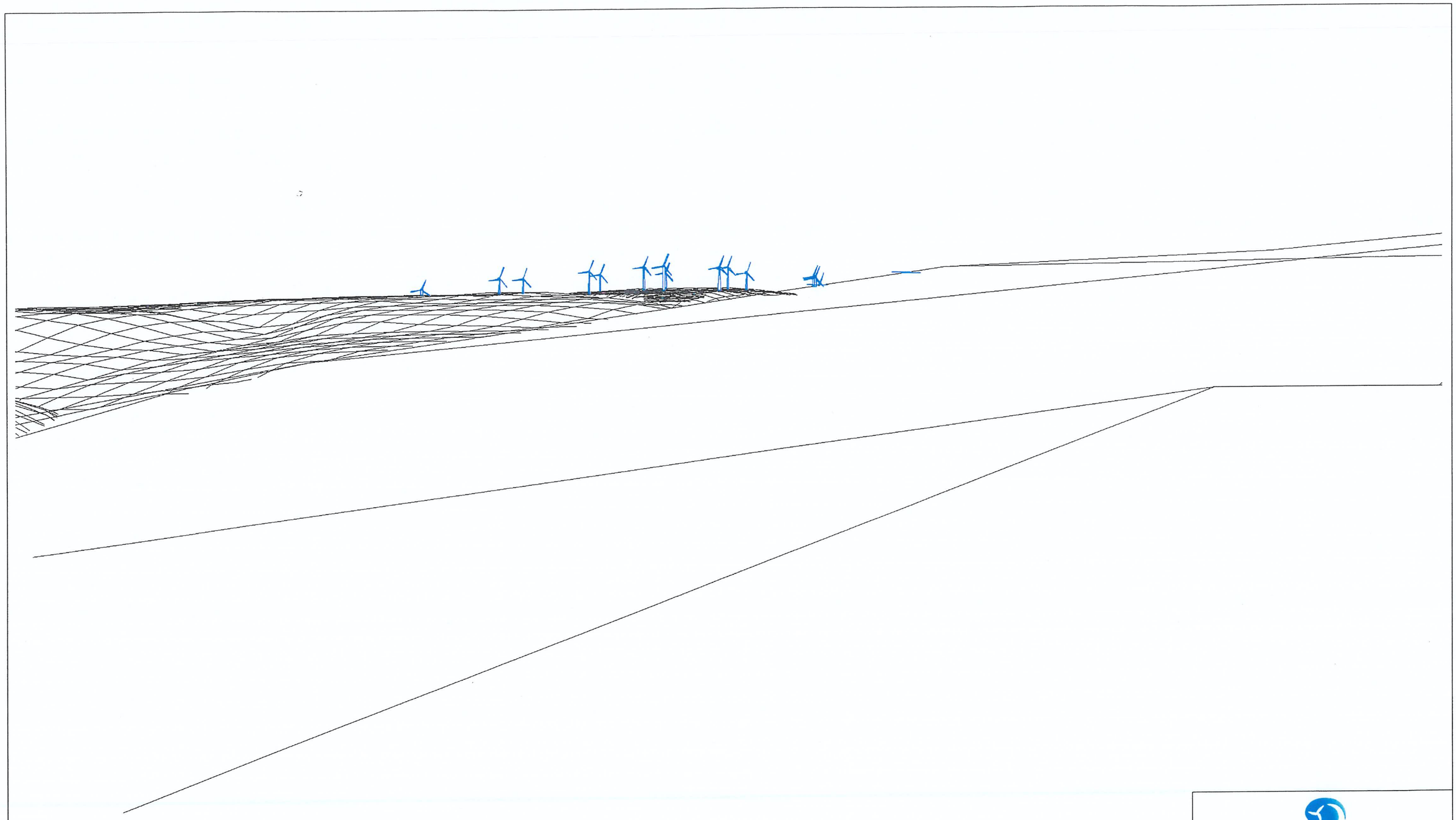
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Figure 9.6l
Wireframe L

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Wireframe view north-east from Hawdref Ganol Farm

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Ffynnon Oer Windfarm
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Figure 9.6m
Wireframe M

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Key

- Application area
- 20 km Study area
- A — Photoviewpoint location
  - A. St Illtyd's Walk
  - B. Ogwr Ridgeway Walk
  - C. Cymmer
  - D. Maesteg
  - E. Llangynwd
  - F. Bryn-caws farm
  - G. Cymmer Highway Depot

0 km — 8 km

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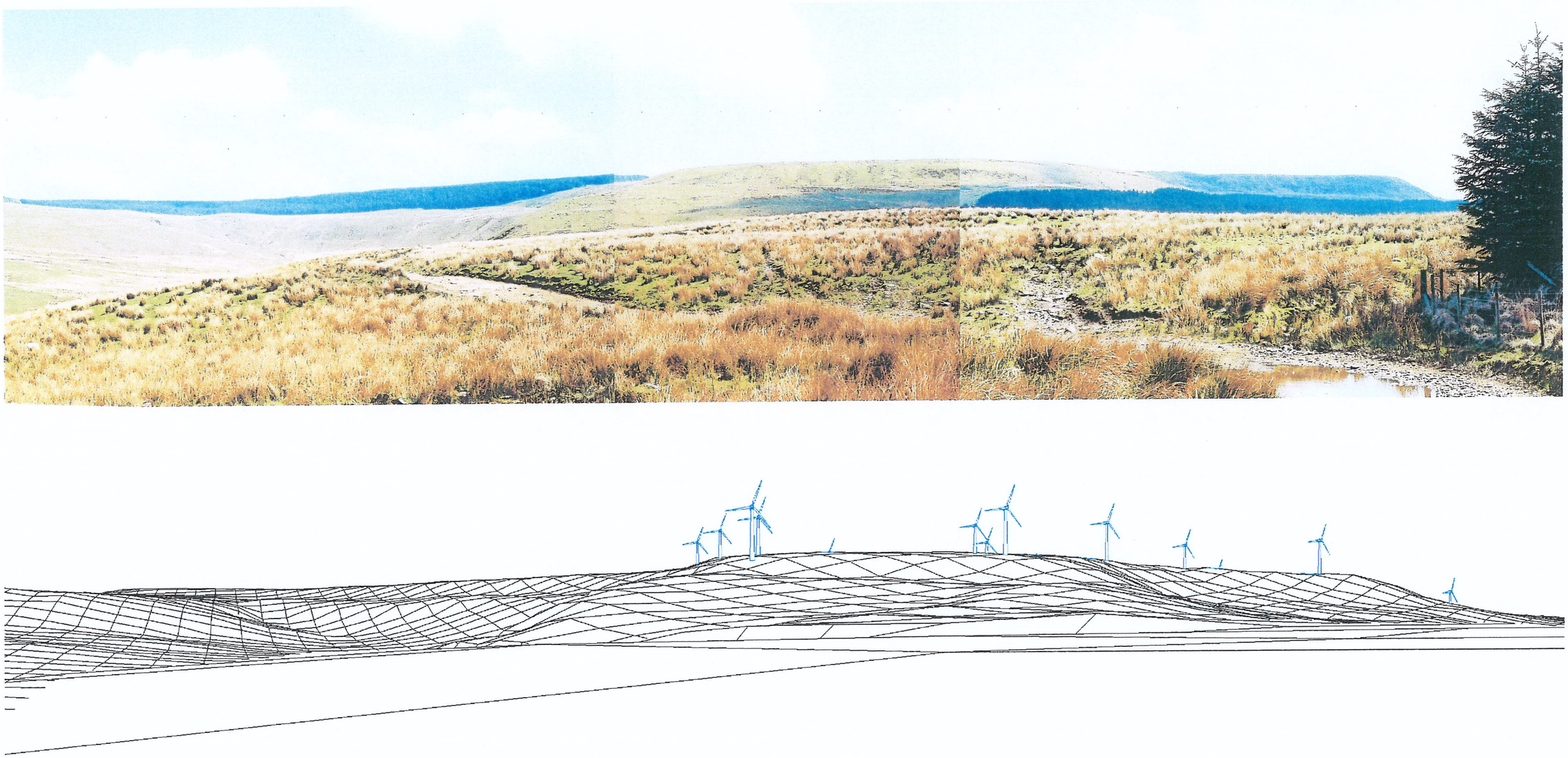
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Figure 9.7
Photoviewpoint and Wireframe Location Plan

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View south-west from St Illtyd's Walk / Celtic Trail at the corner of Pelenna Forest

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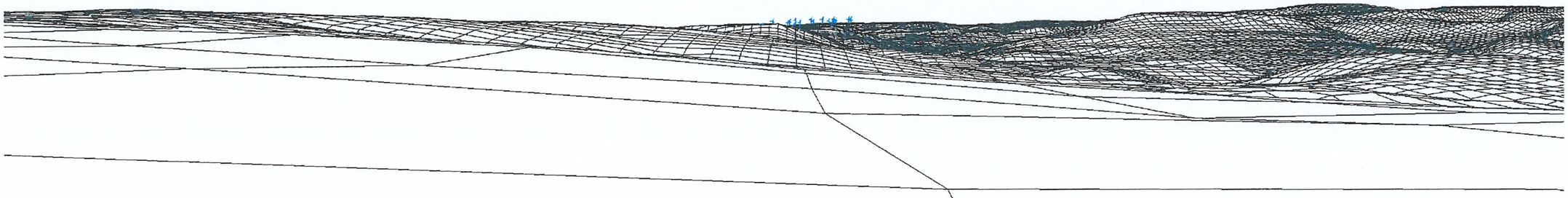
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Figure 9.7a
Photoviewpoint and Wireframe A

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View north from Ogwr Ridgeway Walk

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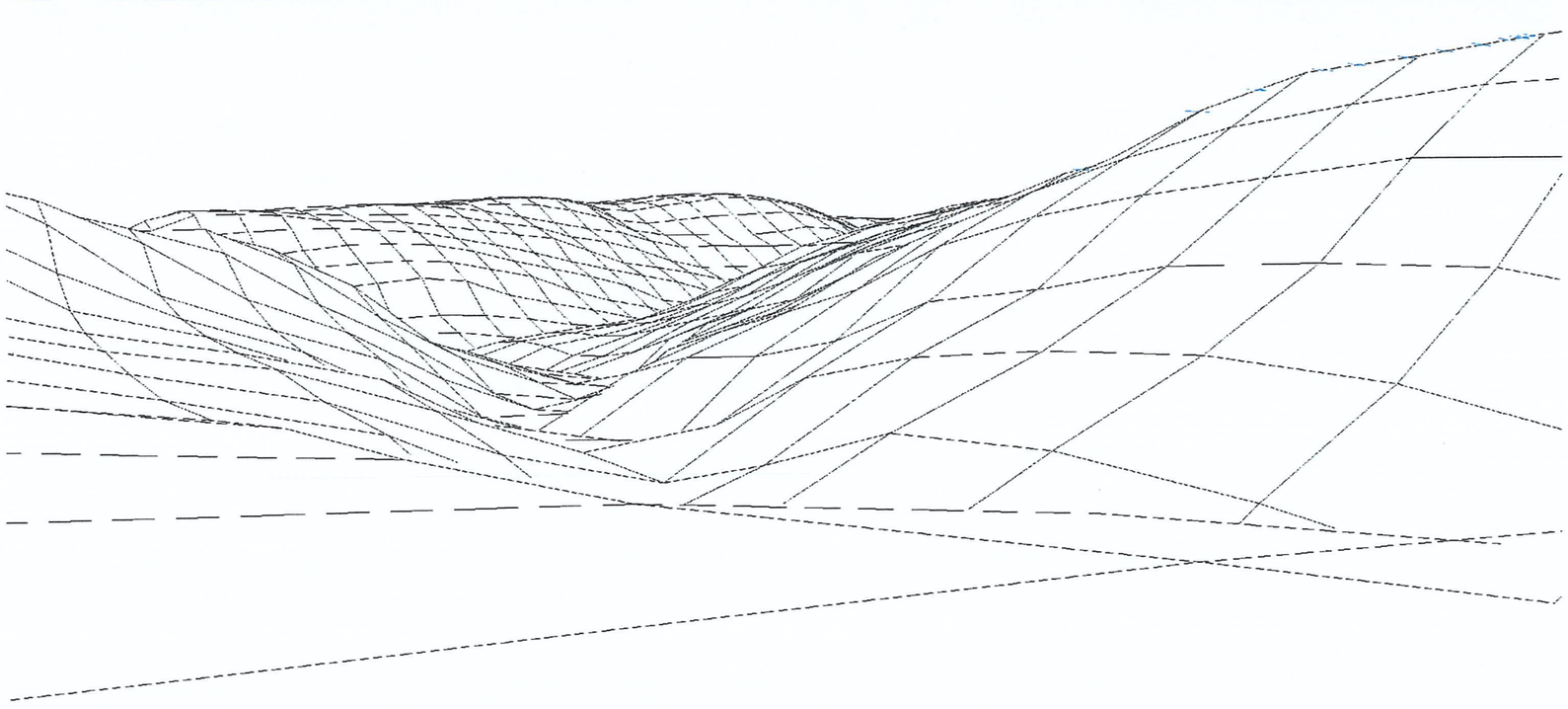
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Figure 9.7b
Photoviewpoint and Wireframe B

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View north north-west from main road (A4107) running through Cymmer

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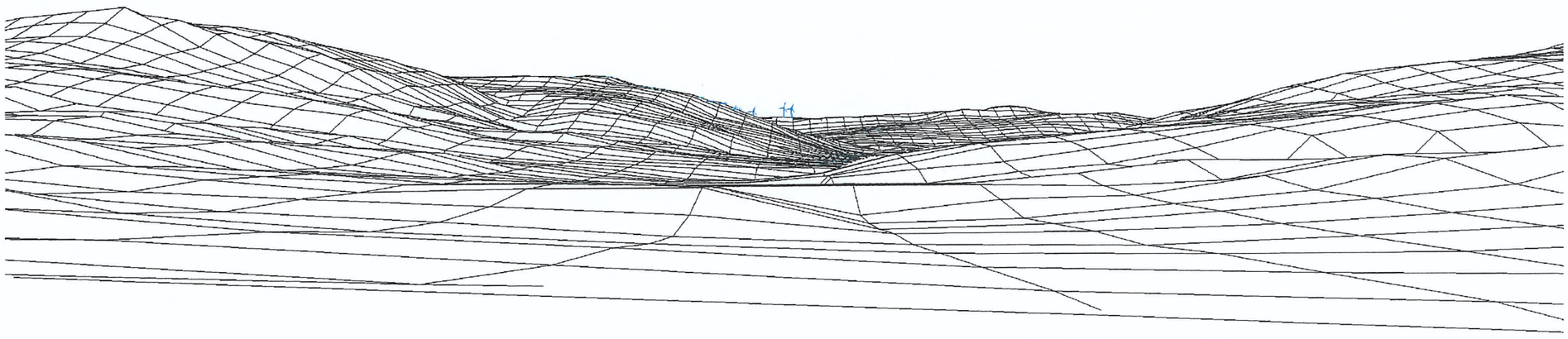
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Environmental Assessment

Figure 9.7c
Photoviewpoint and Wireframe C

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View north from Salisbury Road situated on the western side of Maesteg

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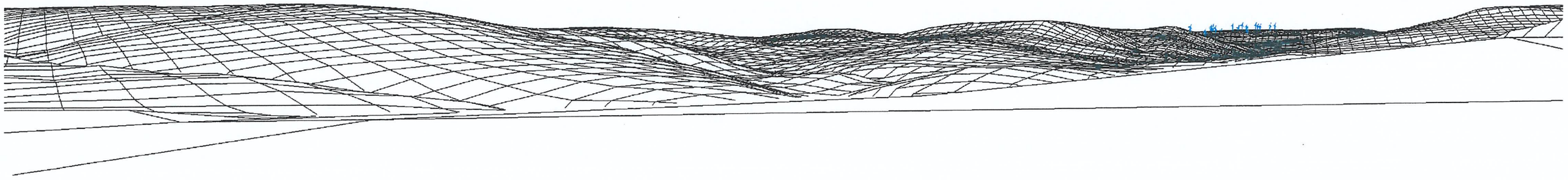
Ffynnon Oer Windfarm
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Figure 9.7d
Photoviewpoint and Wireframe D

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View north from northern edge of Llangynwd

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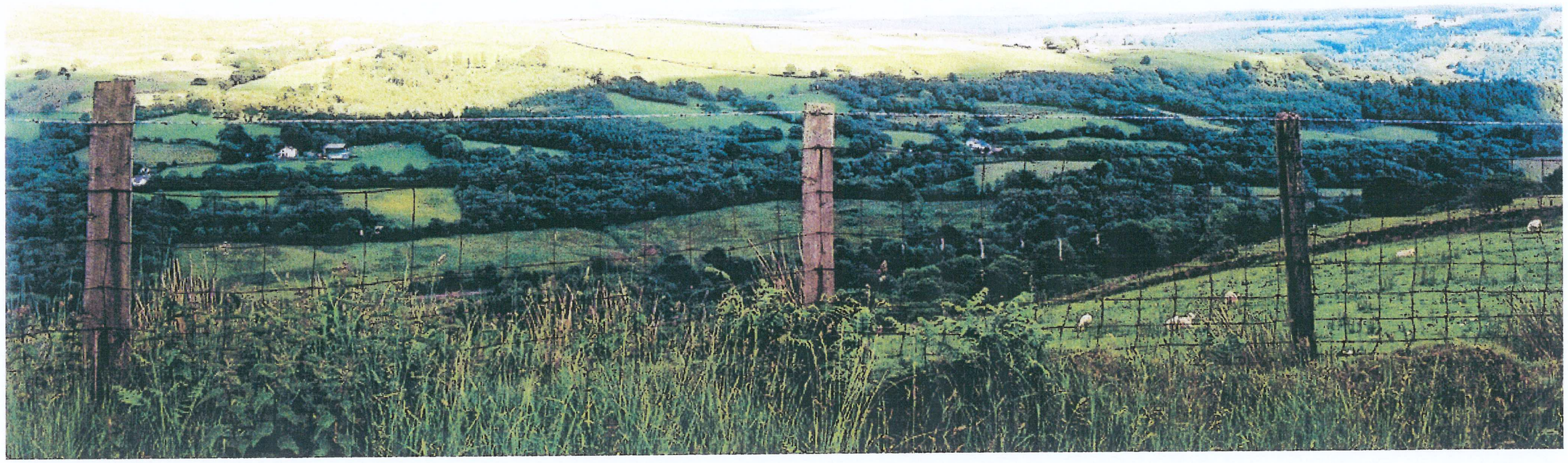
NATIONAL WIND POWER

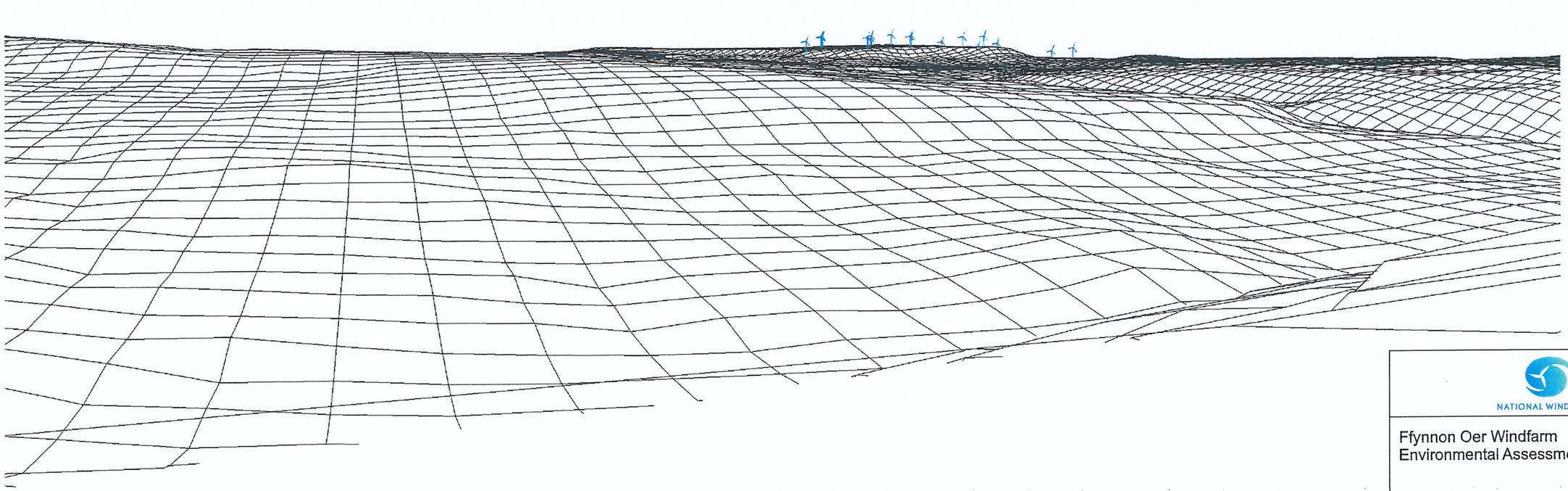
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Figure 9.7e
Photoviewpoint and Wireframe E

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View south-east from Bryn-caws Farm

The photograph in this figure was taken using a 28mm lens and in some cases may be a series of photographs stitched together. Please note that the wireframe image on this page has been produced in order to fit this lens.

NATIONAL WIND POWER

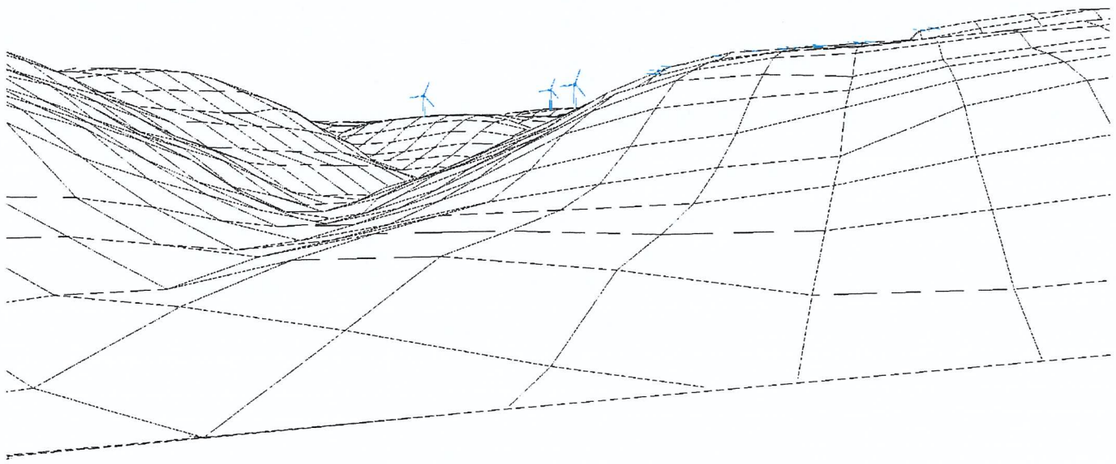
Ffynnon Oer Windfarm
Environmental Assessment

Figure 9.7f
Photoviewpoint and Wireframe F

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07568-S40.cdr parkj

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View north from Cymmer Highway Depot

The photograph in this figure was taken using a 28mm lens and in some cases may be a series of photographs stitched together. Please note that the wireframe image on this page has been produced in order to fit this lens.

NATIONAL WIND POWER

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Environmental Assessment

Figure 9.7g
Photoviewpoint and Wireframe G

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Key

- Application area
- 20 km Study area
- A — Photomontage location
  1. Sarn Helen
  2. East of Rhosaman
  3. Croeserw
  4. Proposed Afan Valley Holiday Park
  5. Cilfrew
  6. Near Hawdref-fawr
  7. A4107 running below Wefra

0 km — 8 km

NATIONAL WIND POWER

Ffynnon Oer Windfarm
Environmental Assessment

Figure 9.8
Photomontage Location Plan

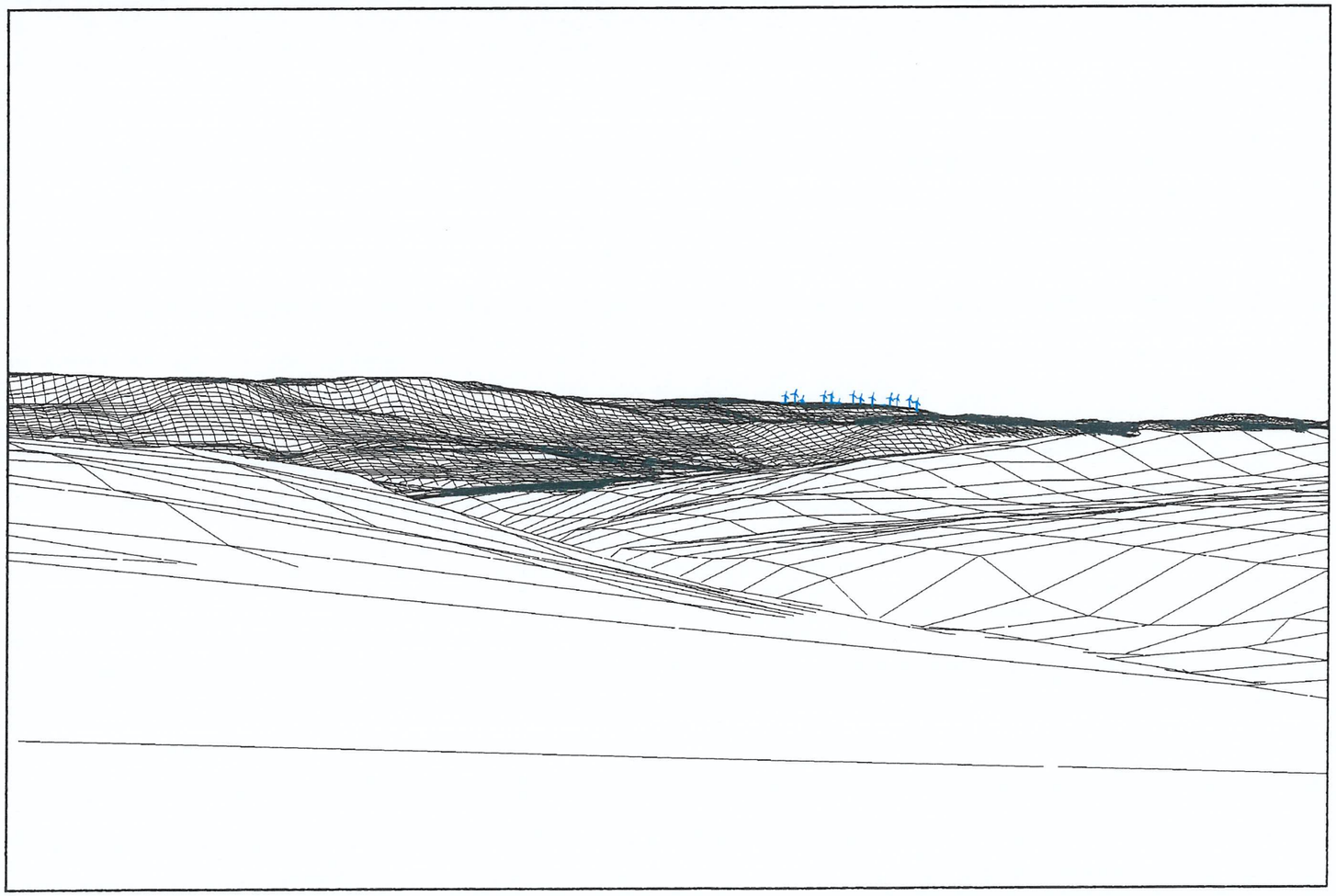
October 2002
07568-S42.dwg barkr

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50mm Panorama view south-west from Sarn Helen in the Brecon Beacons National Park



70mm Wireframe view south-west from Sarn Helen in the Brecon Beacons National Park

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Environmental Assessment

Figure 9.9a & b
Existing Viewpoint 1 and Wireframe

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70mm Photomontage view from Sarn Helen looking south-west

OS Grid Reference	291545,215323
Distance from Turbines	18.2km
Camera Height	1.52m Above Grade
Camera Lens	70mm
Viewing Distance	544mm

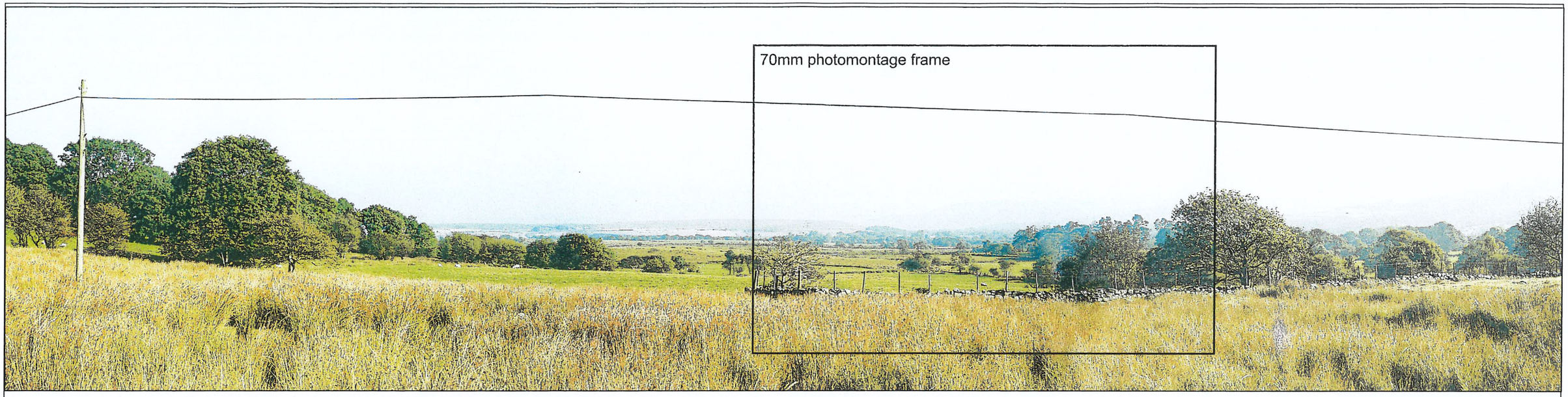
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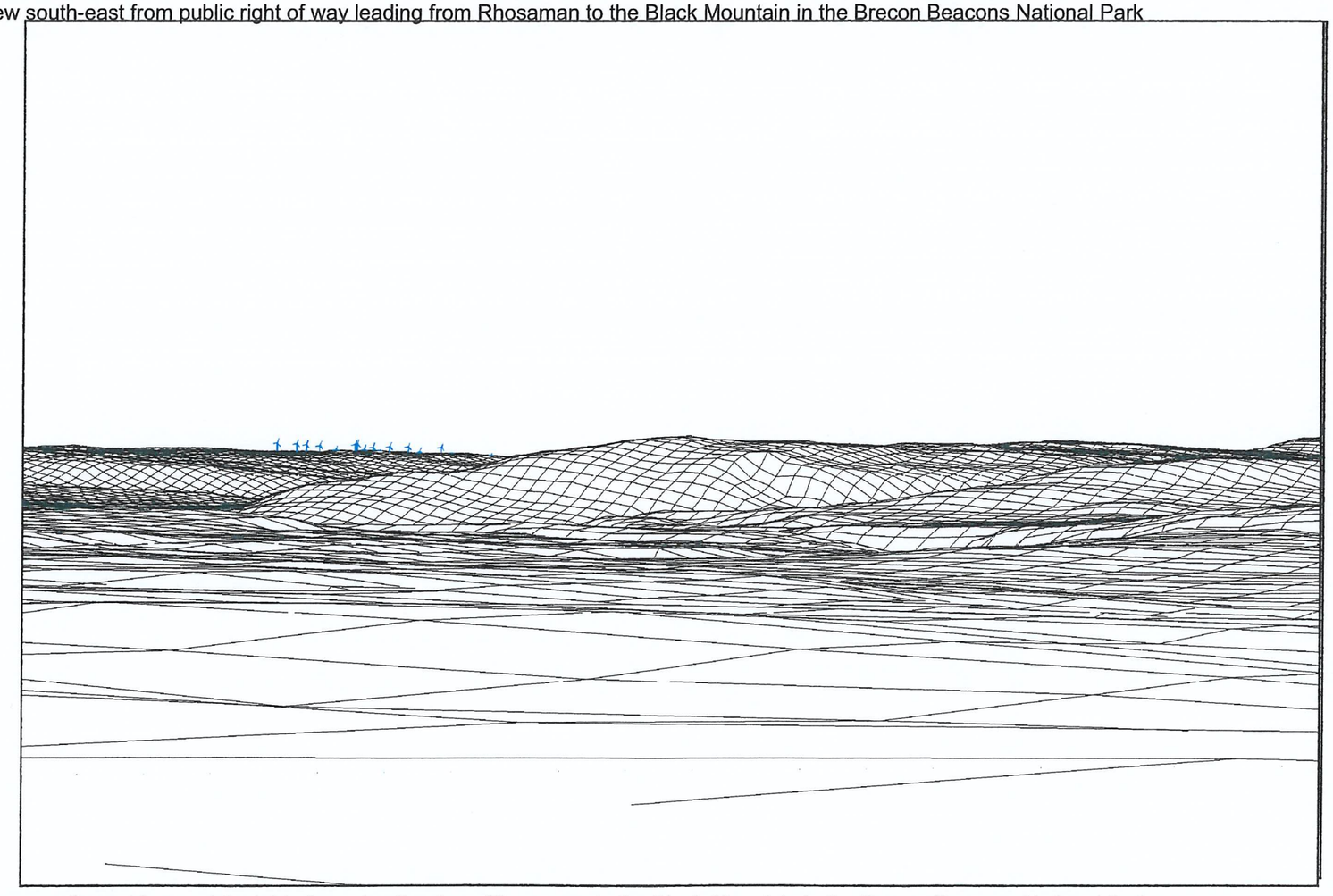
Figure 9.9c
Photomontage 1

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50mm Panorama view south-east from public right of way leading from Rhosaman to the Black Mountain in the Brecon Beacons National Park



70mm Wireframe view south-east from public right of way leading from Rhosaman to the Black Mountain in the Brecon Beacons National Park

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Ffynnon Oer Windfarm
Environmental Assessment

Figure 9.10a & b
Existing Photoviewpoint 2 and Wireframe

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70mm Photomontage view south-east from public right of way leading from Rhosaman to the Black Mountain in the Brecon Beacons

OS Grid Reference	274584,214115
Distance from Turbines	18.3km
Camera Height	1.52m Above Grade
Camera Lens	70mm
Viewing Distance	548mm

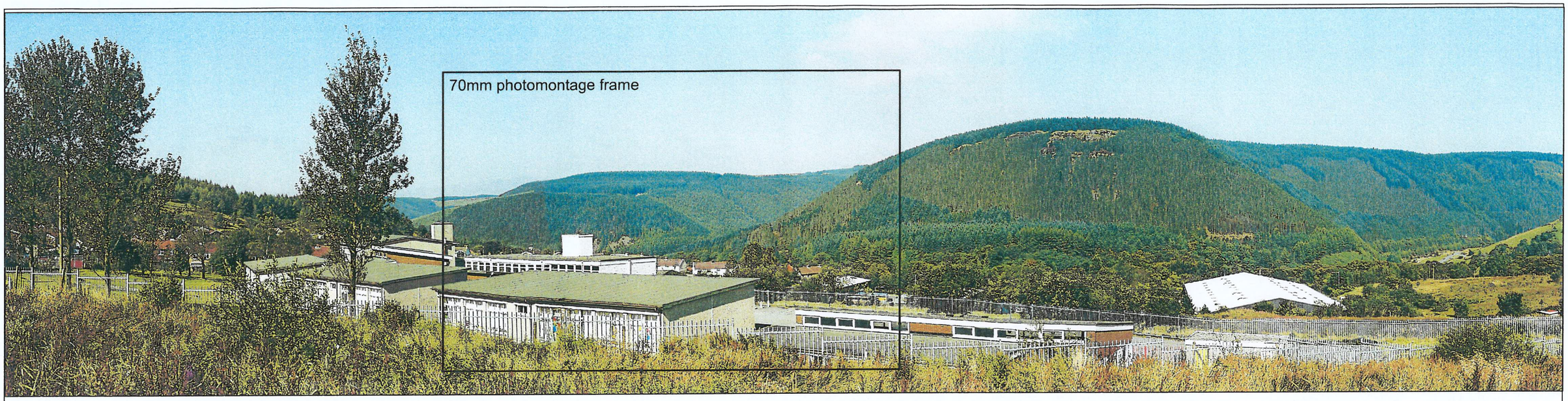
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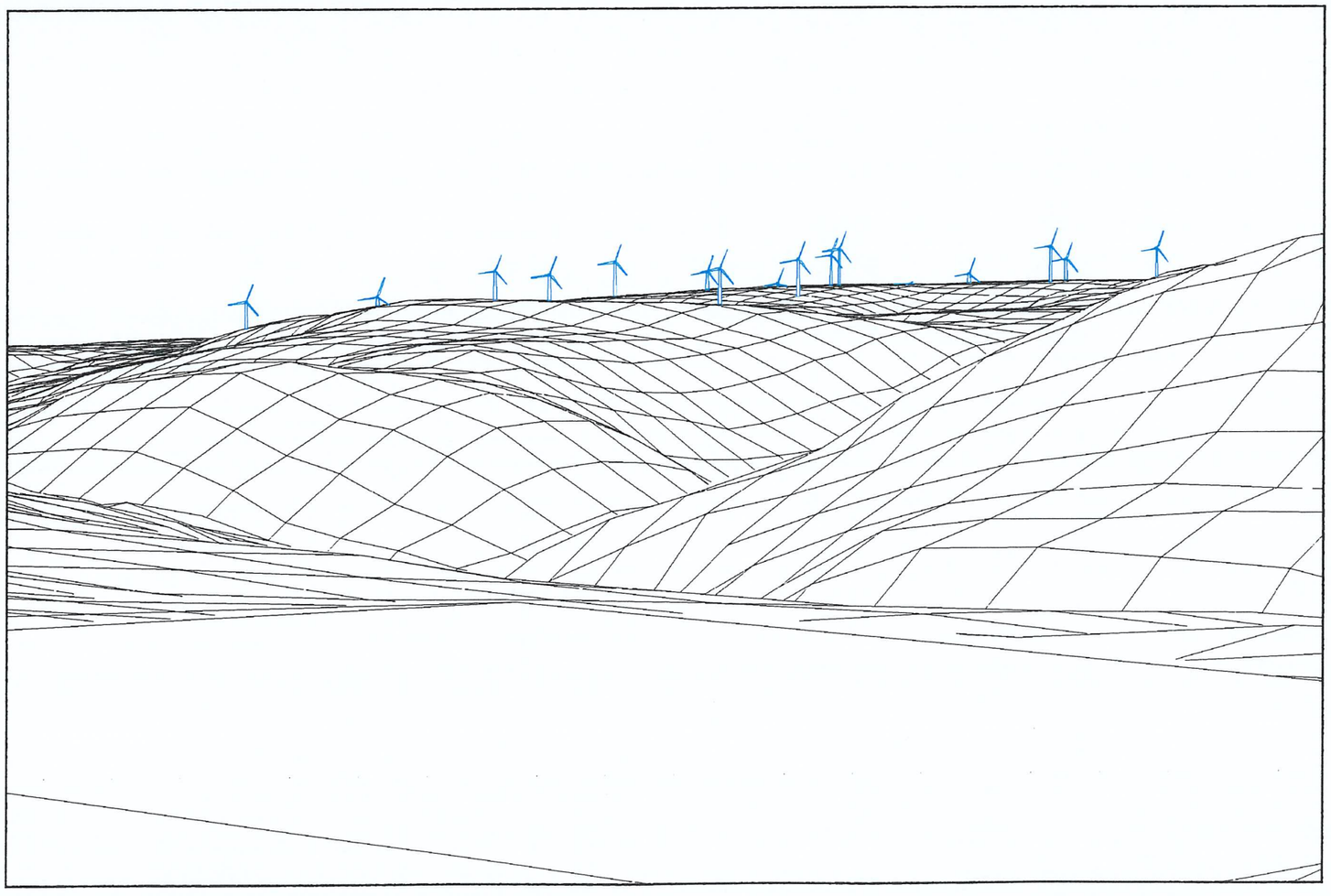
Figure 9.10c
Photomontage 2

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07568-S48a.cdr stept

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50mm Panorama view north-west from Croeserw



70mm Wireframe View north-west from Croeserw

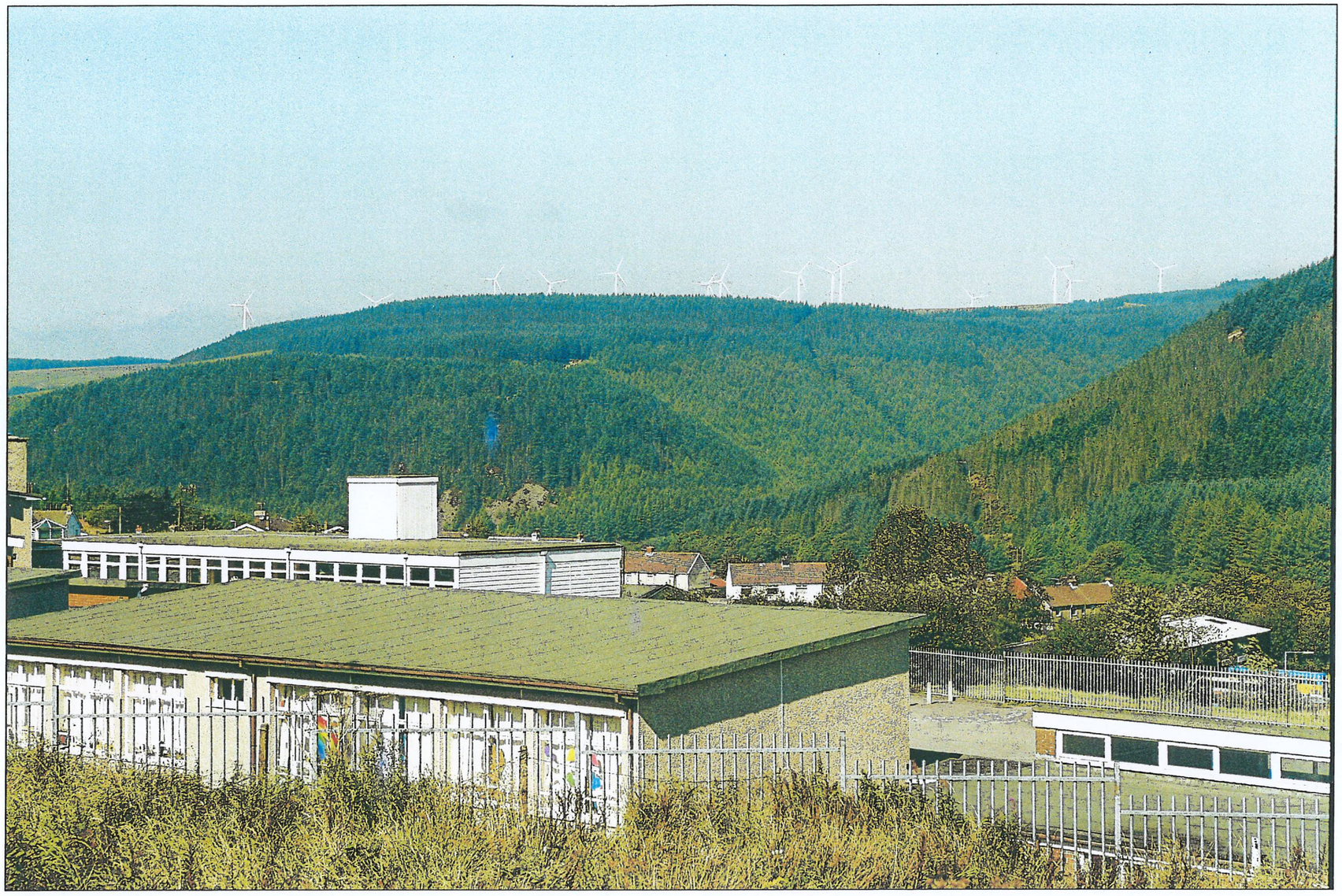
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Figure 9.11a & b
Existing Photoviewpoint 3 and Wireframe

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70mm Photomontage view north-west from Croeserw

OS Grid Reference	287165,195175
Distance from Turbines	4.4km
Camera Height	1.52m Above Grade
Camera Lens	70mm
Viewing Distance	541mm

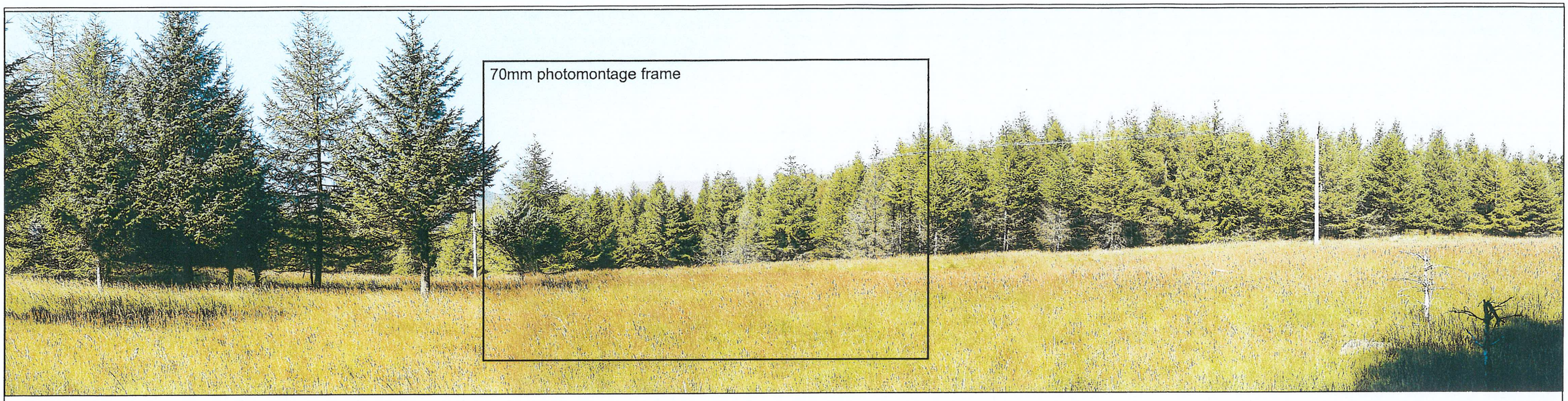
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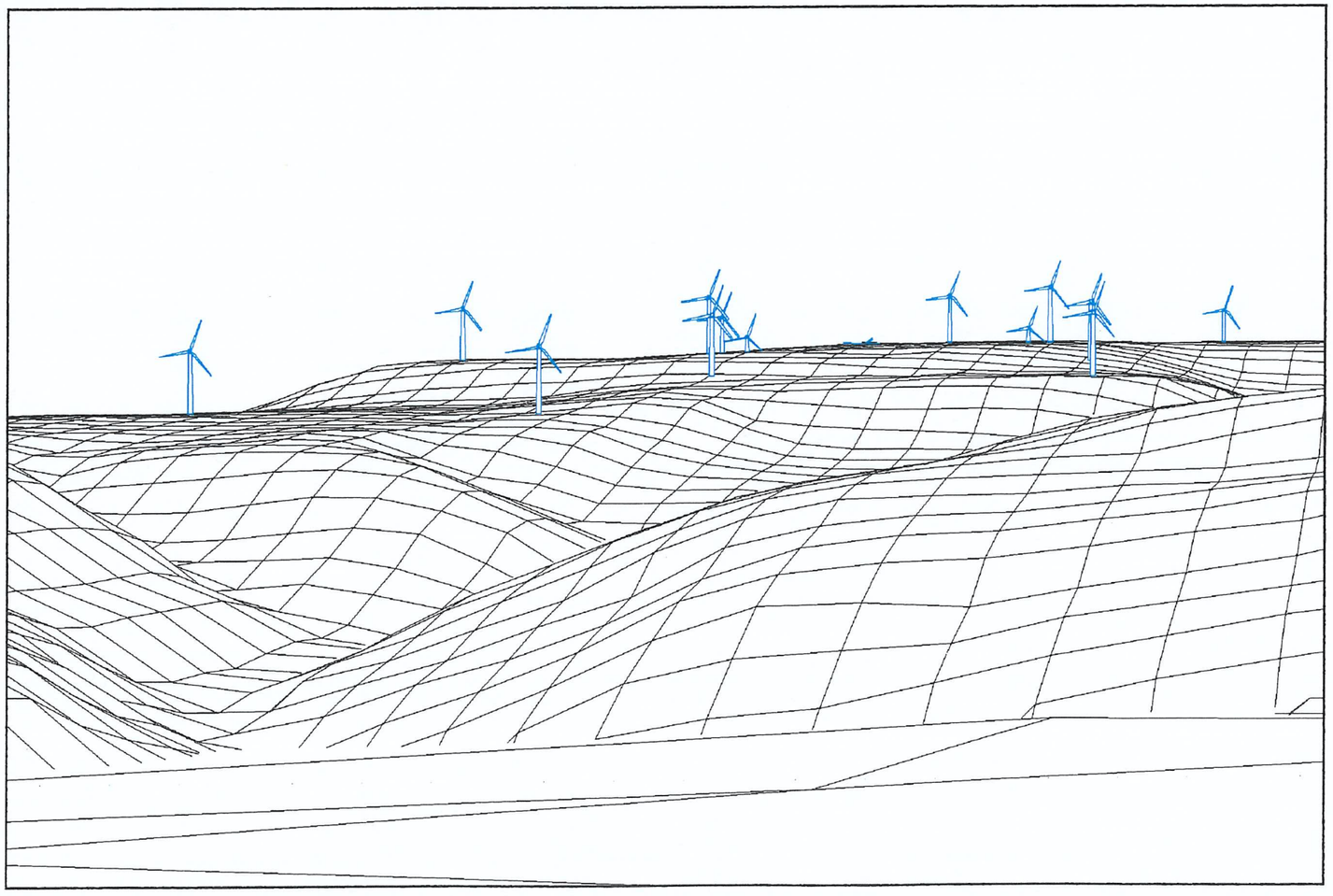
Figure 9.11c
Photomontage 3

October 2002
07568-S51a.cdr stepl

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50mm Panorama view north from proposed Afan Valley Holiday Park



70mm Wireframe view north from proposed Afan Valley Holiday Park

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Environmental Assessment

Figure 9.12a & b
Existing Photoviewpoint 4 and Wireframe

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07568-S52a.cdr stept

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70mm Photomontage view north from proposed Afan Valley Holiday Park

OS Grid Reference	285166,195371
Distance from Turbines	3.3km
Camera Height	1.52m Above Grade
Camera Lens	70mm
Viewing Distance	564mm

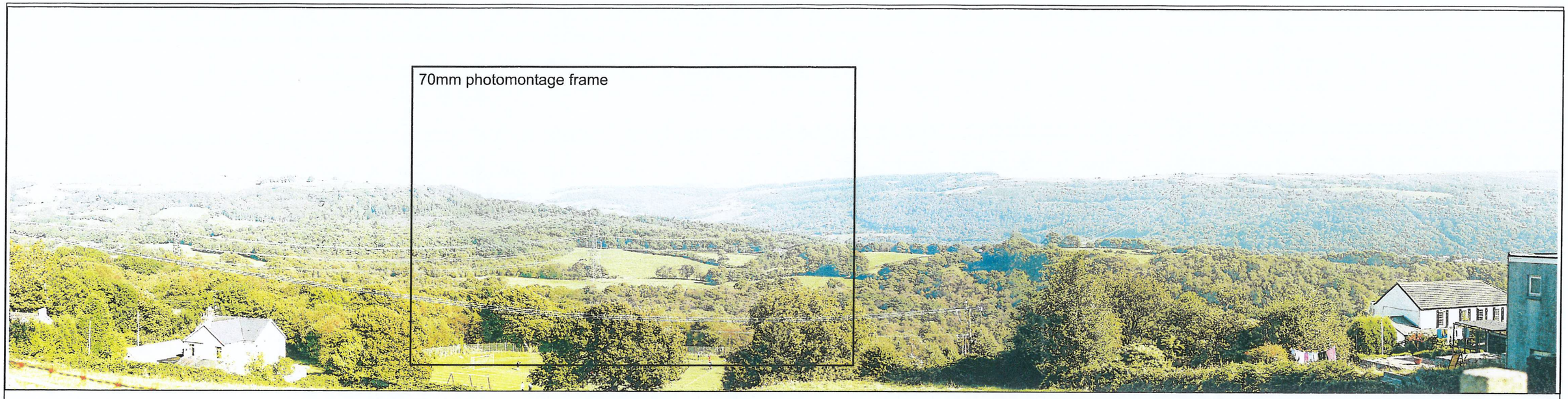
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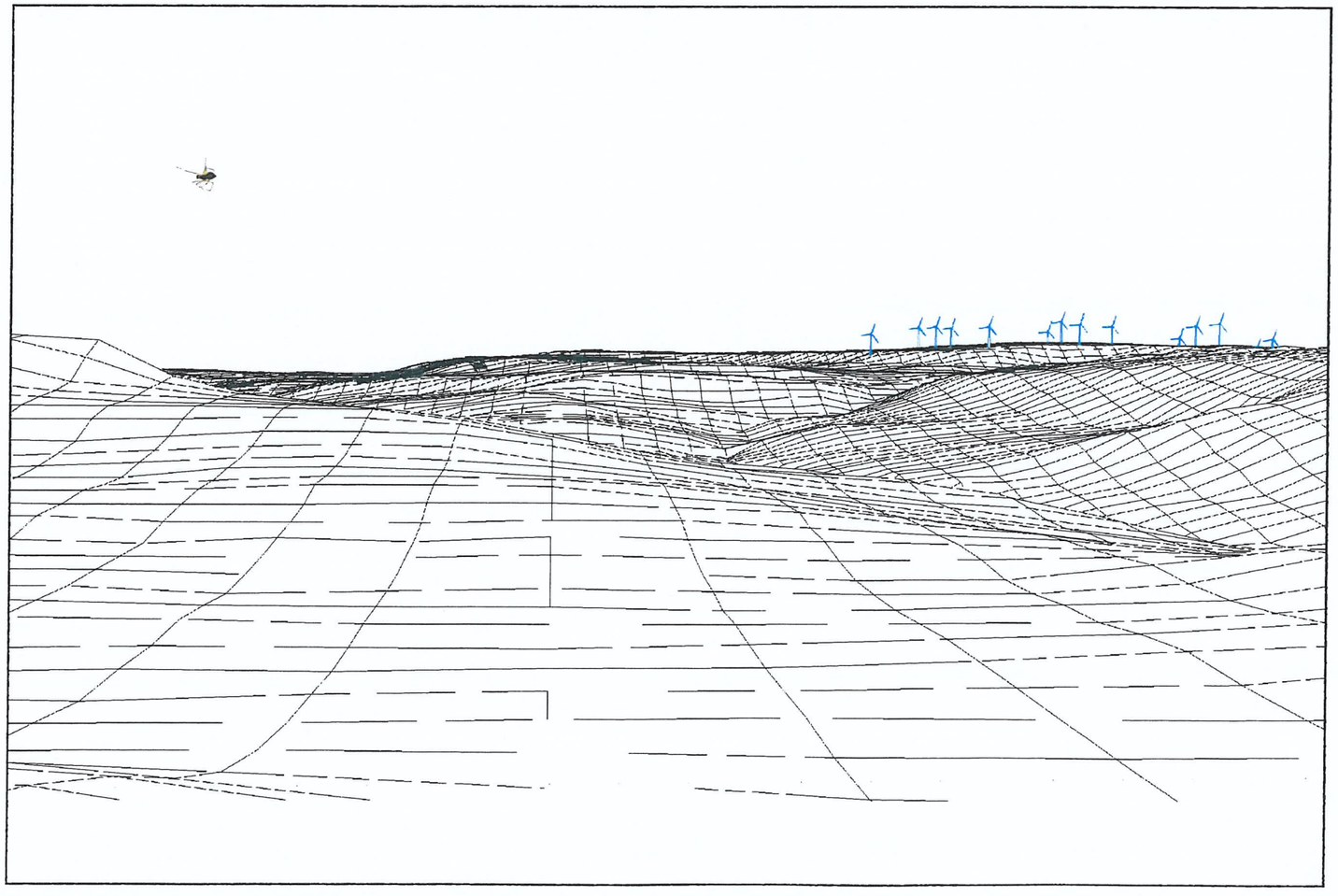
Figure 9.12c
Photomontage 4

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50mm Panorama view east south-east from eastern edge of Cilfrew



70mm Wireframe view east south-east from eastern edge of Cilfrew

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Environmental Assessment

Figure 9.13a & b
Existing Photoviewpoint 5 and Wireframe

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70mm Photomontage view east south-east from eastern edge of Cilfrew

OS Grid Reference	277150,200449
Distance from Turbines	7.6km
Camera Height	1.52m Above Grade
Camera Lens	70mm
Viewing Distance	555mm

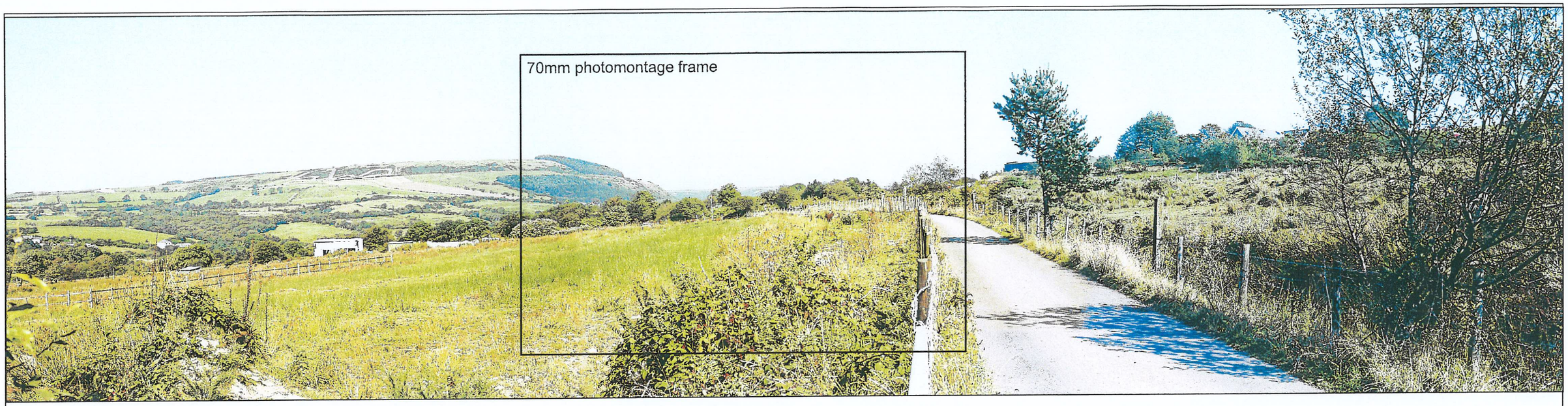
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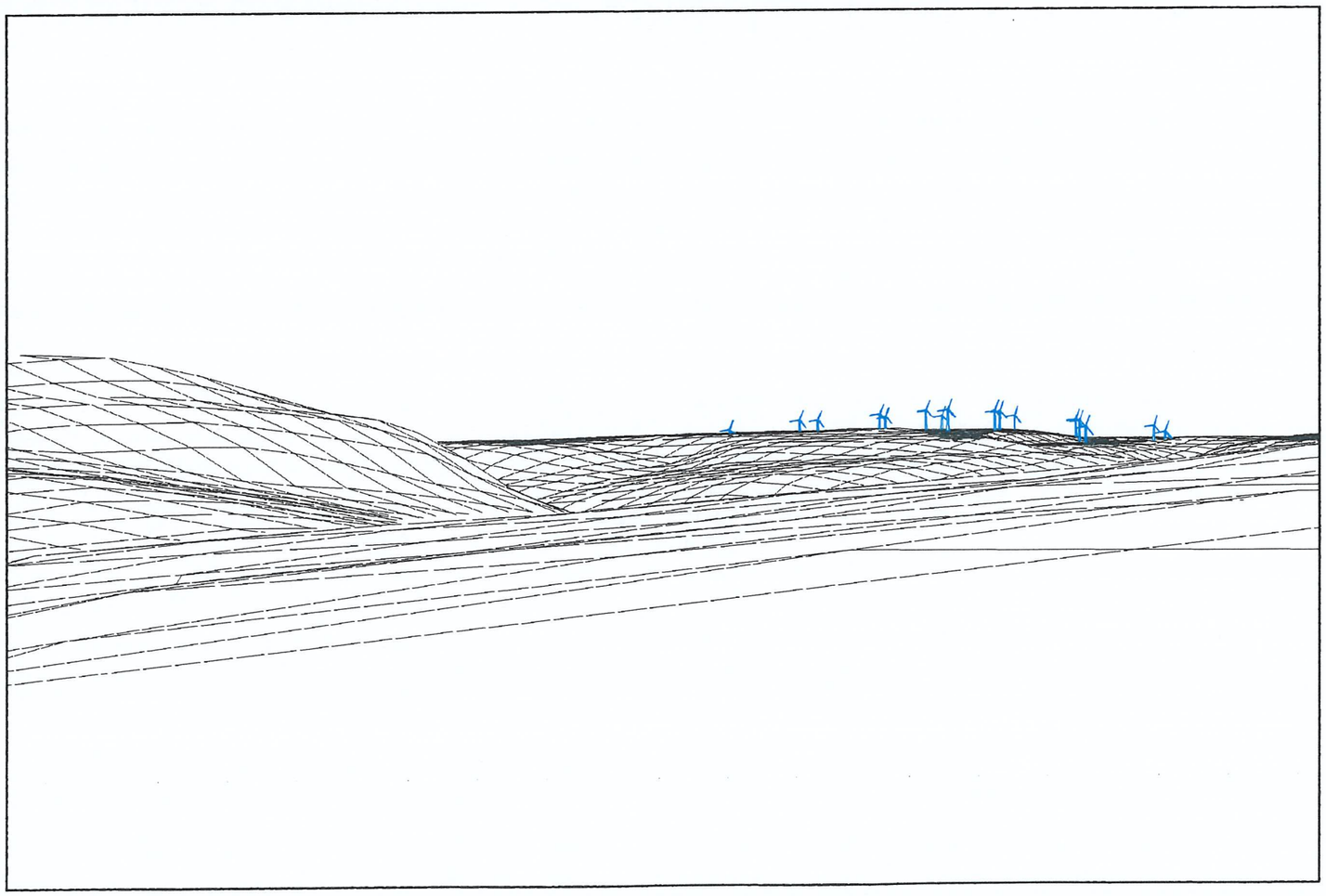
Figure 9.13c
Photomontage 5

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50mm Panorama view east north-east from road near Hawdref-fawr



70mm Wireframe view east north-east from road near Hawdref-fawr

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Figure 9.14a & b
Existing Photoviewpoint 6 and Wireframe

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07568-S58a.cdr stept

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70mm Photomontage view east north-east from road near Hawdref-fawr

OS Grid Reference	277757,194992
Distance from Turbines	7.1km
Camera Height	1.52m Above Grade
Camera Lens	70mm
Viewing Distance	564mm

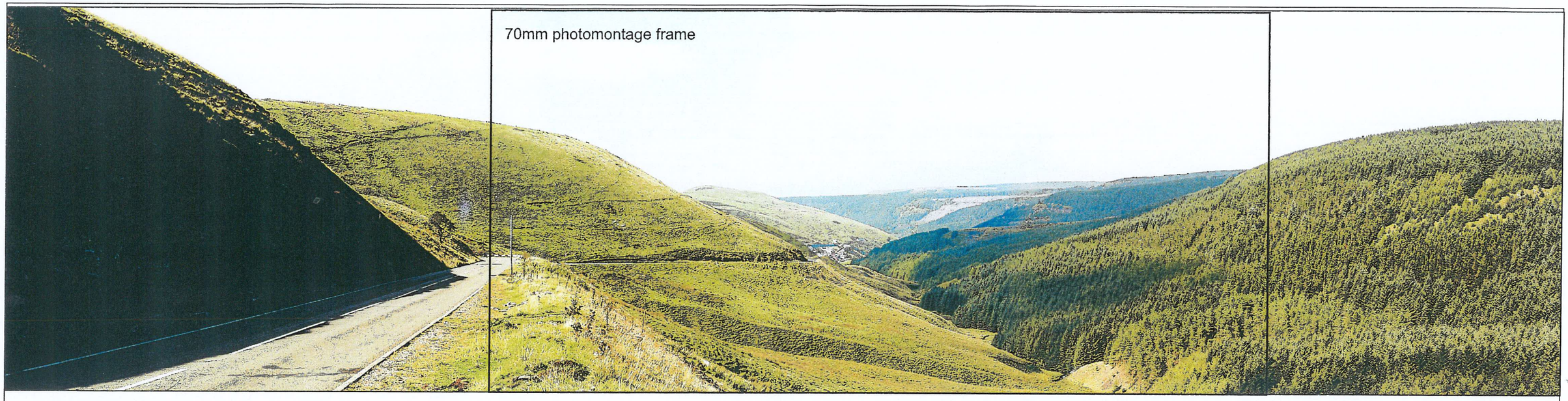
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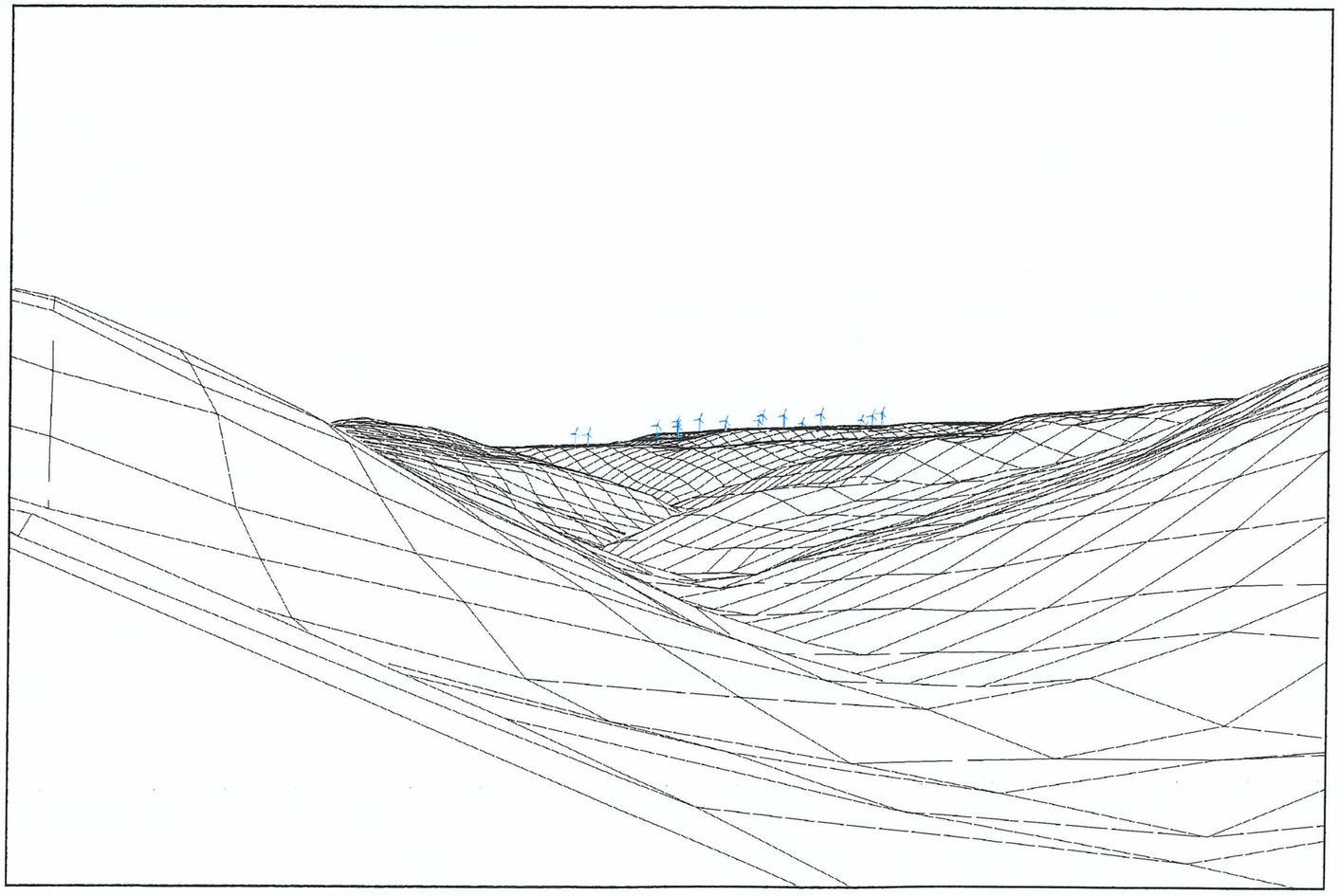
Figure 9.14 C
Photomontage 6

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50mm Panorama view north-west from A4107 running below Werfa



70mm Wireframe view north-west from A4107 running below Werfa

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Environmental Assessment

Figure 9.15a & b
Existing Photoviewpoint 7 and Wireframe

October 2002
07568-S61a.cdr stept

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70mm Photomontage view north-west from A4107 running below Werfa

OS Grid Reference	291055,195653
Distance from Turbines	7.2km
Camera Height	1.52m Above Grade
Camera Lens	70mm
Viewing Distance	555mm

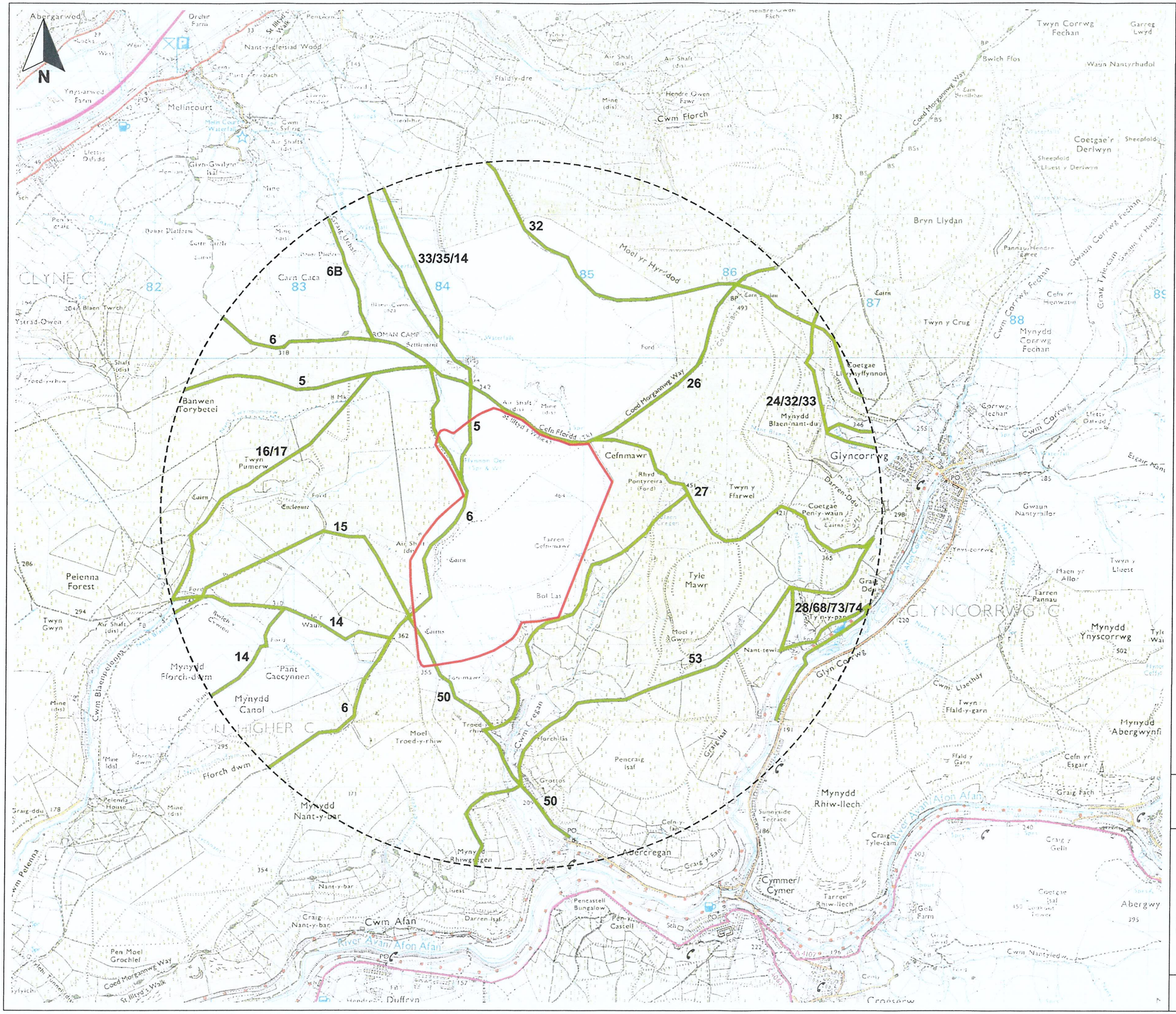
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Figure 9.15c
Photomontage 7

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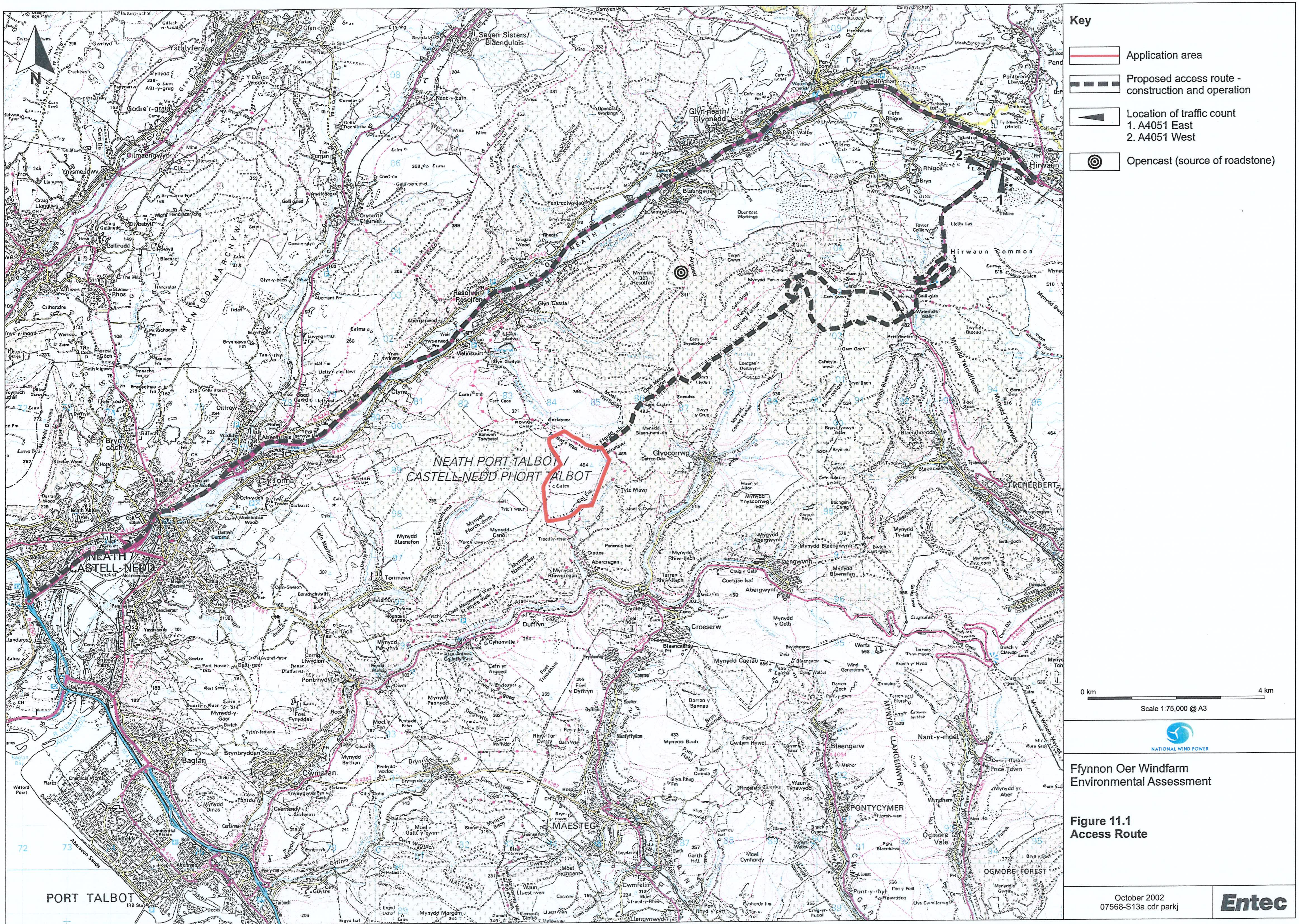
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Figure 10.1
Public Rights of Way on Definitive Map within 2 km of Windfarm Site

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MELIN COURT C (CYMUNED CLUN A MELINCWRT)

N

Carn Caca

83 84 85 86

90 99 98 97

ROMAN CAMP

Banwen Torybetel

Twyn Pumerw

Cefn Mawr

Mynydd Blaen-nant-du

Rhyd Ponyreira

Twyn y Planwr

Bwlch y Cywion

Tyle'r Waun

Mynydd Fforch-dwm

Pant Caecynnen

Mynydd Canol

Troed y Rhiw

Cwm Cregan

Pencraig Isaf

Fforch Dwm

Mynydd Nant-y-bar

Mynydd Rhiwgregan

Prossers Terrace

Abercregan

Tyle Mawr

GLYNC

Cwmmer

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Substation

Key

- Application area
- Location of wind turbine
- Access track
- Noise monitoring location

0 m 800 m

Scale 1:15,000 @ A3

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Ffynnon Oer Windfarm
Environmental Assessment

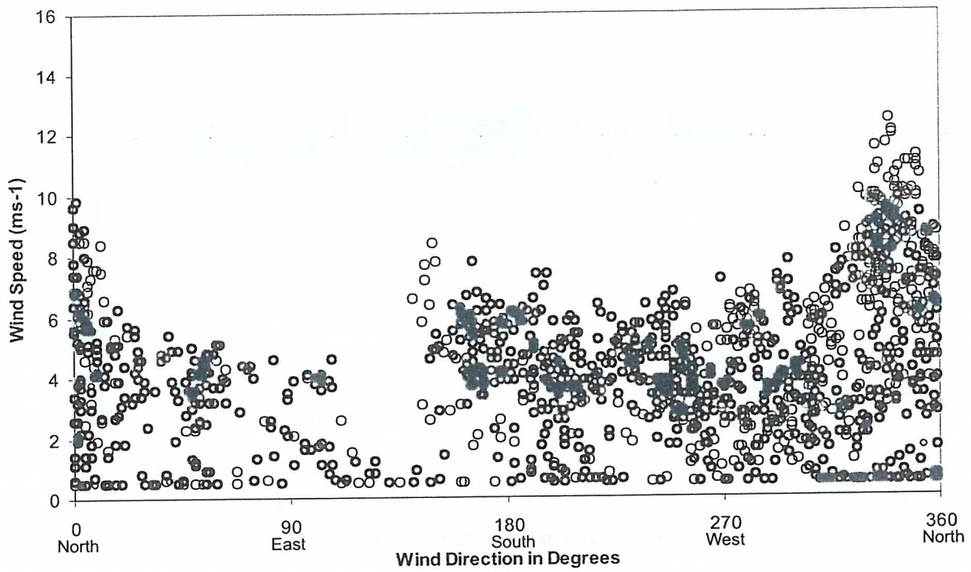
Figure 12.1
Noise Monitoring Locations

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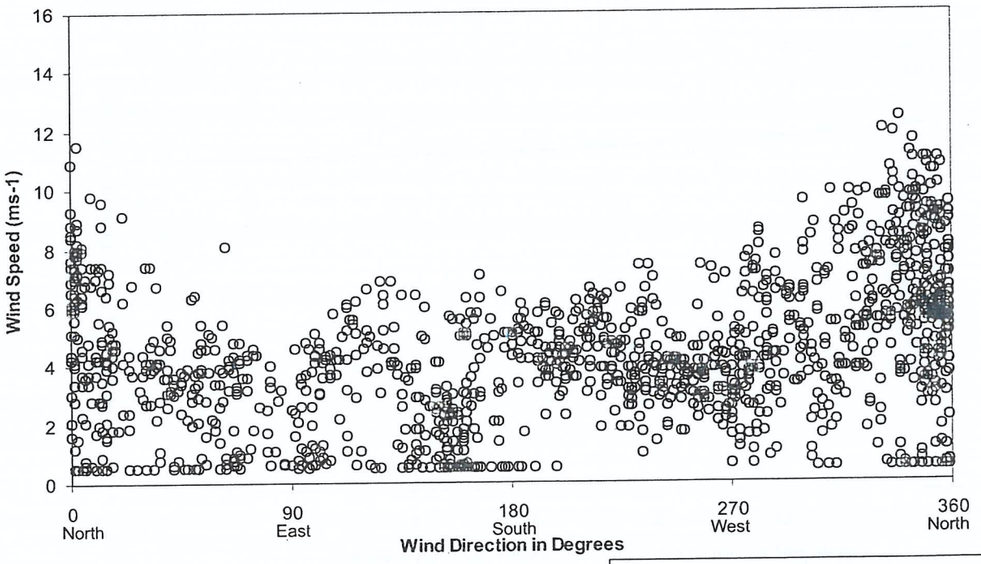
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a) Range of Wind Conditions during the Quiet Daytime Survey Periods



b) Range of Wind Conditions during the Nighttime Survey Periods



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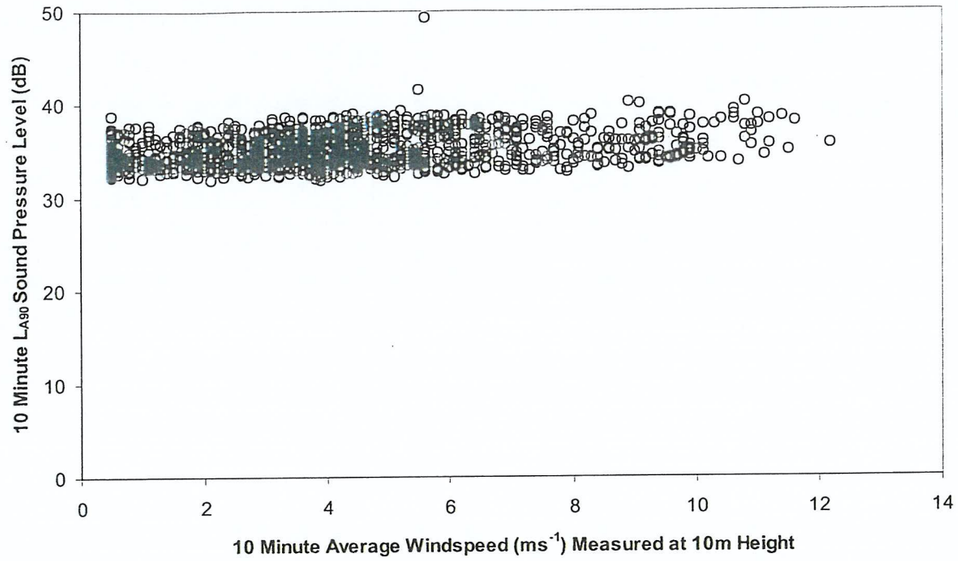
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Figure 12.2
Range of Wind Conditions During the Survey Periods

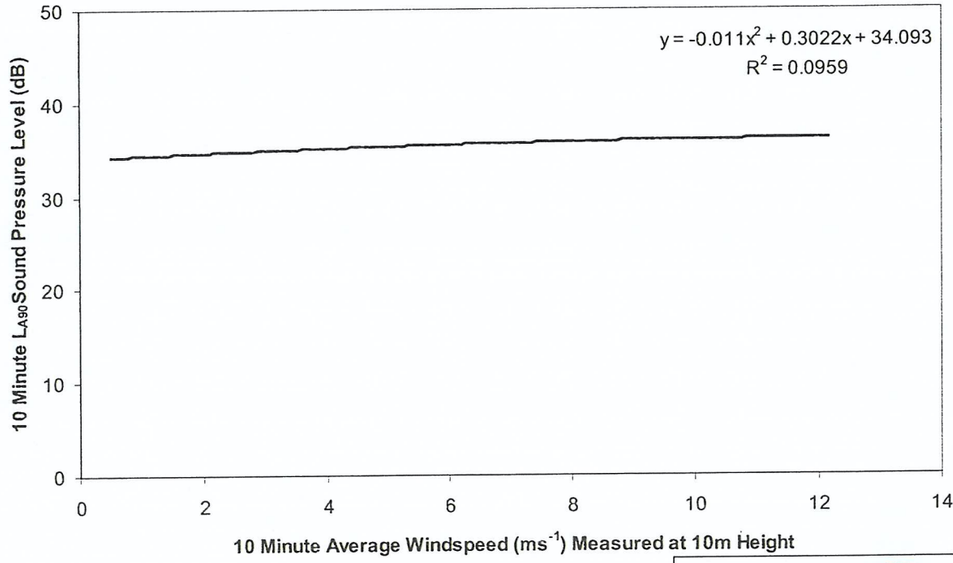
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b) Night-time Background $L_{A90,\ 10\ min}$ Noise Levels as a Function of 10m Height Windspeed - Troed-y-Rhiw



b) Night-time Background $L_{A90,\ 10\ min}$ Noise Levels as a Function of 10m Height Windspeed - Troed-y-Rhiw (Line of Best Fit)



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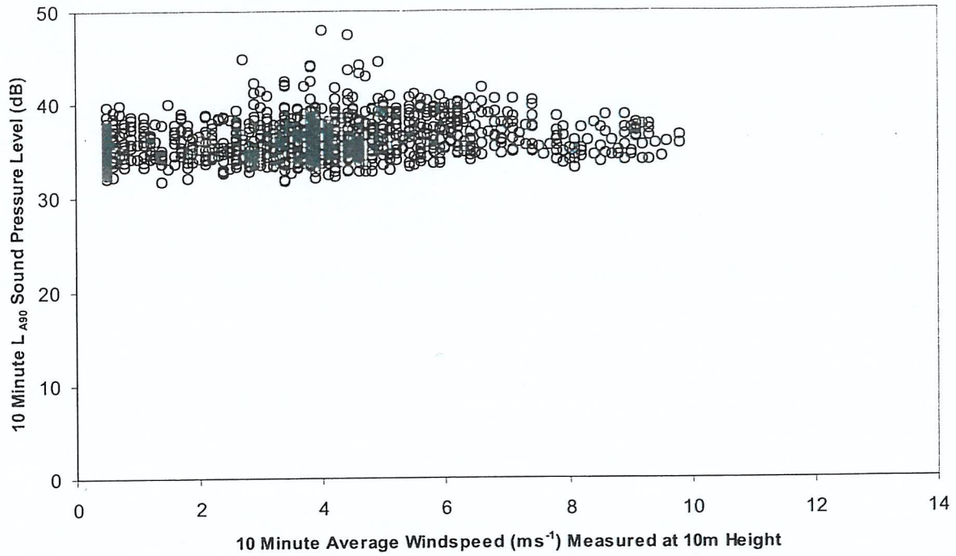
Ffynnon Oer Windfarm
Environmental Assessment

Figure 12.3
Background $L_{A90,\ 10\ min}$ Noise Levels as a Function of 10m Height Windspeed - Troed y Rhiw

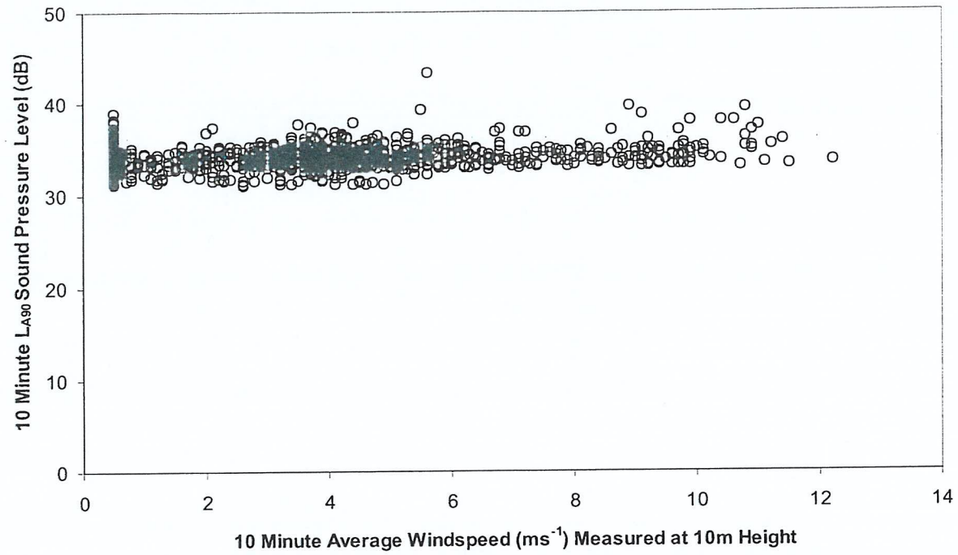
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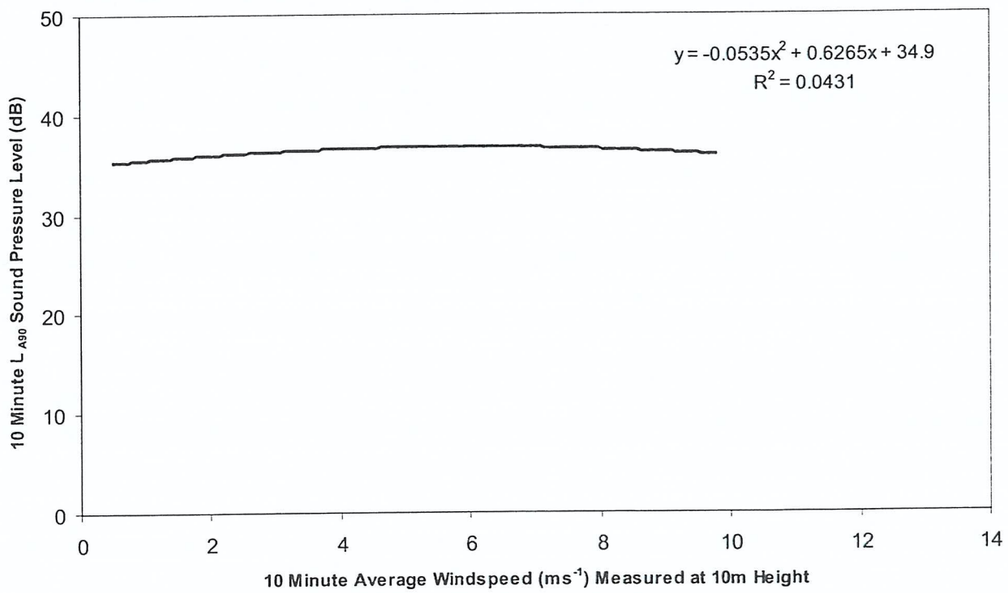
a) Quiet Daytime Background $L_{A90,\ 10\ min}$ Noise Levels as a Function of 10m Height Windspeed - No 24 Prossers Terrace



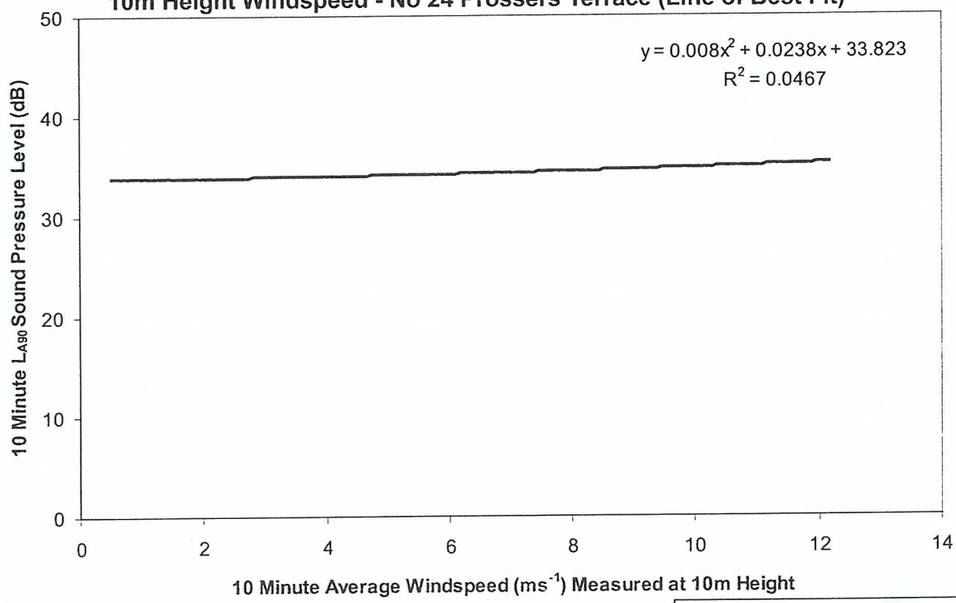
b) Night-time Background $L_{A90,\ 10\ min}$ Noise Levels as a Function of 10m Height Windspeed - No 24 Prossers Terrace



a) Quiet Daytime Background $L_{A90,\ 10\ min}$ Noise Levels as a Function of 10m Height Windspeed - No 24 Prossers Terrace (Line of Best Fit)



b) Night-time Background $L_{A90,\ 10\ min}$ Noise Levels as a Function of 10m Height Windspeed - No 24 Prossers Terrace (Line of Best Fit)



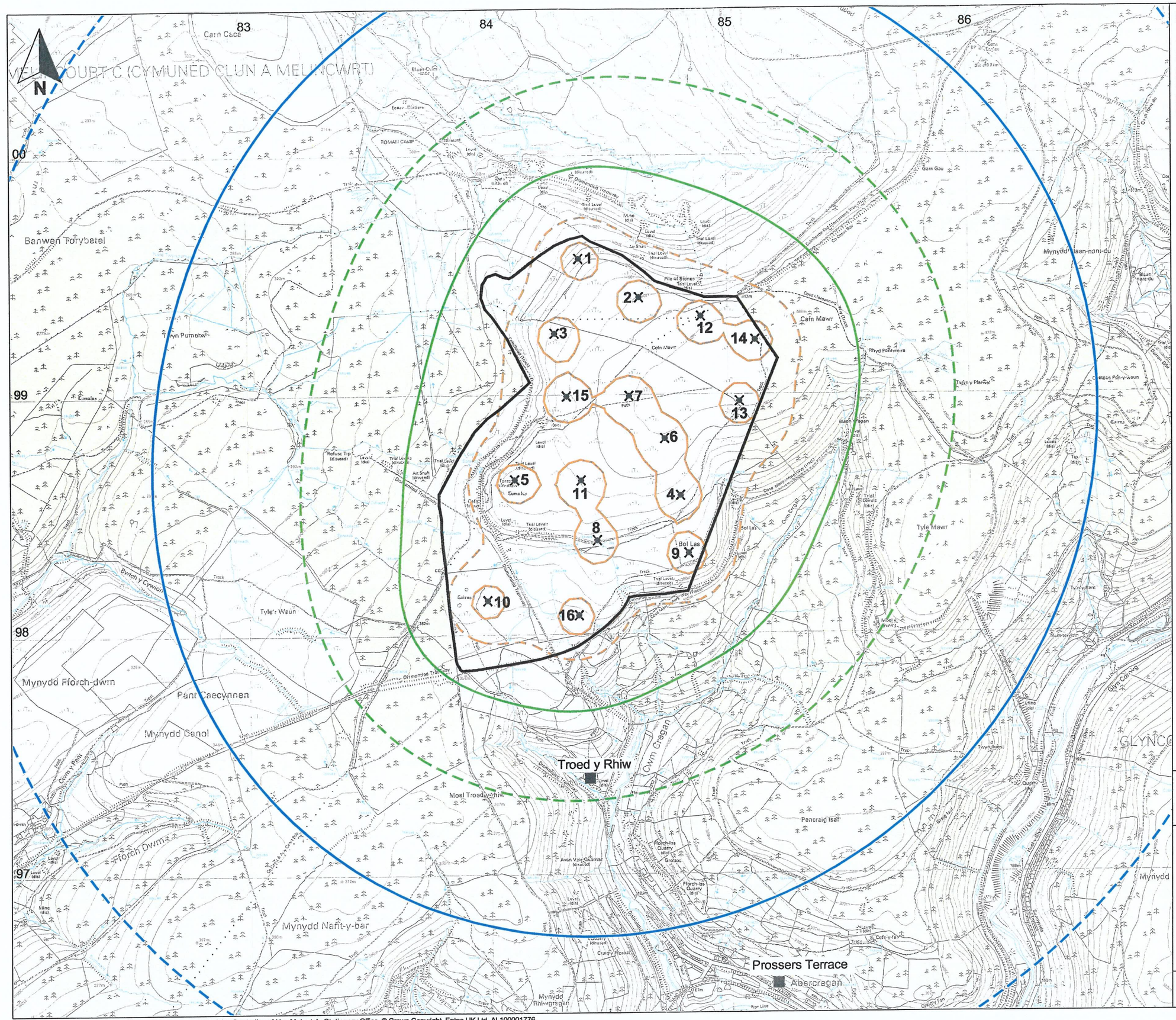
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Figure 12.4
Background $L_{A90,\ 10\ min}$ Noise Levels as a Function of 10m Height Windspeed - No 24 Prossers Terrace

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Key

- Application area
- Location of wind turbine
- Noise monitoring location

Noise Level (dB[A]):

- 25
- 30
- 35
- 40
- 45
- 50

0 m — 800 m

Scale 1:15,000 @ A3

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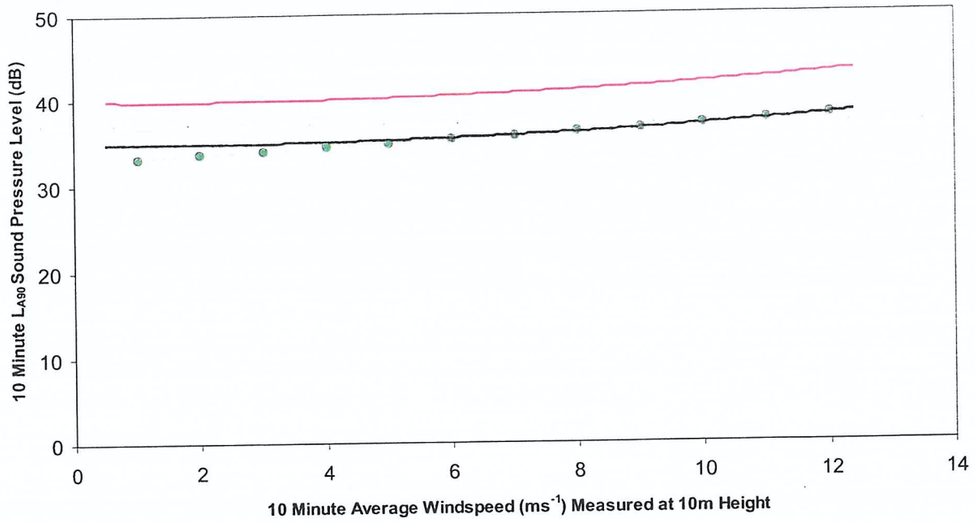
Figure 12.5
L_{A90} Isobel Contour

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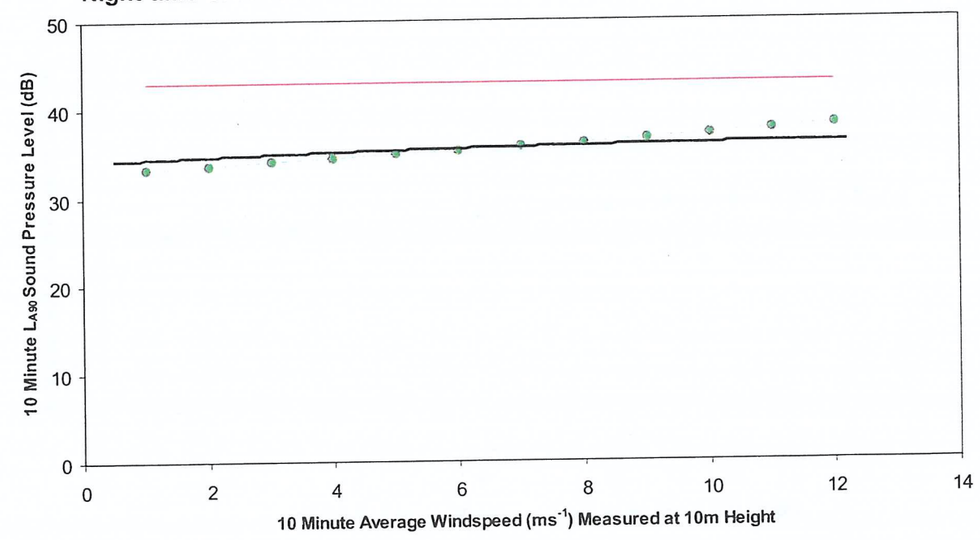
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a) Troed y Rhiw - Quiet Daytime Comparison of Windfarm Noise Levels and the Daytime Criterion Curve



b) Troed y Rhiw - Quiet Night-time Comparison of Windfarm Noise Levels and the Night-time Criterion Curve



Key

- Measured Background (Daytime or Night-time)
- Criterion Curve (Daytime or Night-time)
- Windfarm Noise Emission

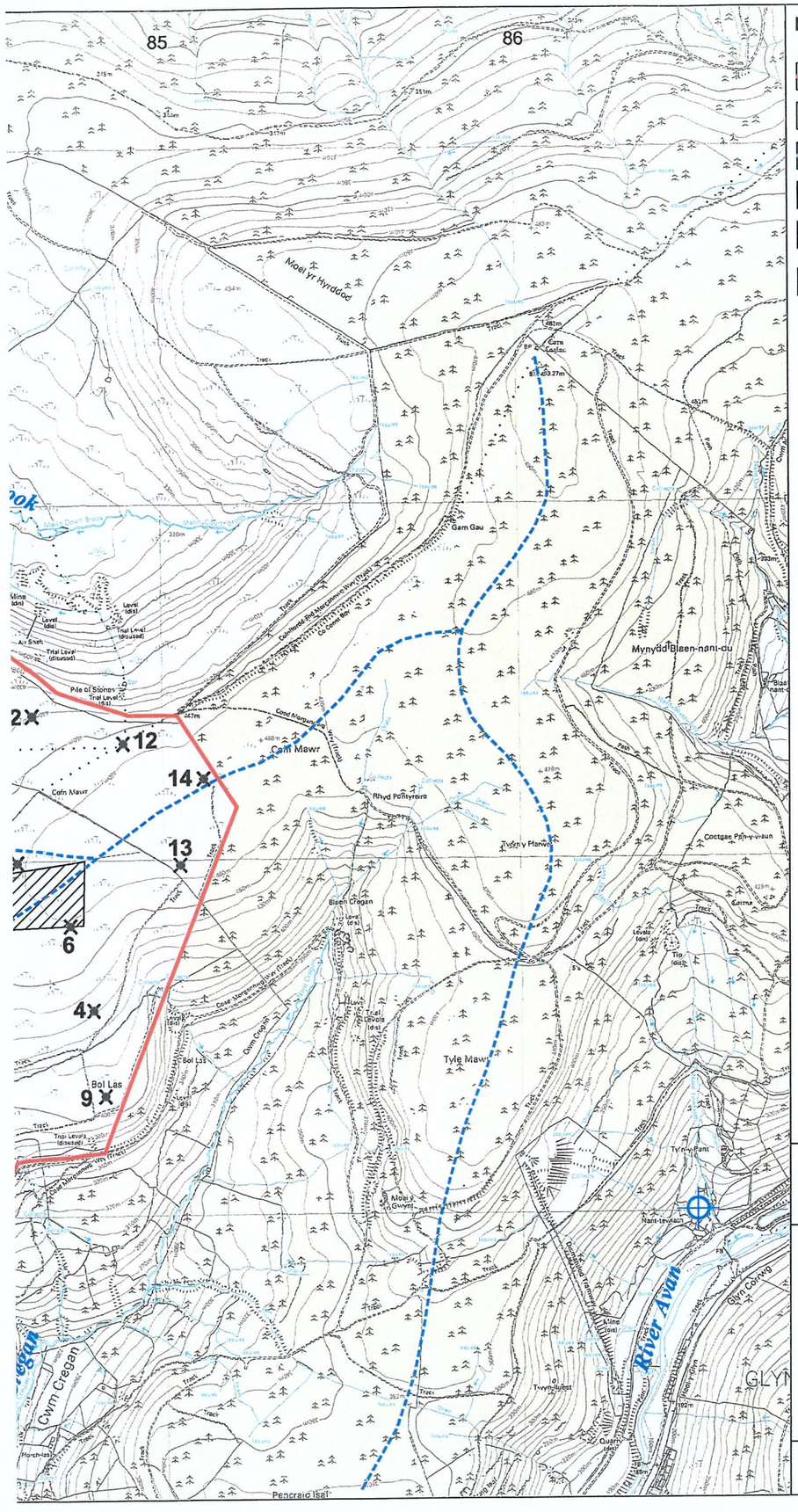
NATIONAL WIND POWER

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Environmental Assessment

Figure 12.6
Background $L_{A90, 10\ min}$ Noise Levels as a Function of 10m Height Windspeed and Comparison of Windfarm Noise Levels- Troed y Rhiw

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Key

- Application area
- Location of wind turbine
- Catchment boundary
- Sheep dip disposal area
- Private water abstraction
- Environment Agency water quality monitoring point

0 m 800 m
Scale 1:15,000 @ A3

NATIONAL WIND POWER

Ffynnon Oer Windfarm
Environmental Assessment

Figure 13.1
Baseline Hydrology

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Key

- Application area
- Location of wind turbine
- Survey site boundary
- B1.1 Unimproved acid grassland
- SI B1.2 Semi-improved acid grassland
- SI B6 Species-poor grassland
- B5 Marshy grassland
- E1.7 Wet modified blanket bog
- E2.1 Acid flush
- ⑤ Target note

0 m — 800 m

Scale 1:15,000 @ A3

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Ffynnon Oer Windfarm
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Figure 15.1
Phase 1 Habitat Survey

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Key

- Application area
- Location of wind turbine
- Survey site boundary
- MP — Meadow Pipit territory
- PW — Pied Wagtail territory
- RK — Reed Bunting territory
- S — Skylark territory
- SC — Stonechat territory
- W — Wheatear territory
- RK - - - RK — Red Kite flight path

0 m — 800 m

Scale 1:15,000 @ A3

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Figure 15.2
Breeding Bird Survey Map

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