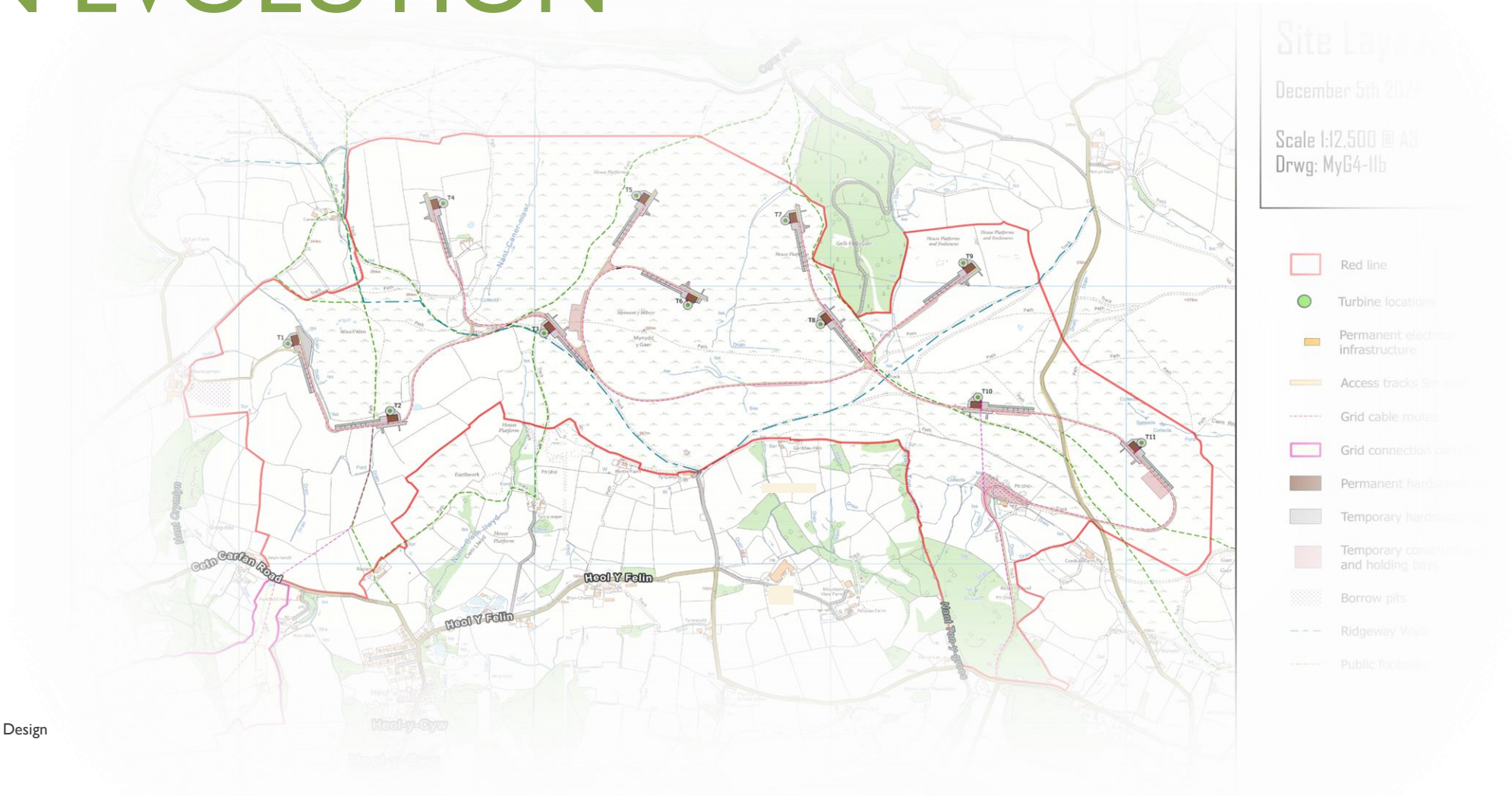
MYNYDD Y GAER WIND ENERGY PROJECT

DESIGN EVOLUTION

CENIN

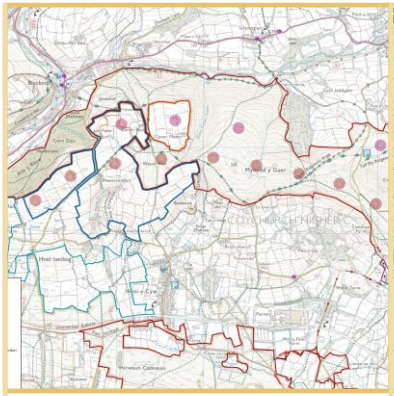


Cenin Renewables

December 2024

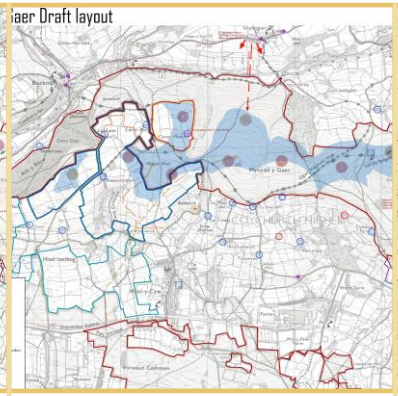
Authored by RAH: Hamon Wind and Solar Design

SITE DESIGN TIMELINE SUMMARY



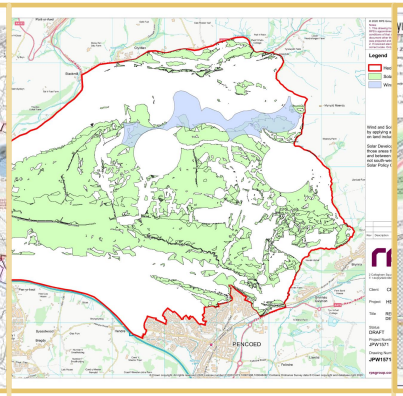
2019

- Initial site investigations and site constraints analyses were undertaken with a focus on providing turbines on the landowners who had expressed interest in collaborating in the scheme.
- V136 machines were used. Access was not confirmed at this time.



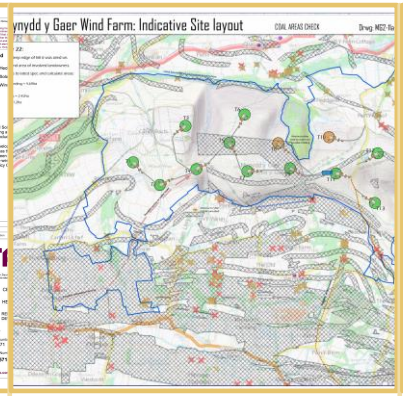
2020

- Turbines were moved away from houses, and away from the SSSI to the west and from archaeology to the east.
- Progress commercial terms with landowners.
- Ecological surveys were commissioned.



2020

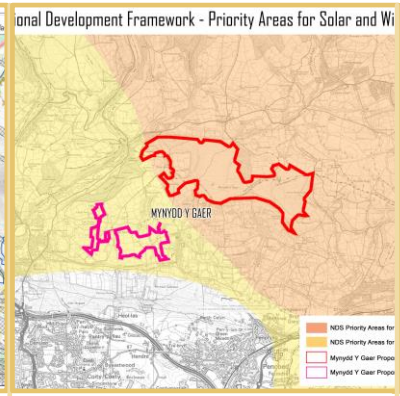
- RPS commissioned to undertake constraints analysis and refine the renewable energy development area.



2021

Further constraints analysis:

- Coal high risk areas.
- Distance to airport.
- Peat
- Linesearch
- Archaeology
- Telecoms



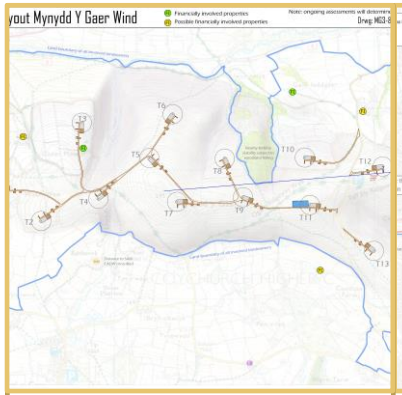
2021

- Site's relationship to NDF checked. Site lies within the Future Wales 2040 Pre-Assessed Areas for Wind.

2021

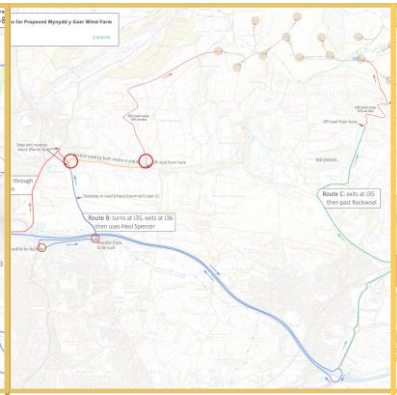
- Investigated any scope to expand to the east. With a 1km buffer to Taff Ely Wind Farm and a 500m buffer to houses, there were no viable locations that connected with the existing scheme.

SITE DESIGN TIMELINE SUMMARY (CONTINUED)



2022

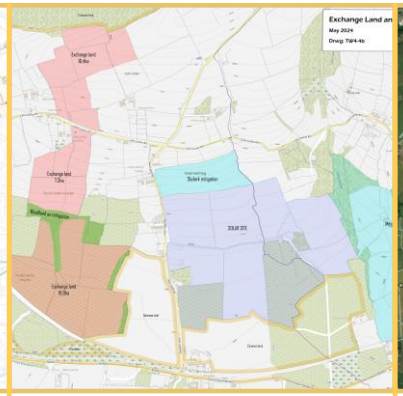
- Site layout was pushed to maximum possible turbine capacity using new V150 machines. Visuals and wakes were checked using WindPro software.



2022

Access

- Extensive work was done investigating the most suitable access route. An ownership masterplan with several route options were drawn up.

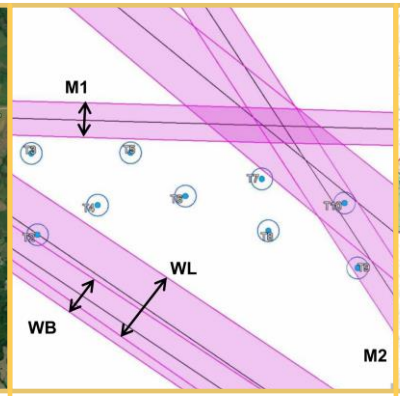


2023

- Estate owned land identified as likely exchange land and mitigation land adjoining common.
- Access route was finalised from the east past Rockwool.
- Incline studies were undertaken with transport company and turbine manufacturers to ascertain 14% max incline.

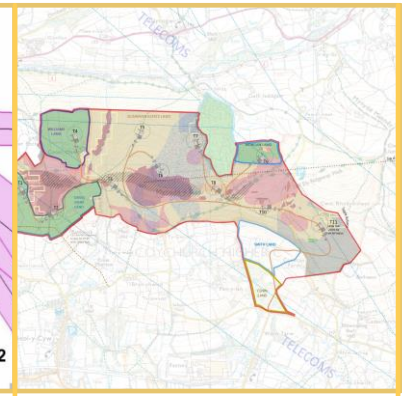
2024

- Findings from ecological studies completed over the previous years dictated no-go areas such as areas on the common with protected species or peat. T2 was moved to avoid sensitive ecology. 50m buffer added to woodland to protect Goshawks.
- Layout reduced to 11 x V162 turbines.



2024

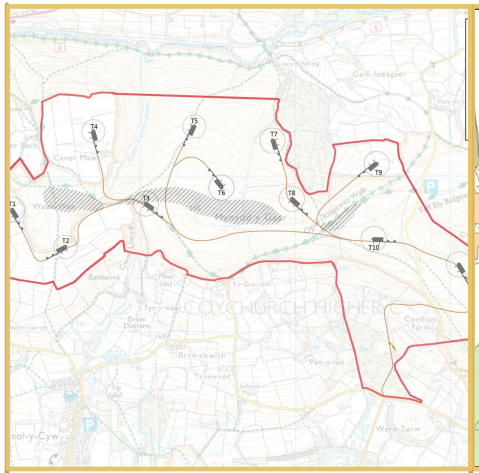
- Telecoms operators informed Cenin of exact lines of site for microwaves and UHF beams. Layout was adjusted accordingly to microsite T1, T2, T3, T10 and T11.



2024

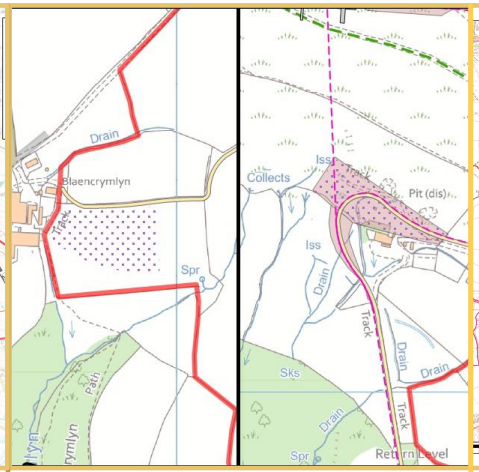
- High pressure gas line required microsite of T2 closer to common.
- Windplanner software was used to assess visual impact. Several turbines were reduced from 200m to 180m tip to lessen visual impact from Glynogwr and Heol y Cyw.

SITE DESIGN TIMELINE SUMMARY (CONTINUED)



2024

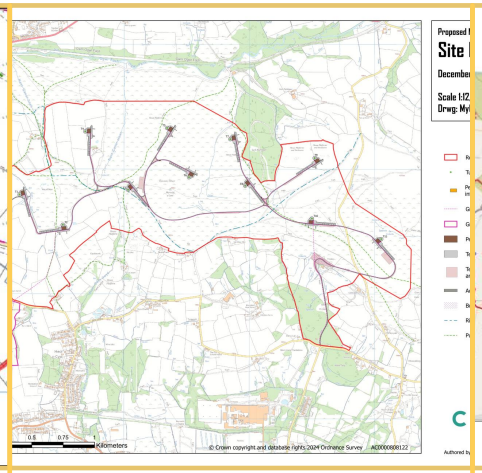
- Areas of peat damage identified on common.



2024

Grid cable routes confirmed and added to site layout.

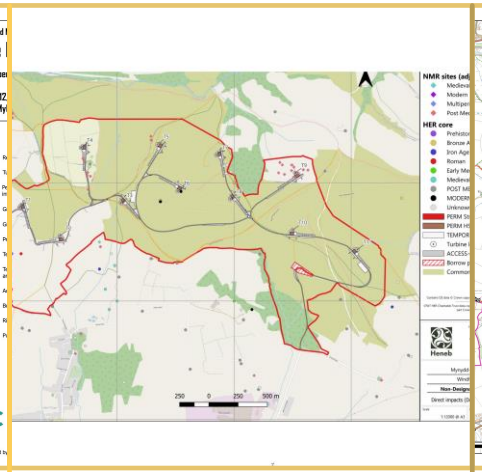
Site visits to confirm locations of borrow pits and temporary set down areas.



2024

Site layout updated with new turbine manufacturers' indicative crane pads and temporary hard standings.

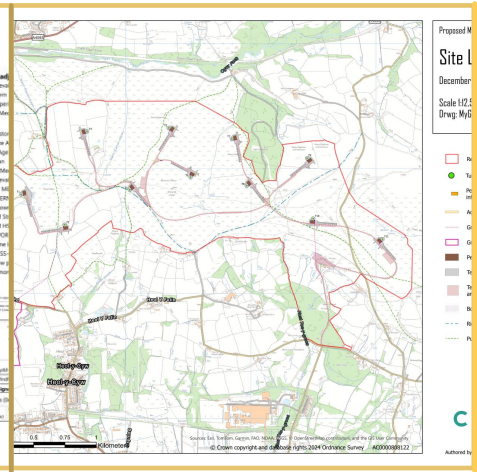
Tracks updated and cable lengths measured.



2024

Archaeological survey findings noted sensitive archaeology near or under proposed tracks and hard standings.

To remediate this, turbines 1, 4 and 6 crane pads were adjusted. Turbine 9 was moved approx. 70m west to avoid archaeology and potential bat roosting areas in the hedgerows.



2024

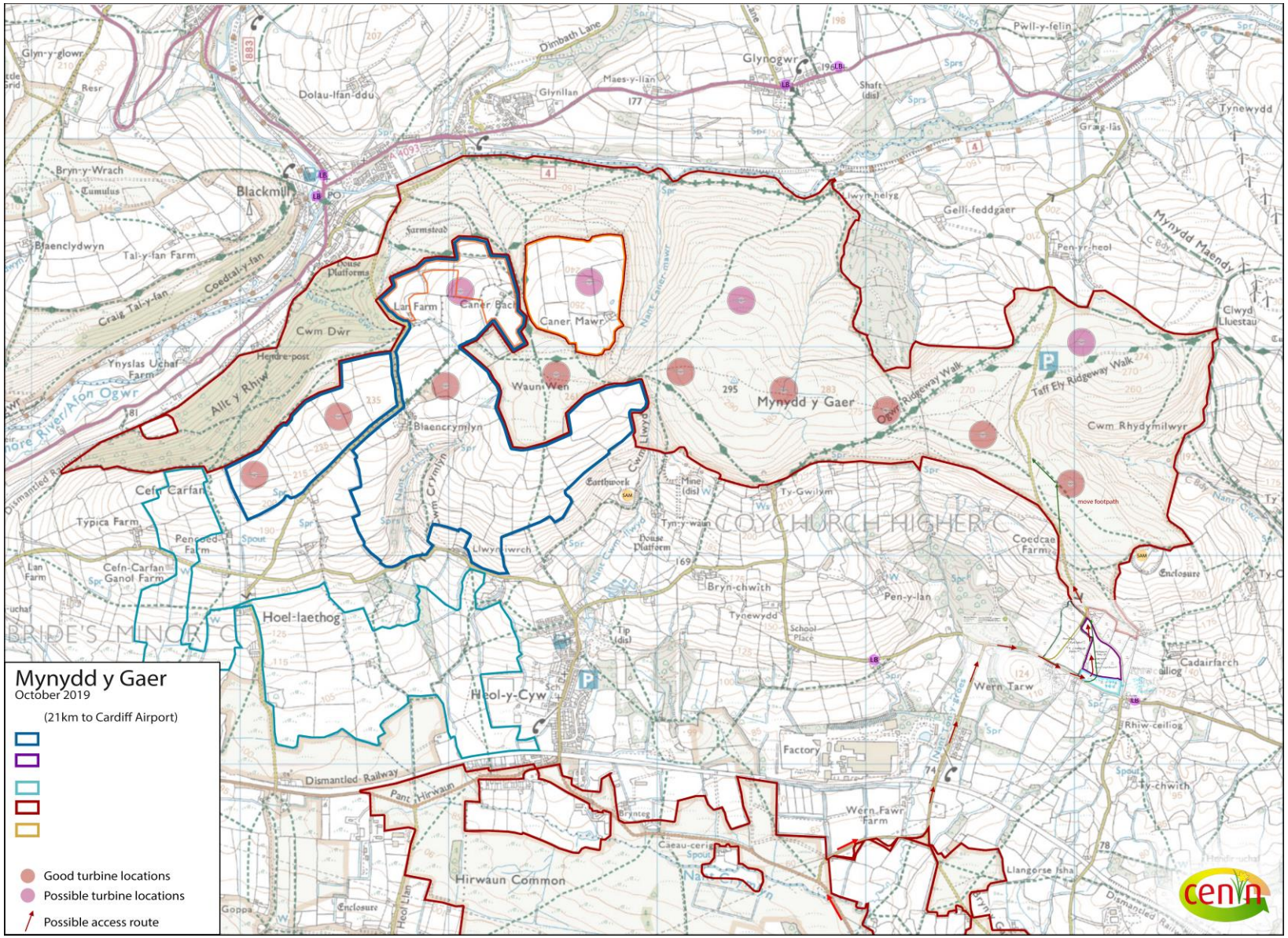
Updated site layout finalised ready for PAC.

Highway engineer checks cut and fill areas for tracks and foundations.

2019

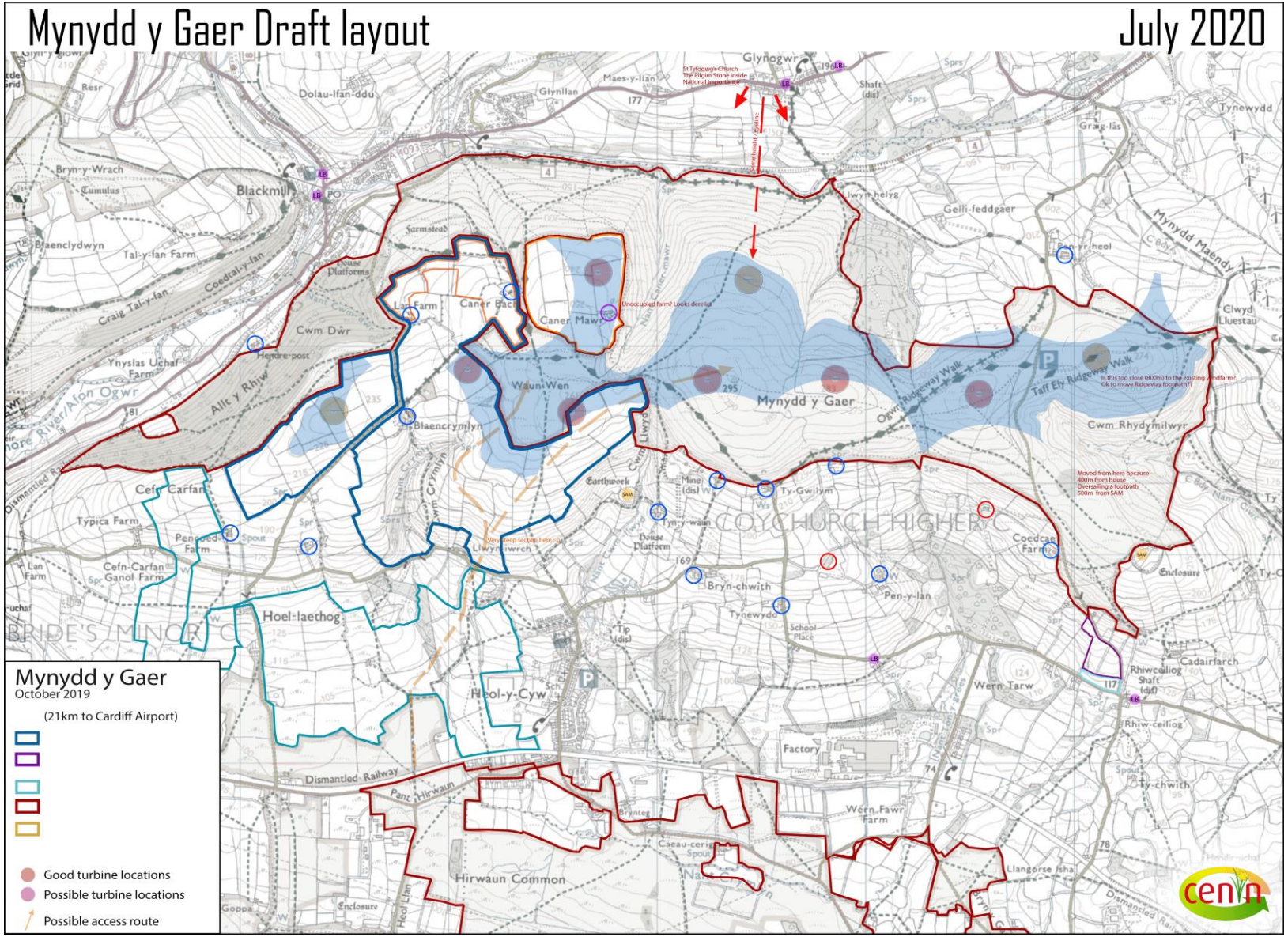
- Initial site investigations and site constraints analyses were undertaken with a focus on providing turbines for landowners who were keen to collaborate in the scheme.

- Initial layout specification was for candidate V136 4MW wind turbines, as access was not confirmed at this stage and longer blades may not have been deliverable to site.



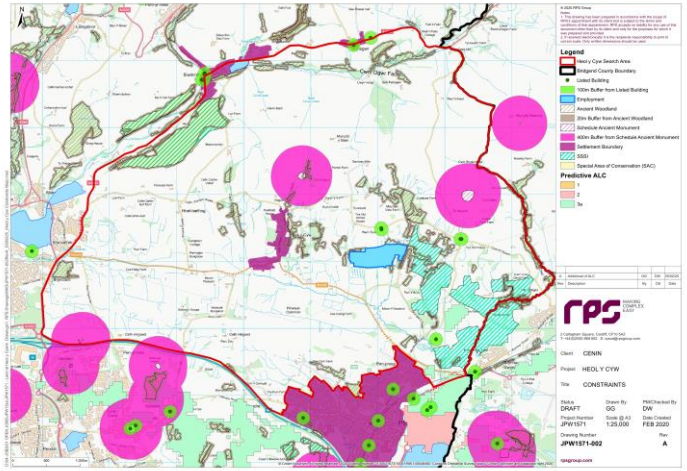
EARLY 2020

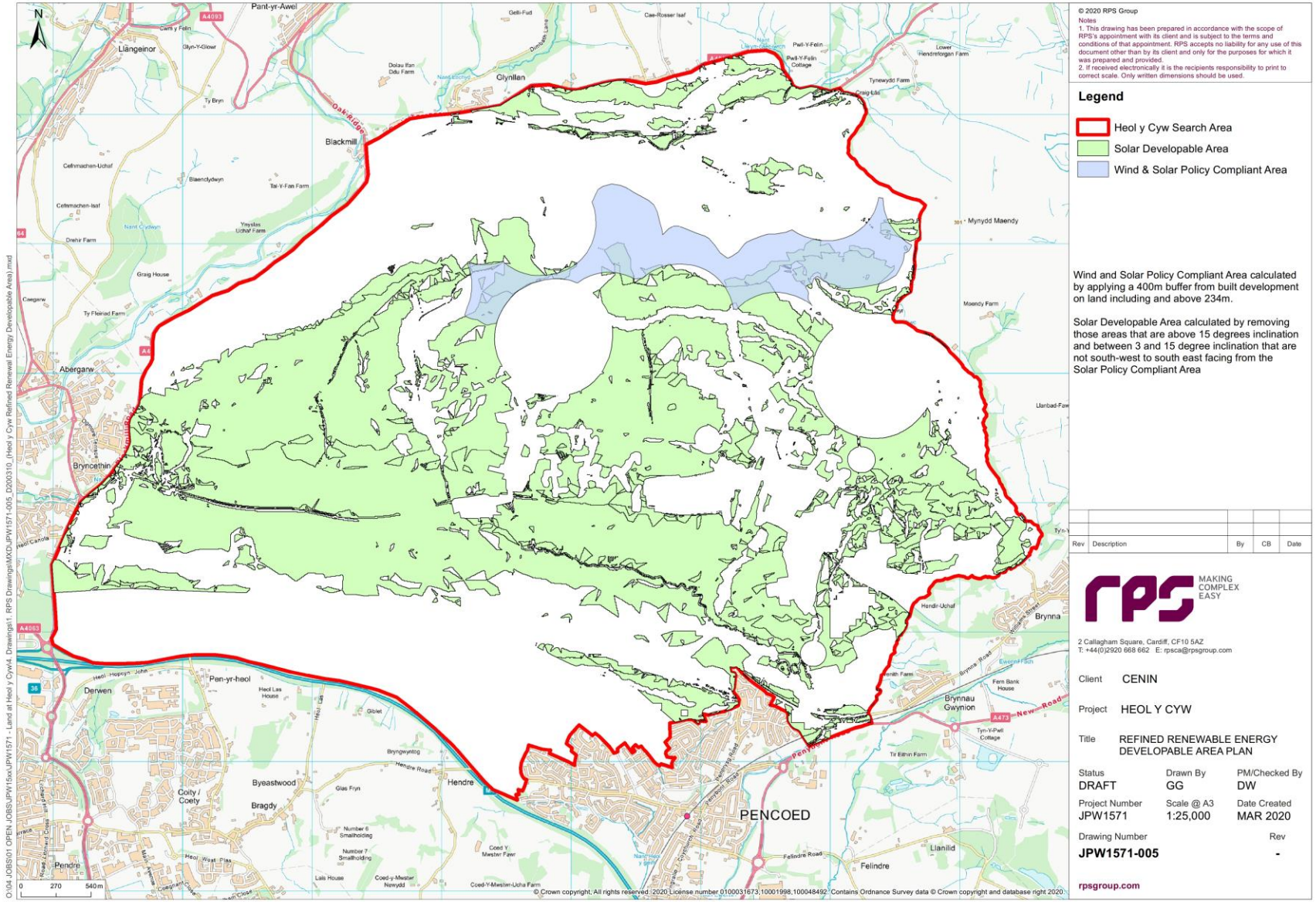
- Turbines were moved at least 400m away from houses, and away from the SSSI to the west and from archaeology to the east.
- Time was spent on making contact with all surrounding landowners.
- Ecological surveys were commissioned.



LATE 2020

RPS were commissioned to undertake constraints analysis and refine the renewable energy development area.



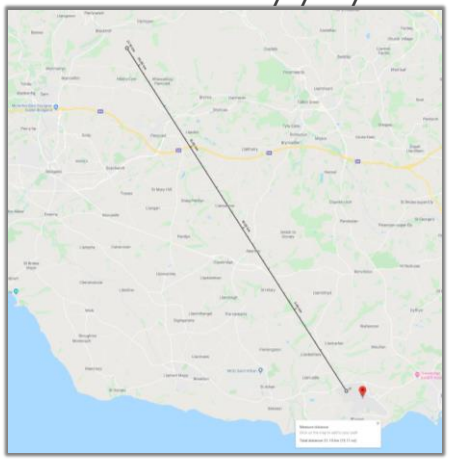


EARLY 2021

Checks undertaken:

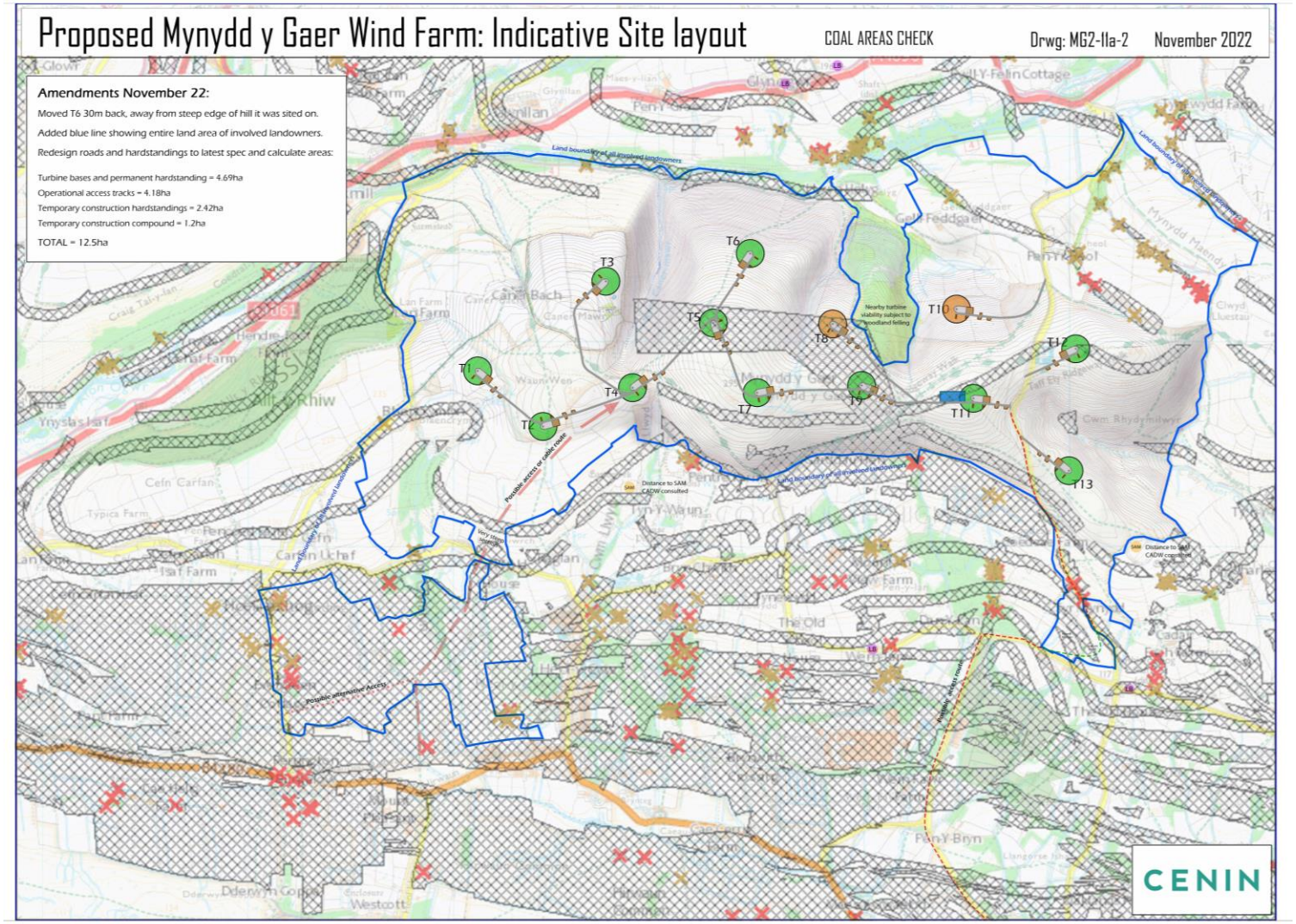
- **Coal high risk areas.**
- **Distance to airport.**
- **Peat**
- **Line-search**
- **Archaeology**
- **Telecoms**

Measurement from Mynydd y Gaer to Cardiff Airport radar (21.1km).



CADW map showing scheduled ancient monuments and listed buildings

Source: https://cadw.gov.wales/advice-support/cof-cymru/search-cadw-records

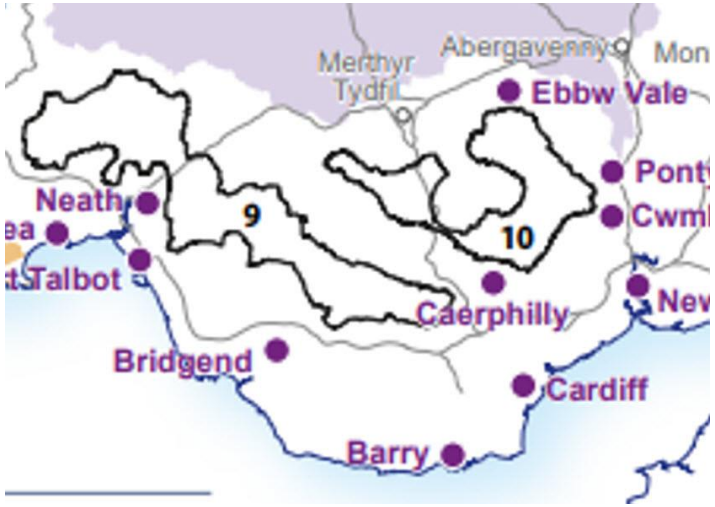


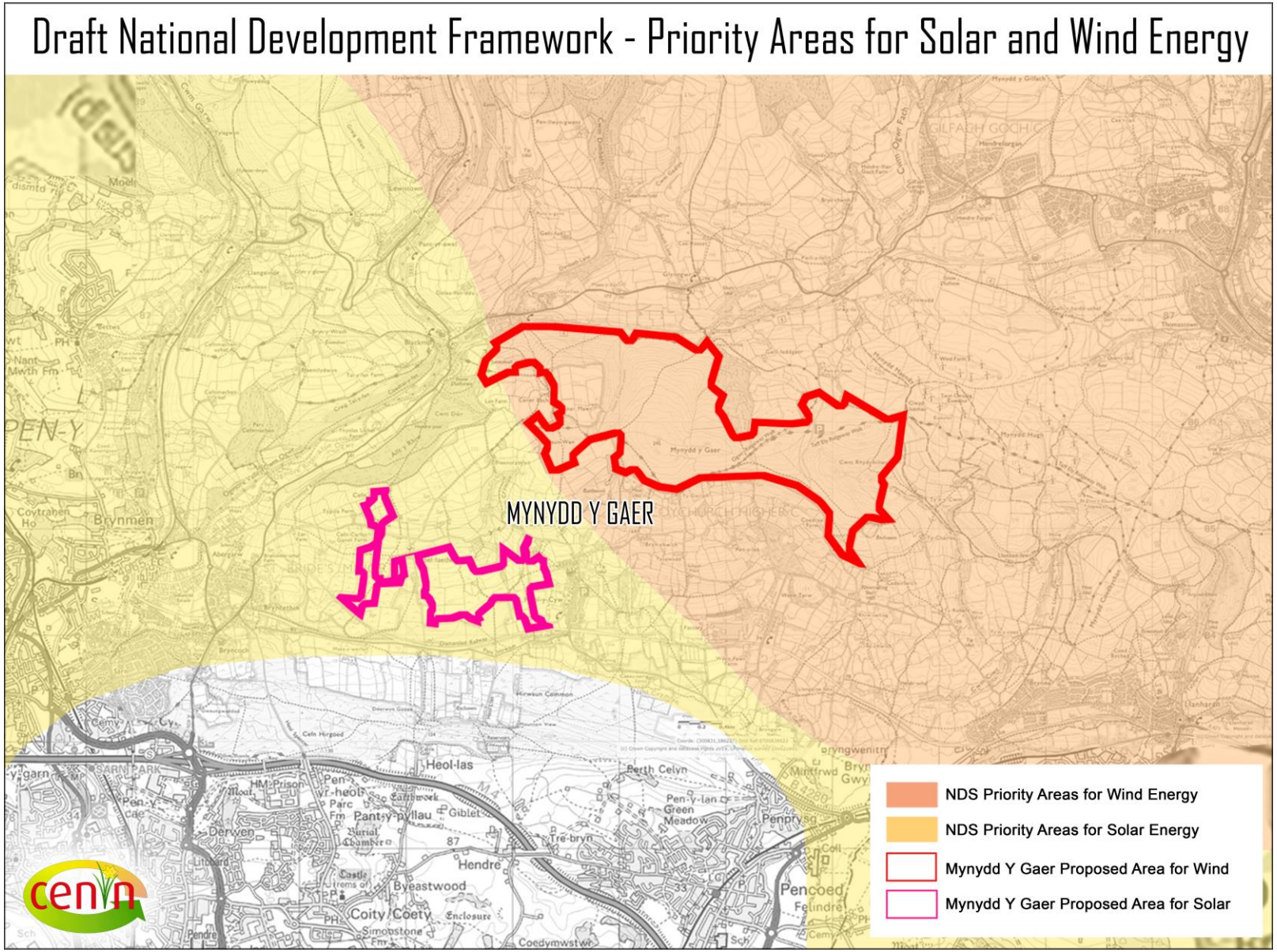
Coal layer source: The Coal Authority map viewer - https://datamine-cauk.hub.arcgis.com/

MID 2021

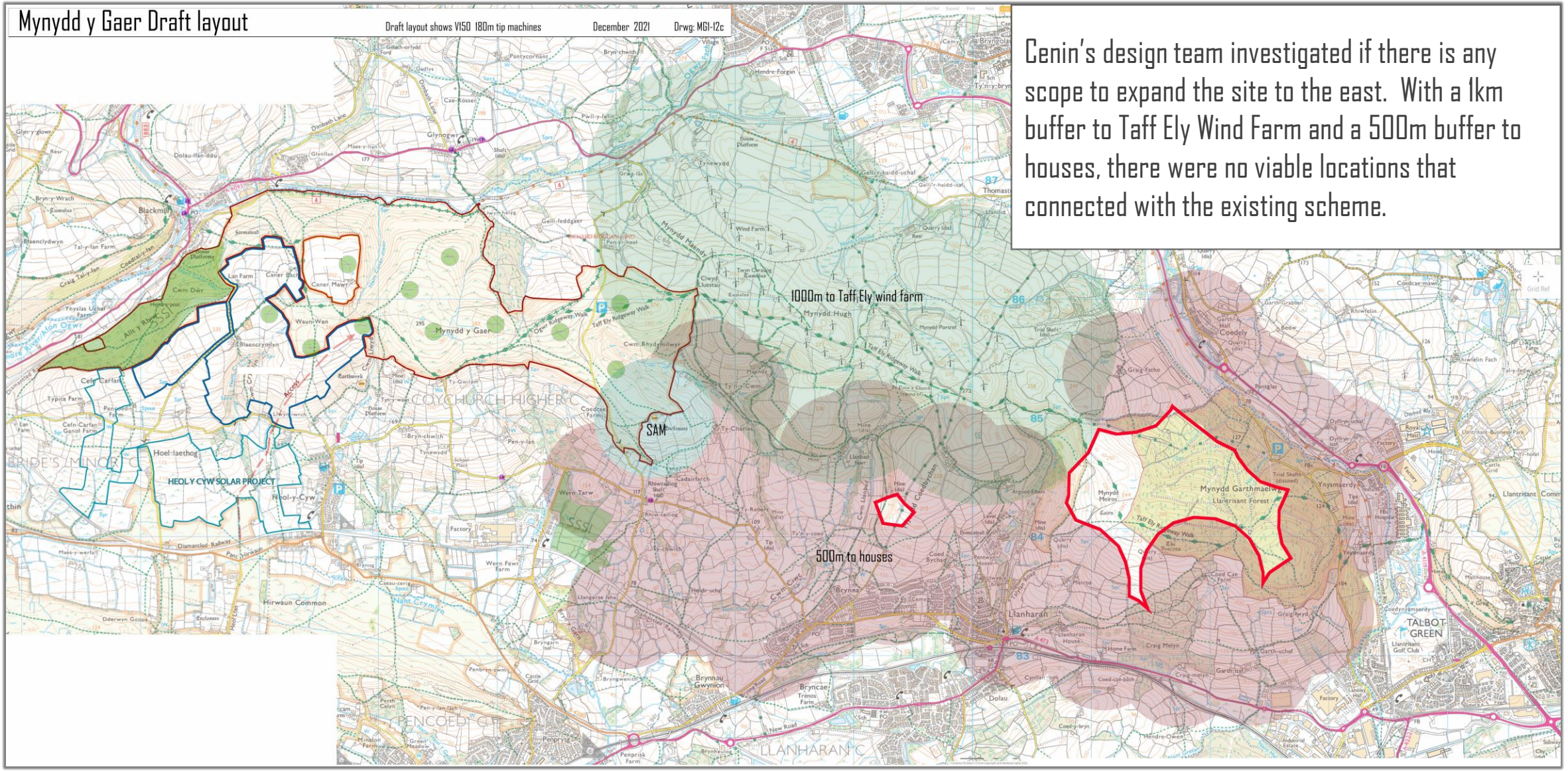
- Demonstrating the site's relationship to National Development Framework.

- The site lies within the Future Wales 2040 Pre-Assessed Area for Wind.





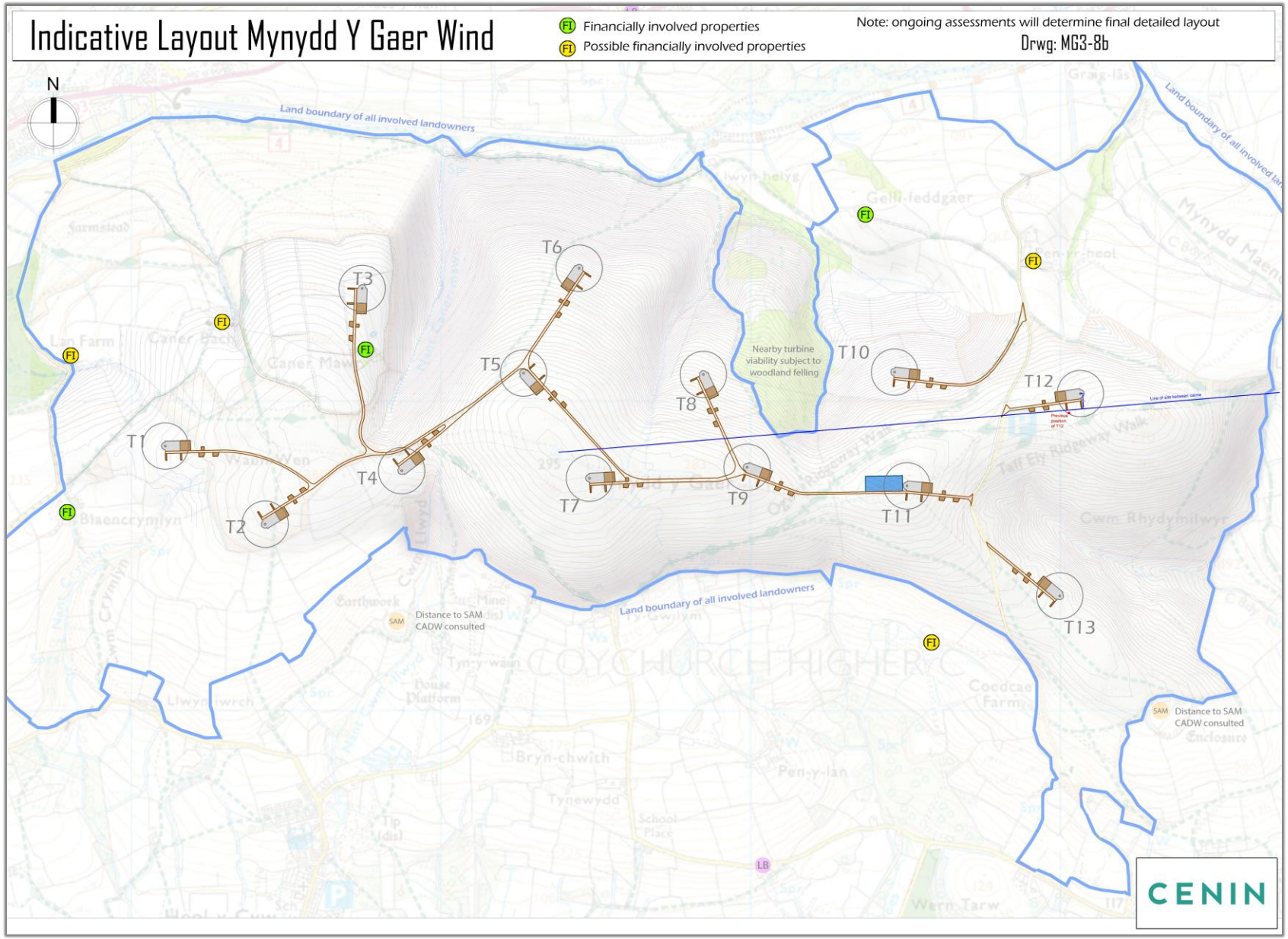
LATE 2021



Cenin's design team investigated if there is any scope to expand the site to the east. With a 1km buffer to Taff Ely Wind Farm and a 500m buffer to houses, there were no viable locations that connected with the existing scheme.

EARLY 2022

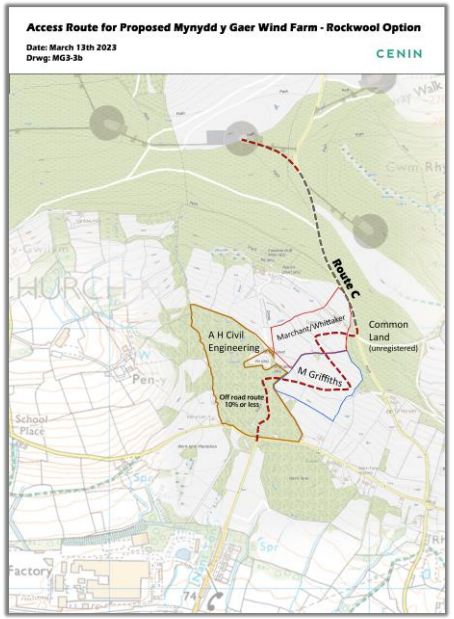
- Site layout was pushed to maximum possible generation capacity using new candidate V150 180m tip wind turbines.
- Visuals and wakes were checked using WindPro software.
- The importance of a line of site between two archaeological positions was flagged by archaeologists. This was kept clear by micro-siting turbines (blue line on adjacent plan).

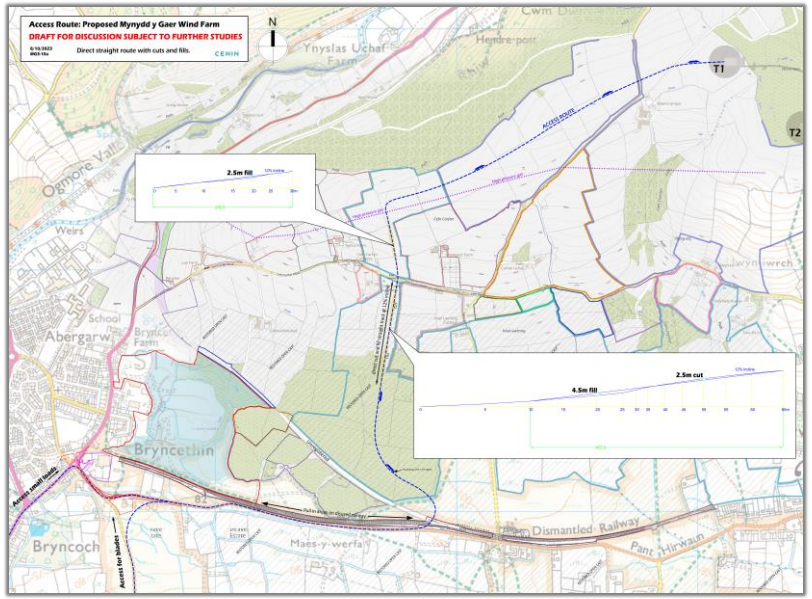


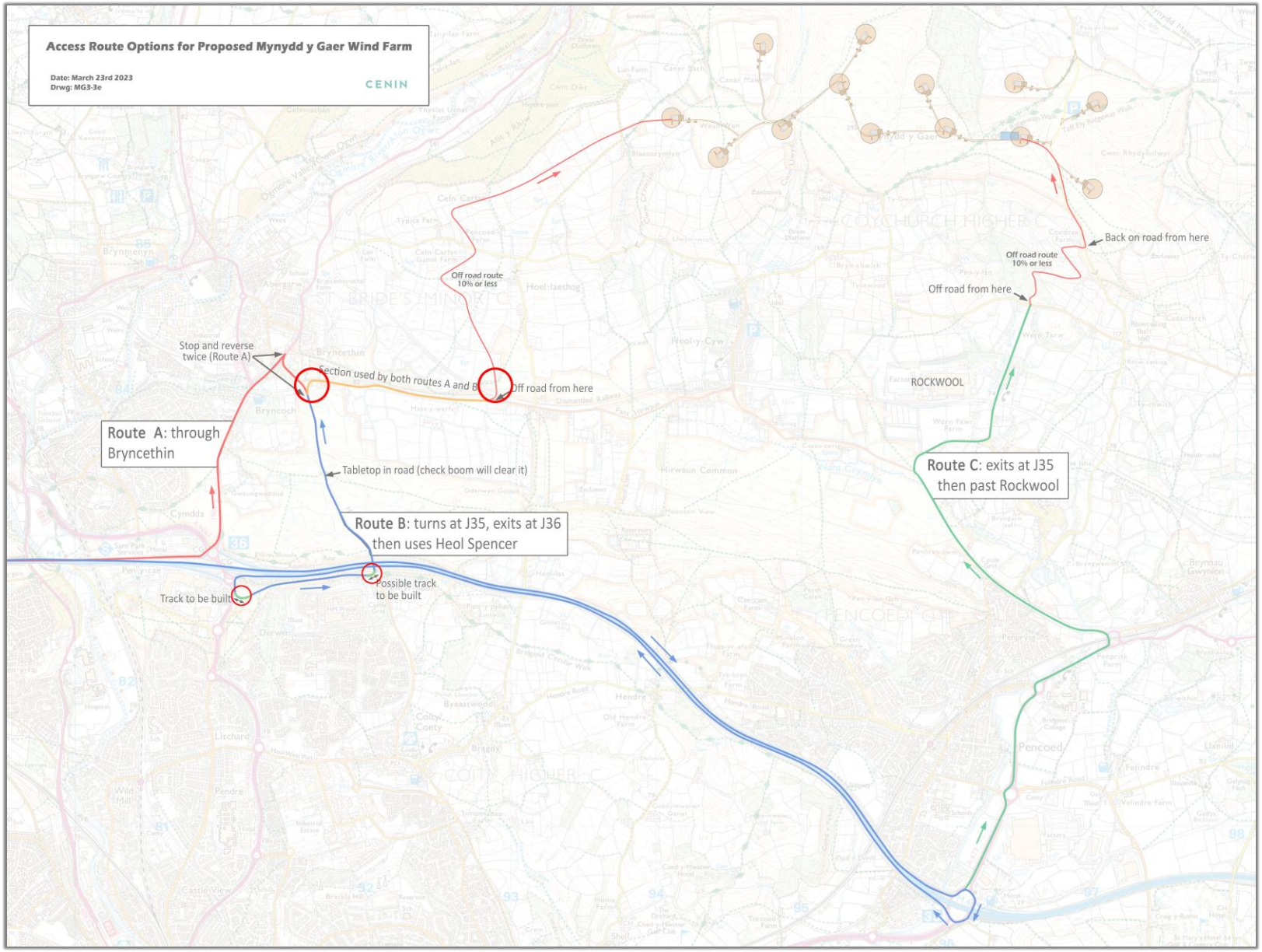
LATE 2022

Access

- Most suitable access route assessed with ownership masterplan: several route options proposed.
- Track gradients calculated.





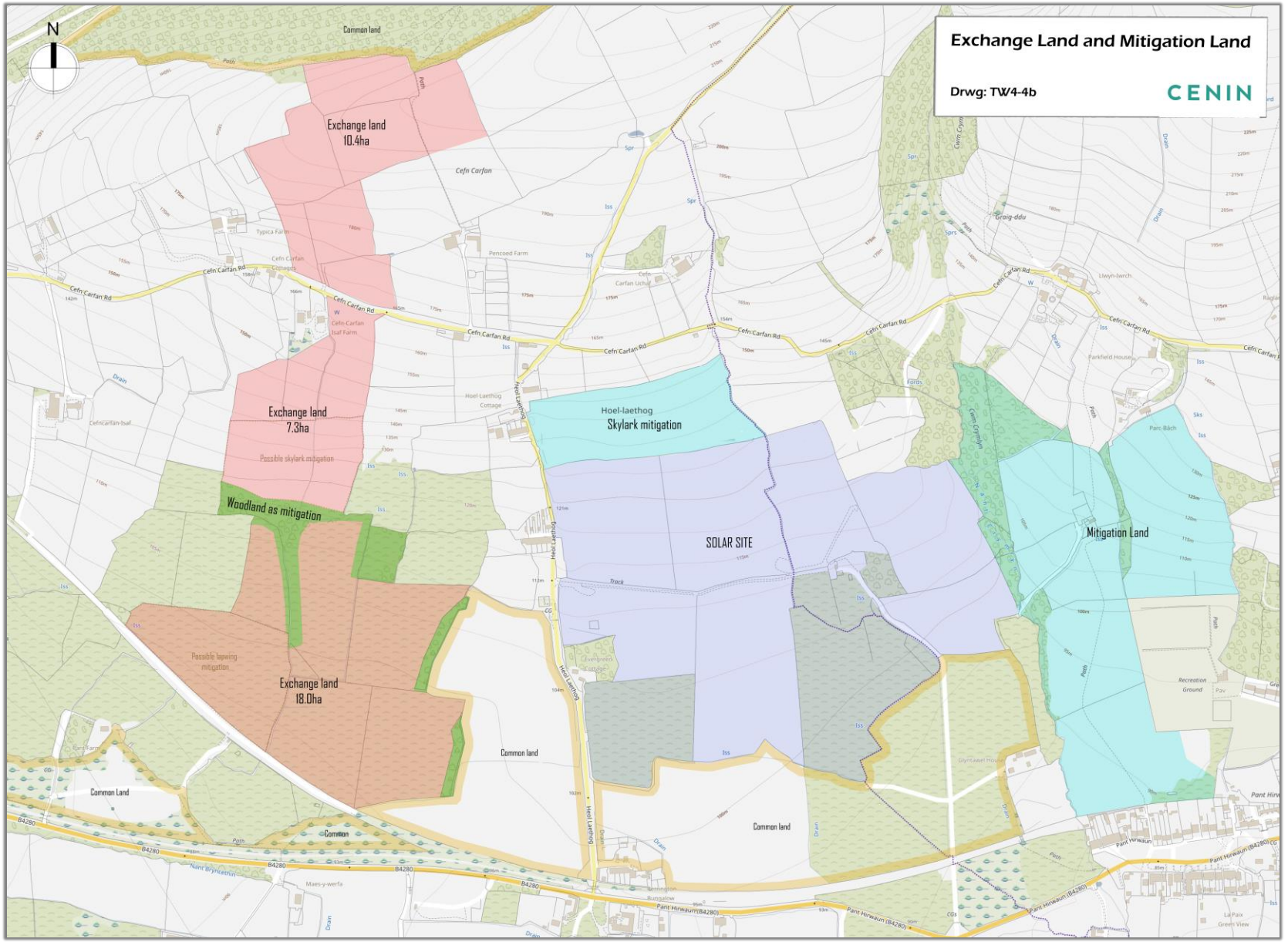


2023

- Exchange land and mitigation land was identified and formalised.
- Access route was finalised from the east past Rockwool.
- Incline studies were undertaken with transport company and turbine manufacturers to ascertain 14% max incline.

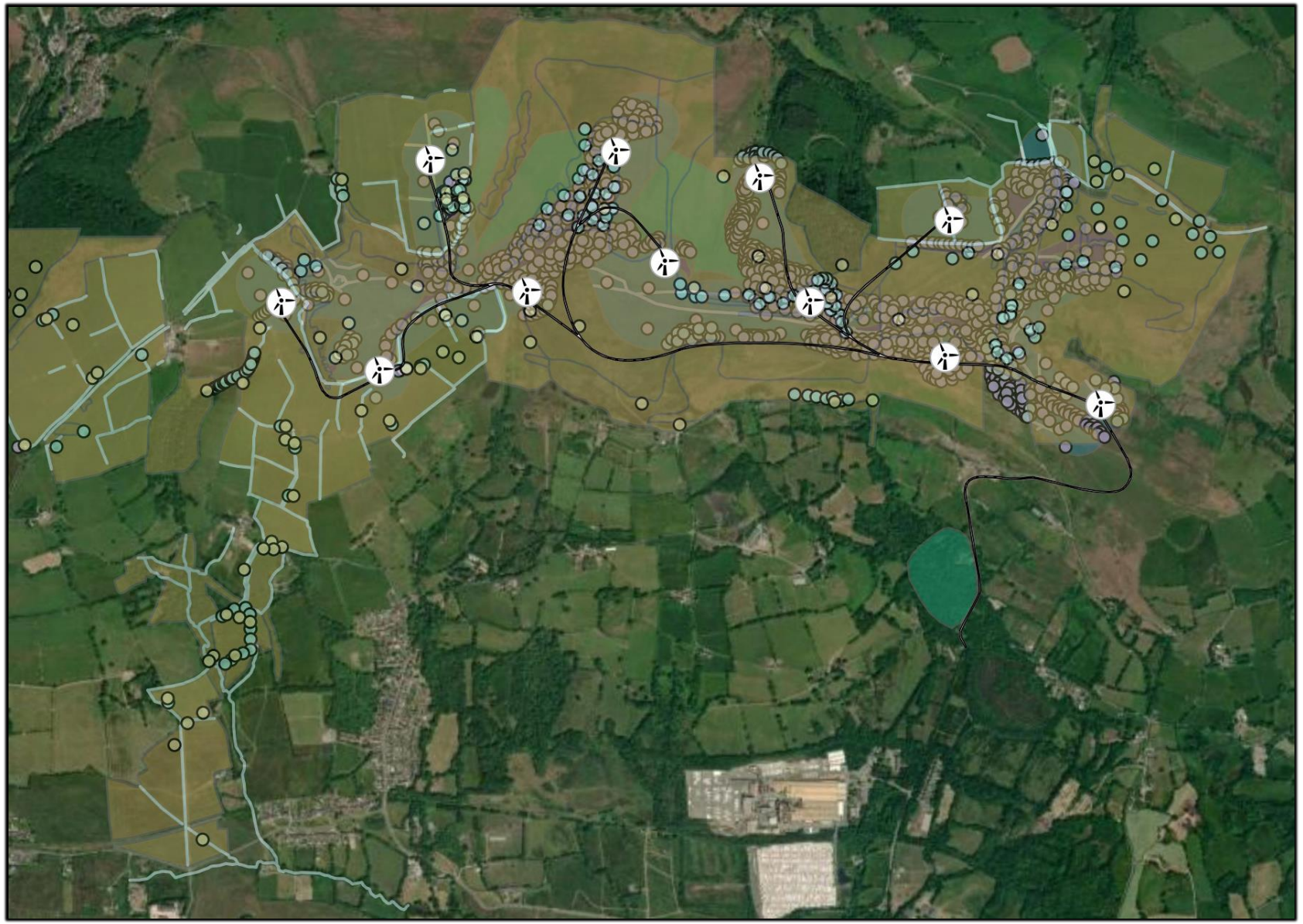
Public drop in Sessions:

Community engagement sessions organised to inform local residents about the scheme. Views heard and comments taken on board.



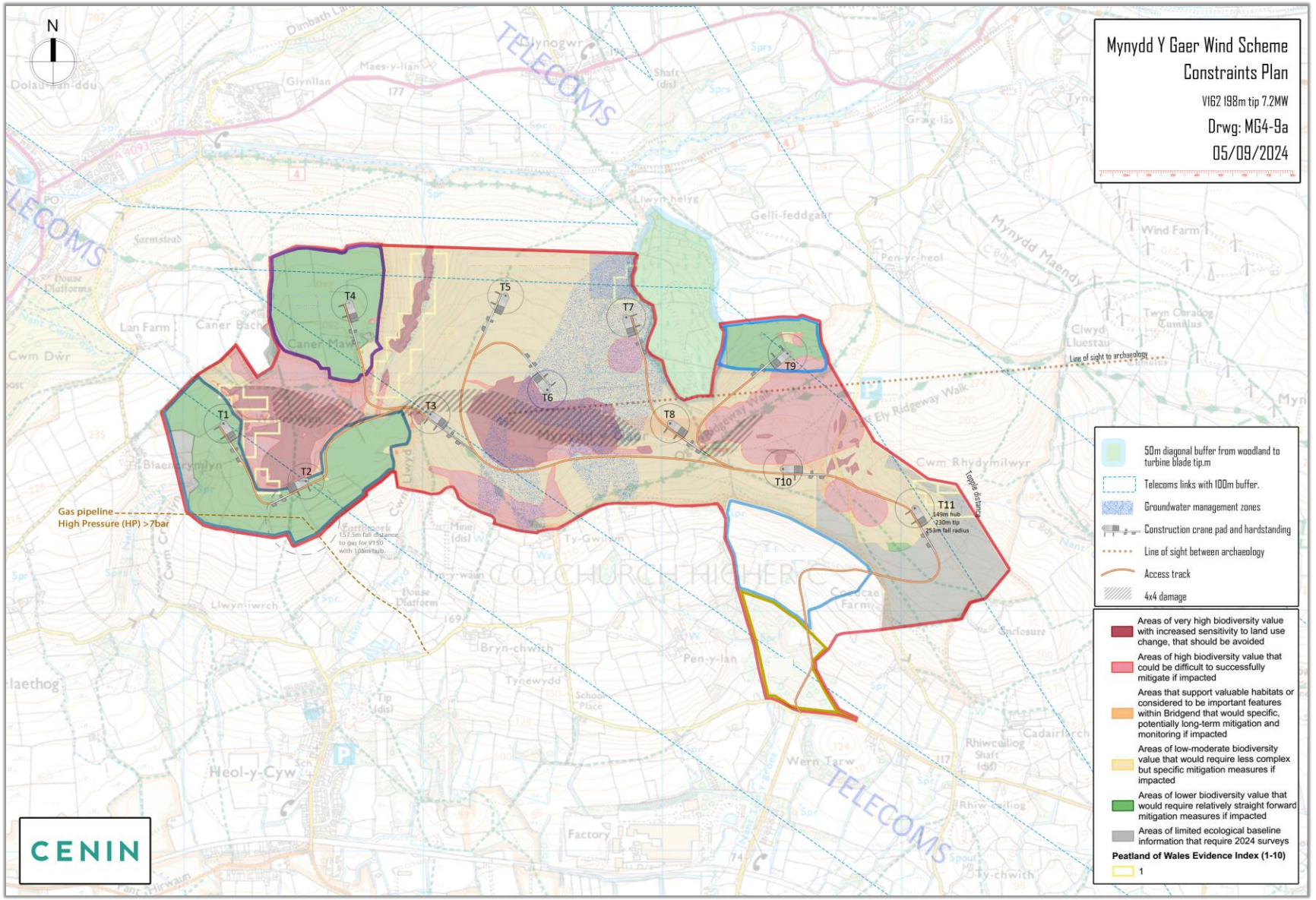
EARLY 2024

- Findings from ecological studies completed over the previous years dictated no-go areas such as areas on the common with protected species or peat.
- T2 was moved to Mr John's land to avoid ecologically sensitive areas.
- A 50m buffer was added to the woodland to protect Goshawks.
- Layout was reduced to 11 x V162 198m tip turbines.



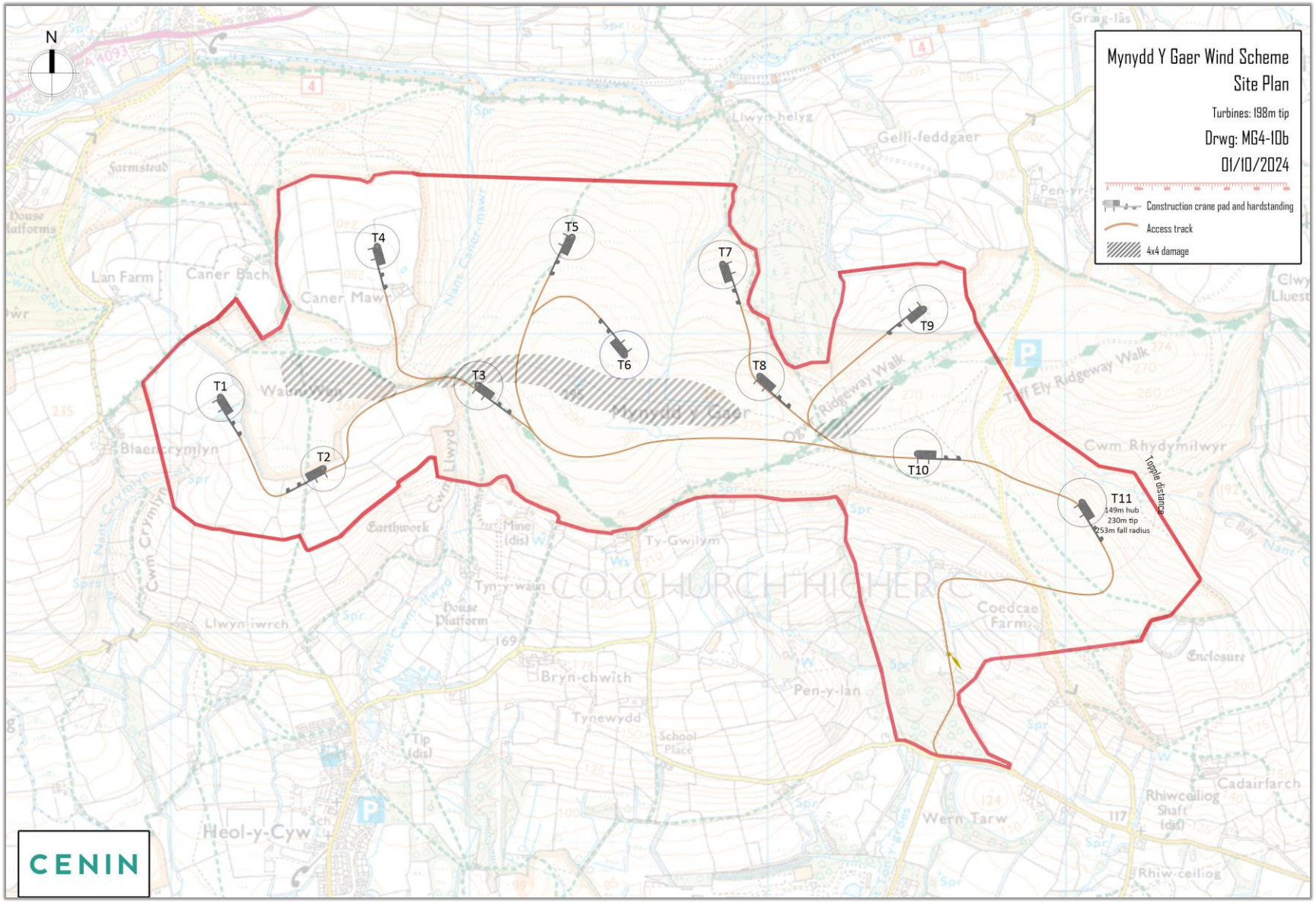
LATE 2024

- Telecoms operators informed Cenin of exact lines of site for microwaves and UHF beams. Layout was adjusted accordingly to microsite T1, T2, T3, T10 and T11.
- Candidate 198m tip V162 turbines now used to maximise efficiency of scheme.
- High pressure gas line caused micro-siting of T2.
- Windplanner software used to assess visual impact. Several turbines were reduced from 198m to 180m tip to lessen visual impact from Glynogwr.



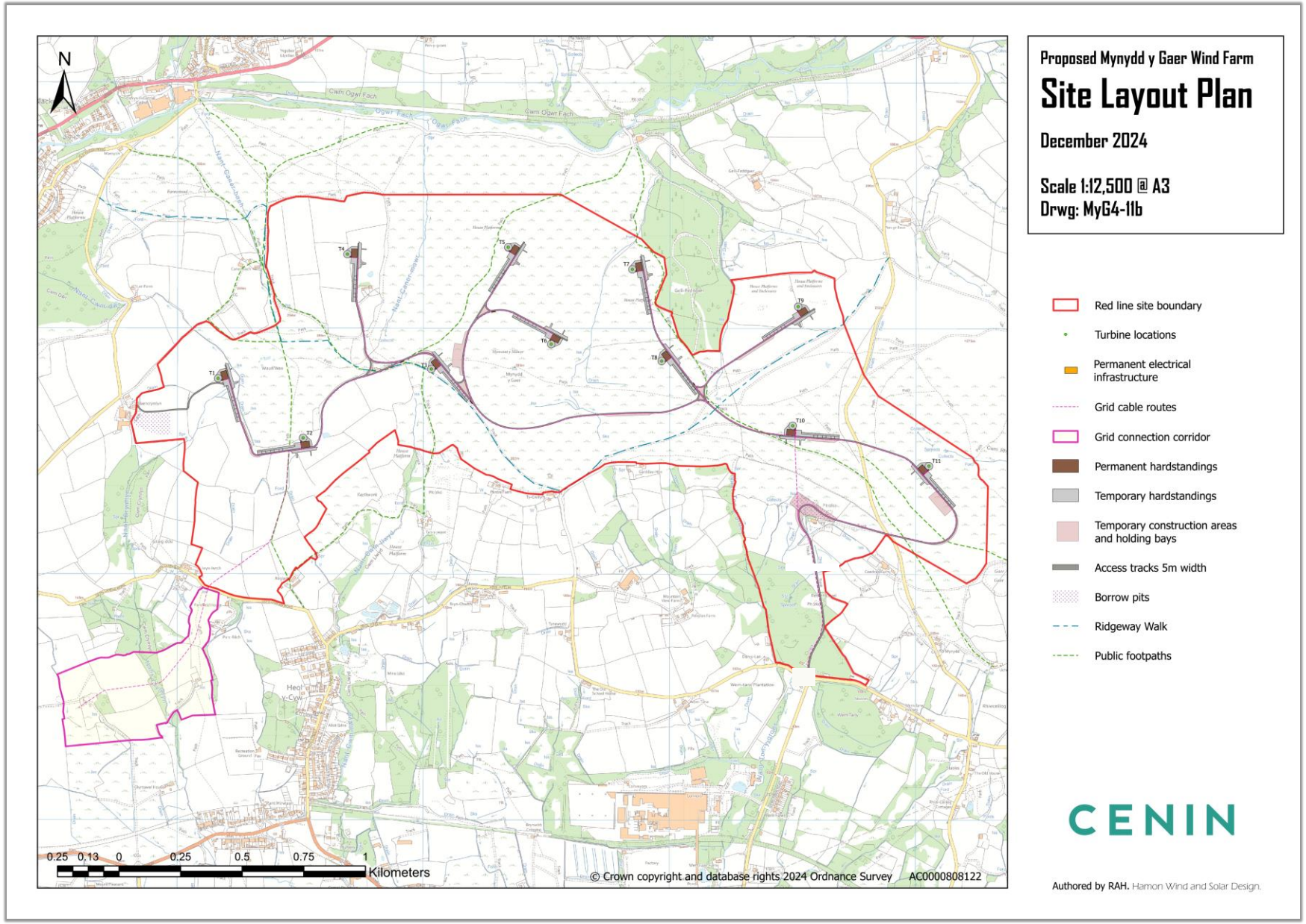
LATE 2024

- Areas of peat damage by 4x4 vehicles identified. Meeting with commoners about this and how the wind farm will improve security on site and stop off roaders destroying the peat habitat.



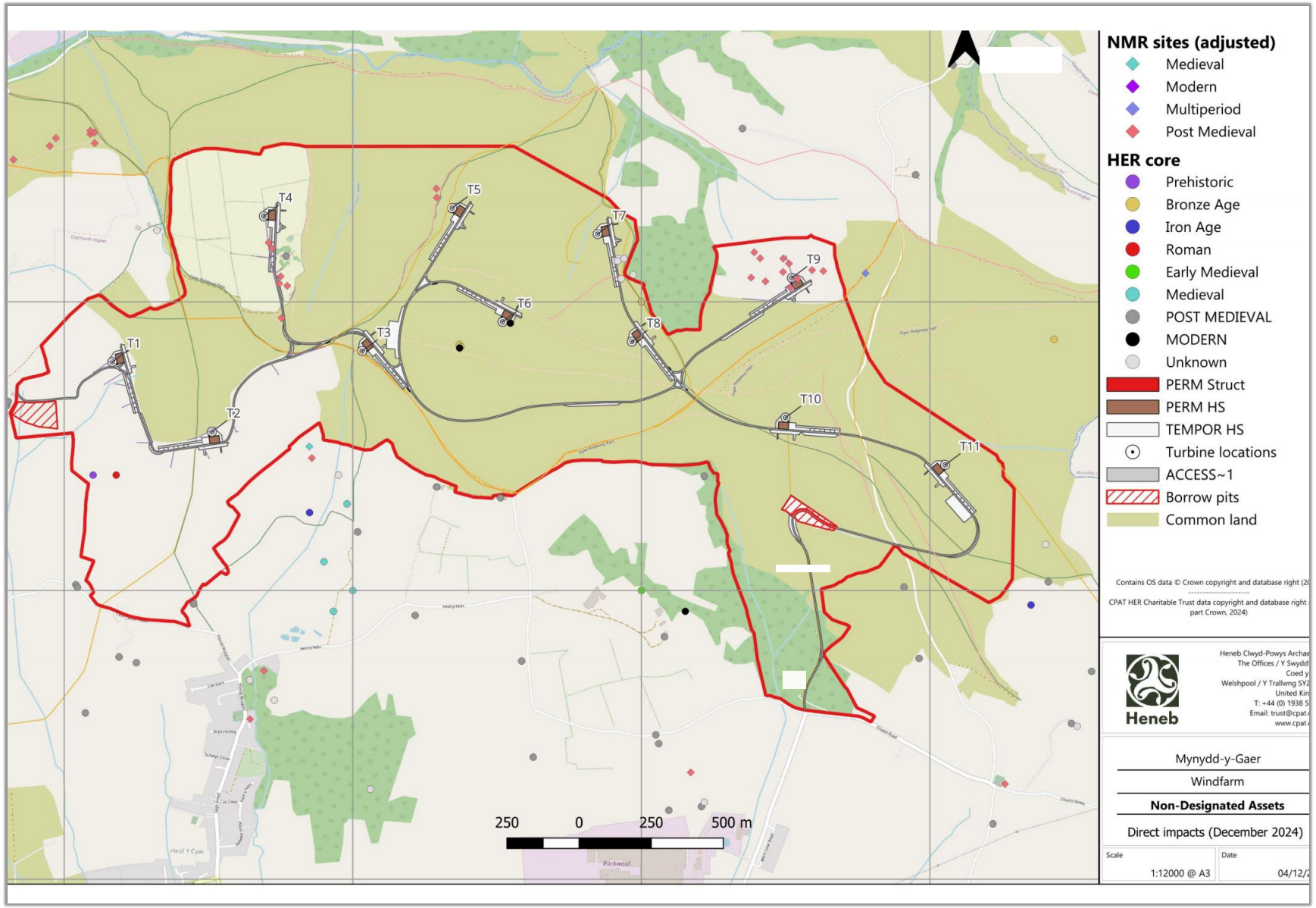
LATE 2024

- Site visit to confirm areas suitable for borrow pits.
- Confirm locations for temporary holding and passing bays.
- Updated current specification crane pads substituted on site layout plan.
- Grid cable routes confirmed and measured. Grid connection corridor added.
- Land owner requested track link to from T1 to his farm to allow future windfarm track use for livestock management over the common.
- Electrical infrastructure cabinets added to site layout.



LATE 2024

- Archaeology consultants flagged sensitive areas affected by change to updated crane pads on hard standings or tracks near T1,4,6 and 9.
- T9's location was particularly impactful to archaeology. Design meeting to find solution.



LATE 2024

- Re-design adjusted or flipped cranes pads for T1, T4 and T6, being mindful not to encroach on pre-assessed ecologically sensitive areas.
- T9's location was changed to avoid archaeology moving approx. 70m to the west. This also reduced the ecological impact of T9 on possible hedgerow habitat.