

4. SITE CONTEXT

INTRODUCTION

- 4.1. This Chapter provides a general overview of the natural and man-made environment in the Gordonbush and surrounding south east Sutherland area. Where appropriate, more specific details are outlined in subsequent chapters.

LOCATION AND TOPOGRAPHY

- 4.2. The proposed windfarm is located on the Gordonbush Estate approximately 12km north west of Brora in south east Sutherland, in the Highland Council area (**Figure 1.1**). Inland, south east Sutherland is characterised by high moorland incised by the major straths and glens of Strath of Kildonan, Strath Brora, Dunrobin Glen, and Strath Fleet. A lower lying plain fringes the coast. The main rivers in the area are the Helmsdale, Brora and Fleet.
- 4.3. The site is located on high moorland approximately mid way between Strath Brora and Strath of Kildonan. The site itself is a plateau which slopes gently south west from approximately 400m to 300m. It is bounded by a series of higher peaks including Cnoc a' Chrubaich Mhoir (421m), Meallan Liath Beag (479m) and Meallan Liath Mor (510m).
- 4.4. There are few trees and little in the way of shrub vegetation on the site, which predominantly comprises heather covered peat. Several burns run off the site, draining into the River Brora / Loch Brora via the main tributaries. Some of the watercourses (Allt a' Mhuilinn, Allt Smeorail) have led to the formation of deep gullies at the periphery of the site.

STATUTORY DESIGNATIONS

- 4.5. The site is not included under any statutory environmental designations although it is approximately 2km from a SSSI, SPA, cSAC and Ramsar site at Coir' an Eoin (See **Chapter 8**). The Loch Brora and Loch Migdale Areas of Great Landscape Value (AGLVs) are located within the study area. Four proposed AGLVs are also located close to the site at Achentoul to the north, Ben Klibreck to the west, Ben Horn to the south and Morven to the northeast. The Dornoch Firth National Scenic Area (NSA) is located 26km to the south of the site.

POPULATION AND SETTLEMENTS

- 4.6. The population and settlements are discussed in greater detail in **Chapter 17**. The South and East Sutherland Local Planⁱ area has been suffering from population decline, and this is predicted to continue across Sutherland. The population of the area is also taking on a more elderly age structure. The principal settlements of Dornoch, Golspie, Brora and the smaller Helmsdale are situated along the coast near the A9 trunk road. The Local Plan notes that the close proximity of the settlements generates a significant movement of people on a regular daily basis, and local housing pressure in the surrounding countryside. The spread of services and functions between the three main settlements almost classifies them as a single economic service unit.
- 4.7. Communities and settlements within the vicinity of the proposed site include Brora and its outlying settlements such as East Clyne, Doll and Uppat, Helmsdale, Balnacoil, Rogart and Gordonbush estate properties. There are also some areas of scattered residential

development along Dunrobin Glen. Strath Brora leads inland from the settlement of Brora and contains a scattered population.

- 4.8. Brora has a coastal setting with a population of nearly 1300 people, and has grown as a service and tourist centre in recent years. The population of Brora has been declining but the demand for new housing has continued. Key priorities for the town identified in the South and East Sutherland Local Plan (2000) are to improve employment prospects, accommodate housing provision, maintain and expand community facilities, and maintain the environment and setting of the village.
- 4.9. Strath of Kildonan, the valley of the river Helmsdale, is also the route of the railway and inland 'A' road to Thurso and contains a number of properties dispersed along its length with the main settlements at Kildonan and Kinbrace.
- 4.10. Helmsdale has a population of 730 and is a small settlement lying at the mouth of the Strath of Kildonan. It functions as a local service centre and tourist base.
- 4.11. Golspie has a population of around 1400 people and is also surrounded by a number of smaller settlements. Golspie serves a large part of Sutherland as an administrative and service centre, and contains two of the largest employers in Sutherland.

ECONOMIC ACTIVITY

General

- 4.12. The economic activity in the area is discussed in more detail in **Chapter 17**. The main economic activities in the area are related to the tourist industry. Agriculture, crofting, forestry and sporting activities continue to be the predominant rural land use. Diversification of traditional land uses is also increasingly important.
- 4.13. Long term unemployment is an issue in the area, and the seasonality of tourism related jobs also has an impact on the economic structure of the area. The priority in the area is to enhance economic prospects and create jobs. The quality of the environment is strongly linked to this.

Service Sector and Tourism

- 4.14. Service sector employment and investment through tourism is an important economic activity in the area, and service sector employment contributes to nearly a quarter of employmentⁱⁱ. Many of these activities are based upon the scenery and high landscape quality of the area.

Sporting Activities

- 4.15. Stalking and fishing are carried out on a number of traditional Highland estates in south east Sutherland, including Gordonbush Estate. The Helmsdale and Brora Rivers and Loch Brora are the most important fishing locations.

Agriculture, Crofting and Forestry

- 4.16. Crofting is an important land use in the area. There are a number of forestry plantations in the area, including on the flanks of the Strath of Kildonan, and above Balnacoil, Ascoile and Gordonbush in Strath Brora. The South and East Sutherland Local Plan identifies that national growth is predicted in forestry. Together agriculture, forestry and fishing made up 2% of

employment in the CASE¹ area in 1997. An Indicative Forestry Strategy has been drawn up for the Highland regionⁱⁱⁱ which identifies the importance of forestry for the Highland region as a whole behind tourism and agriculture, in terms of income generation and employment. South Sutherland in particular is identified as a preferred area, with potential to take pressure off more sensitive areas.

- 4.17. In terms of agriculture and land management, *SNH Natural Heritage Futures*^{iv} identifies a loss of traditional land management practices in this area and high grazing pressures leading to a loss of habitat value.

INFRASTRUCTURE

Roads

- 4.18. The major road serving the area is the A9 which connects to Inverness and roughly follows the line of the coast from Golspie onwards to Wick. The A897 connects Helmsdale to the north coast at Melvich, and the A839 connects the A9 to Lairg via Strath Fleet. Gordonbush is located approximately 8km along the minor road (C6) which runs inland from Brora.

Rail

- 4.19. The railway line from Inverness passes from Lairg, along Strath Fleet where it returns to the coast. Golspie, Brora and Helmsdale are connected along the coast, until the line turns inward along Strath of Kildonan before proceeding to Wick. The rail service between Inverness and Wick currently involves a thrice daily service in each direction.

Electricity

- 4.20. There are two high voltage transmission lines in the vicinity of the site. The 275kV overhead line running from Dounreay to Beaulieu passes north-south through the site, whilst the 132kV Dounreay to Beaulieu line is routed closer to the coast with a substation at Brora. The closest generating station is at the Shin hydro-electric scheme; the nuclear power station at Dounreay no longer operates. There is a history of renewable energy at Gordonbush, with a small hydro electric scheme on the Allt a' Mhuilinn having been built to supply electricity to the estate prior to the establishment of a public supply. This has now been decommissioned, although the small dam remains.

Hill tracks

- 4.21. The land at Gordonbush is served by a number of hill tracks, and it is the upgrading and extension of one of these which is the proposed access track for the windfarm. A hill track extends adjacent to the Allt Smeorail from the public road, through woodlands around Gordonbush Lodge to the south of the site. A further track also extends adjacent to the Allt a' Mhuilinn from Ascoile further west, running close to the existing main 275kV Dounreay to Beaulieu overhead line. These tracks are primarily used by the Gordonbush Estate for gaining access to the land.

REFERENCES

ⁱ Highland Council, (2000), The South and East Sutherland Local Plan.

ⁱⁱ Highlands and Islands Enterprise Network Strategy Information, (1999) *Caithness and Sutherland Economic Update: November*, HIE: Inverness.

ⁱⁱⁱ Planning Department Highland Regional Council (1993) *Highland Region Indicative Forestry Strategy and Survey Report*, Highland Council: Inverness.

^{iv} *SNH Natural Heritage Futures: the Peatlands of Sutherland and Caithness*, www.snh.org.uk/strategy/NHFutures/nhf-5.htm

¹ Caithness and Sutherland Enterprise, the Local Enterprise Company of the Highlands and Islands Enterprise Network.

5. PLANNING CONTEXT

INTRODUCTION

- 5.1. **Chapter 2** outlined the climate change and renewable energy policy context for the proposed windfarm. This chapter sets out the more specific planning policy context of the proposed development and identifies the relevant policy guidance that has been considered as part of the detailed EIA process. The main policies and guidance at the national, structure plan and local level include:
- National Planning Policy Guidelines (now being replaced by Scottish Planning Policies (SPPs));
 - Planning Advice Notes (PANs);
 - Highland Structure Plan (2001);
 - South and East Sutherland Local Plan (2000).
- 5.2. It is noted that this development proposal will be determined by Scottish Ministers rather than directly by the Unitary Planning Authority as it exceeds 50MW and therefore falls under section 36 of *The Electricity Act 1989* (c.29). Under this arrangement, local planning authorities will be statutory consultees, and the planning policy context remains relevant.
- 5.3. Whilst there is an assessment of compliance with the more general planning policies in this chapter, the more specific policies are assessed within individual chapters in **Part D**, which are cross referenced in **Table 5.1**.

SCOTTISH PLANNING POLICY AND GUIDANCE

- 5.4. Guidance on national planning policies in Scotland is now set out in the emerging series of Planning Policies (SPPs). National Planning Policy Guidelines (NPPGs) have continued relevance to decision making until they are replaced by an SPP. Circulars also provide guidance for planning authorities on the translation of planning legislative provisions and controls into practice. This policy guidance contains the Scottish Executive's policies on different aspects of planning which local authorities must take into account in preparing development plans. The guidance may also be material to decisions on individual planning applications and appraisals.
- 5.5. Government advice on renewable energy is set out in NPPG6 *Renewable Energy Developments* (revised 2000) which supports an increase in renewable energy development in Scotland. The policy guidance, while maintaining the usual planning controls, is designed to encourage the planning system to play a full part in making positive provision for renewable energy developments. It does however recognise that the siting of renewable energy developments can raise complex issues, and as such it lists those issues relating to windfarms that planners are required to consider. These include: visual impacts, landscape, birds and habitats, airfield flight paths, noise, construction traffic, interference with telecommunications, and health and safety.
- 5.6. Other NPPGs and SPPs which are of relevance to the proposals include:

- SPP1 *The Planning System* (2002)
- NPPG5 *Archaeology and Planning* (1994)
- NPPG11 *Sport, Physical Recreation and Open Space* (1996)
- NPPG14 *Natural Heritage* (1998)
- NPPG15 *Rural Development* (1999)
- NPPG 17 *Transport and Planning* (1999)
- NPPG18 *Planning and the Historic Environment* (1999)
- NPPG19 *Radio Telecommunications* (2001)

- 5.7. Planning Advice Notes (PANs) provide advice to local authorities and developers on good practice and other relevant information. PAN45 *Renewable Energy Technologies* (revised 2002) provides information on the technology and characteristics of wind generators and advice for handling these as planning issues in development plans and planning applications. It provides guidance on safety aspects, proximity to power lines, proximity to airports, proximity to roads and railways, electro magnetic production and interference, signal scatter, noise, shadow flicker and siting in the landscape.
- 5.8. Other PANs which are of relevance to the proposals include:
- PAN 51 *Planning and Environmental Protection* (1997);
 - PAN 60 *Planning for Natural Heritage* (2002);
 - PAN 42 *Archaeology – The Planning Process and Scheduled Ancient Monuments* (1994);
 - PAN 56 *Planning and Noise* (1999).

STRATEGIC PLANNING POLICY AND GUIDANCE

- 5.9. The Highland Structure Plan (adopted March 2001) contains a number of strategic policies, against which any development proposal in the Highland Council area will be assessed. These policies are set out in the sustainable development objectives of the plan. Further policies relate to more specific aspects of the EIA process, including those relating to natural heritage and landscape conservation. These policies are summarised in **Table 5.1**.

LOCAL PLANNING POLICY AND GUIDANCE

- 5.10. The South and East Sutherland Local Plan (adopted May 2000) contains a number of policies and more general references which are relevant to the proposed windfarm and its environmental impact assessment. These policies are also summarised in **Table 5.1**.

OVERVIEW OF PLANNING CONTEXT

- 5.11. **Table 5.1** provides a summary of those policies which are of relevance to the proposal from the relevant national guidance and development plans. For each of the documents, the policies have been grouped into their respective topic areas, with a summary of the key issues, and cross reference made to the relevant chapters of the ES.

- 5.12. In general, the key policies relating to the development are those which focus on aspects of environmental protection. Given that the site itself is not covered by any statutory designations, a key factor defined by the policy framework is the relationship between the windfarm and nearby designated sites including proposed and existing AGLVs and an SSSI to the immediate west of the site which forms part of a wider SPA, cSAC and Ramsar site.
- 5.13. Other relevant planning policies relate to the need to achieve a balance between environmental conservation and development which contributes positively to the quality of life of local communities and the local community. The proposed windfarm broadly supports these policy objectives, as a result of the way in which it will generate employment and investment (albeit of a largely temporary nature) in the local economy. Potential adverse effects on recreation and tourism in the area are also not considered to be significant and would therefore not conflict with the relevant planning policy agenda.
- 5.14. The proposed development is located largely within the area identified as a an Indicative Primary Search Area for windfarms in Policy ENV2:22 of the South and East Sutherland Local Plan. Policy ENV2 states the *“The Council will favour development, unless this would significantly affect important local features.”* The plan states that proposals located within the indicative search area will be assessed against the provisions of Strategic Policies 16 and 17 of the Plan.

Table 5.1 Summary of planning policy relating to Gordonbush Windfarm

Policy topic area	NPPGs / SPPs/Circulars	Planning Advice Notes	Highland Structure Plan adopted March 2001	South and East Sutherland Local Plan adopted May 2000	Key issues
Sustainable development	SPPI The Planning System (2002) NPPG15 Rural Development (1999)	PAN51 Planning and Environmental Protection (1997)	G1, G2, G3, G8	Paras 1.34 and 1.35	<ul style="list-style-type: none"> Support for the principles of sustainable development, whilst protecting the natural environment
Renewable Energy	NPPG6 Renewable Energy (revised 2000)	PAN45 Renewable Energy Technologies (revised, 2002)	Policy E1	Para 1.54	<ul style="list-style-type: none"> Support for an increase in renewable energy development. Area north of Gordonbush identified as having renewable energy potential
Wind Energy developments	NPPG6 Renewable Energy (revised 2000)	PAN45 Renewable Energy Technologies (revised 2002)	Policy E2	ENV2:22 SP16	<ul style="list-style-type: none"> Acknowledges the locational requirements of a windfarm. Local plan identifies indicative primary search areas for windfarms.
Landscape	NPPG14 Natural Heritage (1998) NPPG6 Renewable Energy (revised 2000) NPPG11 Sport Physical Recreation and Open Space (1996) NPPG18 Planning and the Historic Environment (1999)	PAN45 Renewable Energy Technologies (revised 2002) PAN 60 Planning for Natural Heritage (2002)	Policy G6 Policy L1 Policy L2 Policy L3 Policy L4 Policy T6 Para 2.14.8	Para 1.57 – 1.58 Para 1.62	<ul style="list-style-type: none"> Protection of designated landscapes. Outline the need for acceptance of windfarms in the landscape.
Nature Conservation	NPPG14 Natural Heritage (1998)	PAN60 Planning for Natural Heritage (2002)	Policy G6 Policy N1 Policy N4	Para 1.57 SP 17	<ul style="list-style-type: none"> Emphasis on safeguarding the environment and the application of the natural heritage designation hierarchy, with special consideration for national and international designations.
Archaeology	NPPG5 Archaeology and Planning (1995) NPPG18 Planning and the Historic Environment (1999)	PAN42 Archaeology (1994)	Policy G6 Policy BC1	Para 1.57	<ul style="list-style-type: none"> Advocate the application of a hierarchical approach, with strong protection for Scheduled Ancient Monuments and their setting.
Noise	Circular 10/1999 BS5228: 1997 Noise and Vibration Control on Construction and open sites NPPG6 Renewable Energy (revised 2000) NPPG4 Land for Mineral Working (amended May 2001)	PAN56 Planning and Noise (1999) PAN45 Renewable Energy Technologies (revised 2002)	Policy G2		<ul style="list-style-type: none"> Require consideration of the sensitivity of existing and surrounding land use.

Policy topic area	NPPGs / SPPs/Circulars	Planning Advice Notes	Highland Structure Plan adopted March 2001	South and East Sutherland Local Plan adopted May 2000	Key issues
Traffic, Transport and Access	NPPG17 Transport and Planning (1999) NPPG6 Renewable Energy (revised 2000)	PAN57 Transport and Planning (1999) PAN45 Renewable Energy Technologies (revised 2002) PAN50 Controlling the environmental effects of surface mineral workings (1998)	Policy TC1 Policy E2	Para 1.44, 1.45	<ul style="list-style-type: none"> Set out the requirement for a transport assessment.
Telecommunications and Aviation	NPPG6 Renewable Energy (revised 2000)	PAN45 Renewable Energy Technologies (revised 2002) PAN62 Radio telecommunications (2001)	Policy E2		<ul style="list-style-type: none"> Policy on the assessment in respect of electro magnetic interference, aircraft flight paths /MOD operations.
Hydrology	NPPG14 Natural Heritage (1998) NPPG7 Planning and Flooding (1995)	PAN51 Planning and Environmental Protection (1997)			<ul style="list-style-type: none"> Policy protection of water supplies for human consumption and protection of water courses from development.
Air Quality	NPPG6 Renewable Energy (revised 2000)	PAN45 Renewable Energy Technologies (revised 2002) PAN50 Controlling the environmental effects of surface mineral workings (1996)	Policy W12		<ul style="list-style-type: none"> Support the control of dust emissions.
Recreation and Tourism	NPPG11 Sport, Physical Recreation and Open Space (1996) NPPG15 Rural Development (1999)	PAN45 Renewable Energy Technologies (revised 2002)	Policy SR5 Policy SR6 Policy T2 Policy T5 Paragraph 2.7.1 Policy T6	Para 1.26-7 Para 1.23 ENV3:32	<ul style="list-style-type: none"> Note the importance and demand for countryside access and recreation, and importance of environmental quality as a contributor to this
Social and Economic	SPP2 Economic Development (2002) NPPG 15 Rural Development (1999) NPPG6 Renewable Energy (revised 2000)		Para 2.6.15/6 Policy G2 Policy G4 Policy G6	ENV2:14 ENV1:5 SP4 Para 1.18	<ul style="list-style-type: none"> Emphasise the need for rural economic development to benefit local communities and enhance economic prospects Support contributions by developers to community benefit

Part C: The Proposal

6. DEVELOPMENT DESCRIPTION

INTRODUCTION

- 6.1. This chapter describes the elements which constitute the Gordonbush Windfarm development proposal. The aim is to provide an appropriate level of detail to provide a basis for Environmental Impact Assessment. It should be noted that some detail will only be finalised upon award of construction contracts, and will vary according to the specific turbines and contractors used. Consequently, the description is generic and assumes a 'worst case', in terms of physical characteristics.
- 6.2. The development description considers:
- the core windfarm components, including turbines and tracks;
 - associated developments, including, the substation, grid connection and borrow pits;
 - windfarm construction details, including description of temporary construction facilities, and improvements to public roads;
 - operational activities;
 - the windfarm decommissioning process .
- 6.3. **Figure 6.1** illustrates the location and layout of the development components.

CORE DEVELOPMENT COMPONENTS

Turbines

- 6.4. A number of wind turbine manufacturers have models which would be appropriate for the Gordonbush site, and the turbine type would be selected following a tendering process, in compliance with EU procurement legislation. The following description allows for all such likely turbines. The assessment is based on the turbines which would potentially have the greatest environmental effects for each topic area.
- 6.5. The windfarm is based upon 35 wind turbines, with a layout configured as per **Figure 6.1**.
- 6.6. Above ground, each turbine comprises of:
- a tubular tower, up to 67m high, with door and internal access systems;
 - a nacelle housing generator, gearbox, hydraulically and electrically driven control systems, possibly a transformer, and with externally mounted anemometry instruments;
 - a rotor comprising of a central hub and three blades of up to 40m length, giving an overall rotor diameter of 80m;
 - a transformer housed at ground level within a cubicle, to step up the voltage from 690V to 33,000V (33kV).
- 6.7. Suitable wind turbines have a capacity in the range of 1.5MW to 2.5MW, and for the purposes of this assessment are assumed to be 2MW, giving a nominal total capacity of 70MW. **Figure**

6.2 illustrates a typical wind turbine, and illustrates the maximum overall tip height of 107m. The colour of the turbines would be agreed with the determining authority, although it is proposed that they will be a non reflective pale grey colour. Typically they are matt off-white or light grey, since this means that the turbines are less visible in some weather conditions and can give a clean, technological and sculptural appearance. Options and recommendations for the colour and finish of the turbine are discussed in more detail in **Chapter 7** (paragraph 7.262).

- 6.8. Turbines typically generate at windspeeds of 4 to 25m/s, with maximum output typically above 12 to 15m/s. The rotor would be 'upwind', and all rotors would rotate in the same direction. The speed of rotation will vary from approximately 10 to 20rpm according to the wind speed, and will be controlled by the nacelle yawing so that the rotor faces the wind, and the blades being feathered. Above maximum permissible wind speeds, the turbines would be shut down and a brake applied.
- 6.9. The turbine components will be delivered individually, typically comprising eight large loads as follows:
- three tower sections;
 - nacelle;
 - hub;
 - three blades.
- 6.10. The components will be unloaded by one or more heavy lift cranes, and constructed in a modular fashion. The rotor may be assembled at ground level and lifted as a single unit, or assembled at hub height as single blade lifts. Assembly, in general, requires only fixing of bolts, torquing of nuts and electrical and hydraulic connections. Depending on weather conditions, a turbine can be erected in one to two days.
- #### Turbine Foundations
- 6.11. Each turbine will have a reinforced concrete foundation, typically of dimensions 16m square by 1m deep. A steel ring or tubular can will be cast into the foundation, and will form the connection to the basal tower section (**Figure 6.3**).
- 6.12. The foundation will be formed as follows:
- Overburden will be excavated down to formation level, as determined by geotechnical studies. The excavation typically will be 2m to 3m deep by 18m square;
 - A temporary drainage system will be established according to the local gradient – either a pump or a temporary ditch;
 - The required level will be made up with compacted crushed rock placed in the base of the excavation;
 - A layer of blinding concrete will be laid;
 - A reinforcing steel 'cage' will be assembled;
 - Shuttering will be assembled;

- Concrete (256m³ per foundation) will be poured continuously;
- Once the concrete is set, the shuttering will be removed, and an electrical earthing mat and approximately 1m of rock, peat or soil will be placed over the concrete pad;
- A permanent drainage system, typically comprising of a buried perforated pipe or french drains, will be installed above the foundation;
- Finally, after erection of the turbine, suitable overburden and turfs will be used to landscape and reinstate the foundation.

Tracks

- 6.13. Tracks are required to enable the turbine components and construction materials to be transported to their locations, and to enable ongoing access for subsequent maintenance visits. There is a main 'access' track to the windfarm site, and a series of 'site' tracks accessing each turbine and the borrow pits, anemometers, and substation. The proposed track layout is illustrated in **Figure 6.1**. The main site access track is based upon the upgrading and extension of an existing estate track from Ascoile, and a link to and extension of the existing track from Gordonbush via Breac-achadh.
- 6.14. During the development of the windfarm design, consideration was given to using the line of one of the existing tracks in its entirety, and then extending it to the windfarm site, rather than linking the two existing tracks. The Gordonbush / Breac-achadh track was discounted due to the steep gradients on the initial section, and the difficulties of forming a new junction at the public road which could accommodate the abnormal turbine component loads. Continuation of the Ascoile track adjacent to the Allt a' Mhuilinn was discounted due to the difficulty in crossing the gorge of the Allt nan Nathraichean. The proposed route, whilst making use of existing tracks:
- allows easy access from the public road;
 - is adjacent to a potential laydown area at Ascoile;
 - avoids steep gradients;
 - keeps to firm ground.
- 6.15. The type of track construction will vary according to the ground conditions. On hard ground, typically less than 1m of peat, or on steeper gradients, the tracks will be 'cut'. On softer areas, typically more than 1m of peat, the tracks will be 'floated'. (A survey of peat depth indicates that approximately 50% of the site is hard, and 50% is soft.) **Figure 6.4** illustrates typical cut and floating track constructions, which are similar to forestry-type tracks.
- 6.16. It is proposed that a method statement for the construction of the tracks be agreed prior to construction, using current best practice. The aims of such a method statement would be to ensure a suitable quality of track, safe and efficient working, prevention of pollution, and the meeting of hydrological, ecological, archaeological and landscaping objectives. The following paragraphs describe the likely basic principles.
- 6.17. Formation of a cut track involves:
- removal and temporary storage of turfs, as appropriate;

- excavation down to formation level;
- formation of side drains to suit;
- emplacement and compaction of stone to a depth of 400 to 600mm;
- emplacement and compaction of fines on the surface
- reinstatement of the verges with original turfs

6.18. Formation of a floating track involves:

- laying a geotextile membrane;
- removal and temporary storage of adjacent turfs;
- emplacement and compaction of stone to a depth of 600 to 800mm;
- emplacement and compaction of fines on the surface;
- reinstatement of the batters with peat and original turfs.

- 6.19. The running width of the new and improved tracks will be 4.5 to 5m with total footprint, including any ditches and batters of approximately 15m. The track will be appropriately widened at corners, and junctions and provided with passing places. The length of improved track will be 3,600m and the length of new track will be 18,800m, giving a total approximate length of 22,400m.
- 6.20. The number of stream crossings has been minimised. Where it is necessary to cross streams, appropriately designed culverts will be installed.

Control Building

- 6.21. The wind turbines will be connected to a control building located adjacent to the grid substation compound (**Figure 6.5**). The control building will house switchgear, control equipment, storage and mess facilities. The building dimensions are likely to be approximately 19m x 5 x 6.25m high, of a design to be agreed with the planning authority.

Cabling

- 6.22. The turbines will be electrically connected to the control building by means of sets of three 33kV cables. The cables would be laid underground in trenches, in general adjacent to the site tracks. The trenches would be backfilled, possibly partially with sand brought onto the site, marked with buried safety warning tape, and reinstated. Control and telecoms cables, and earthing tape would also be laid in the cable trenches.

Anemometers

Permanent masts

- 6.23. Three permanent anemometry masts will be required for control purposes and to ensure the efficient operation of the windfarm. The mast locations are marked on **Figure 6.1**. These masts will be free standing lattice construction of up to 67m height (See **Figure 6.6**).

Temporary Masts

- 6.24. Temporary masts will be required at the site of, and in front of selected turbine bases, in order to 'calibrate' subsequent performance tests on the turbines. The locations would be agreed with the turbine supplier. These masts will probably be of guyed type construction (similar to the masts installed by Scottish and Southern Energy for wind assessment purposes in 2002) with a height of up to 67m. At each site, one mast would be removed prior to erection of the turbine, and the other mast would remain for up to a year after commissioning.

ASSOCIATED DEVELOPMENTS

Grid Substation / Grid Connection

- 6.25. It is proposed to connect the windfarm to the adjacent existing 275kV transmission line. This will require a 33/275kV transformer to step up the voltage, and circuit breakers and isolators for operational purposes. For security the compound would be enclosed with a 2.5m galvanised security fence, giving an overall footprint of approximately 63m by 54m. Connection to the overhead line would entail connecting wires from the top of the transformer at a modified transmission tower (tower 181). **Figure 6.5** illustrates a typical substation arrangement. The final detail of this would be developed upon award of a construction contract.
- 6.26. It is understood that since this connection does not involve any new towers or poles, consent under section 37 of *The Electricity Act 1989* is not required. However, the new substation will form part of the application for section 36 consent, and is therefore considered in the EIA.
- 6.27. Two grid connection options were considered:
- connection to the 275kV system, as described above;
 - connection to the 132kV system at Brora.
- 6.28. Connection to the 132kV system at Brora would involve constructing a 33/132kV substation at the site, and the construction of approximately 15km of new 132kV overhead line to Brora substation. From a technical point of view, this is the preferred connection, there being spare 33/132kV transformers readily available in the rare event of a major transformer failure. Costs of the two connections are similar. However, the 275kV connection has been chosen as the preferred option on environmental grounds, since it contains all of the new infrastructure within the site itself.

Borrow Pits

- 6.29. An estimated 100 000m³ of stone will be required for various purposes, primarily for track construction. Whilst some of this will be obtained from, for example, foundation excavation, much of it will be sourced from on site borrow pits. Establishing borrow pits avoids the need to import stone on the public roads system. From a technical perspective, borrow pit locations must satisfy the following criteria:
- appropriate rock type;
 - adequate quantity;
 - accessible;

- appropriate land form to provide a working face;
- minimal overburden.

- 6.30. Potential borrow pit sites are identified on **Figure 6.1**. These were identified following site investigations with civil engineering contractors and a geological survey.
- 6.31. Allowing for 'wastage' in the form of unusable overburden or unsuitable rock, it is estimated that the total void required is approximately 115,000m³. It is likely that more than one borrow pit would be opened up, to minimise the haul distance. The form of the borrow pits would be subject to detailed design, but **Figure 6.7** illustrates a typical arrangement.
- 6.32. It is proposed that a method statement for the formation, management and restoration of the borrow pits be agreed prior to opening up the borrow pits, using current best practice. The aims of such a method statement would be to ensure efficient safe working, prevention of pollution, and the meeting of ecological and landscaping objectives. The following paragraphs describe the likely basic principles.
- a series of trial pits and test drills would be made to inform the design;
 - pollution prevention measures such as silt traps would be established to protect any vulnerable watercourses;
 - turfs would be removed and temporarily stored;
 - overburden would be removed;
 - a working face would be established;
 - the borrow pit would be worked either by excavator, or by combination of excavator and drill and blast, depending upon the characteristics of the rock. Typically, blasting would occur once per week;
 - if necessary the rock would be graded and would be crushed in a mobile crusher plant;
 - upon completion, the borrow pit would be partially reinstated, involving reworking of faces to stabilise them, partial infilling with surplus material, and landscaping.

CONSTRUCTION DETAILS

Construction Activities and Programme

- 6.33. The construction period for the development will be approximately 10 months on-site and will comprise the following main activities:
- site establishment, including some upgrading of the Gordonbush / Breac-achadh track, and installation of site offices;
 - civil works, including the formation of borrow pits, tracks and foundations, and concluding reinstatement works;
 - turbine delivery, erection and commissioning;
 - electrical works, including cabling and construction of substation;

6.34. **Table 6.1** illustrates a typical construction programme for a 35 turbine project.

Table 6.1 Typical construction programme

Month	1	2	3	4	5	6	7	8	9	10	
Tracks	→										
Foundations		→									
Control Building						→					
Cabling						→					
Turbine Erection						→					
Commissioning									→		

Construction Workforce

6.35. It is estimated that the on-site construction workforce will total approximately 80 individuals, split approximately 55 civil engineering contractors, 10 turbine contractors, 12 electrical contractors, and three project management staff. The levels of manning will therefore vary according to the phase of the project, with the highest levels at the point where civil works are nearing completion, and the first turbines are being installed. At this point site manning might reach approximately 50 individuals. On average the manning level will be approximately 25. Non local construction personnel will be accommodated off the site, typically in local hotels and guest houses.

Working Hours

6.36. A typical working day would be 0700 to 1800 Monday to Friday, and 0700 to 1200 on a Saturday. However, to ensure that optimal use is made of fair weather windows, or at critical periods within the programme, it may occasionally be necessary to work outside these hours and on a Sunday. It is proposed that traffic deliveries generally be restricted to standard working hours, unless specifically agreed otherwise.

Construction Infrastructure Requirements

Lay Down Areas

6.37. It is proposed that lay down areas be established at Ascoile and Breac-achadh. Hardcore would be laid down to give areas of approximately 50m by 50m, security fenced to suit. In general the turbine components would be delivered direct to the erection site rather than to an intermediate location; however laydown areas provide flexibility for the logistics, and a place to store minor plant items and materials, and to park construction plant.

Site Compounds

6.38. A site compound would be established, provisionally at the location illustrated in **Figure 6.1**. A typical contractor's compound is illustrated in **Figure 6.8**. This would comprise portacabins for site offices, tool crates, mess room and portaloos.

Crane pads

6.39. Hardstanding areas are required adjacent to each turbine base to accommodate the cranes and their outriggers (**Figure 6.9**). These would be of similar construction to the tracks (**Figure 6.4**) but with an area of approximately 20m by 30m. The actual design and layout would be determined by the turbine supplier according to their preferred erection method.

Concrete Batching Plant

6.40. It is likely that concrete would be batched on-site, rather than delivered in readymix wagons. The batching plant comprises of aggregate and cement hoppers, water bowsers / tanks, a mixer, and control cubicle. Aggregates would be stockpiled adjacent to the plant. The batching plant would probably be located at the site compound.

Reinstatement

6.41. The final civil works include reinstating some elements of the windfarm infrastructure. The elements to be reinstated include:

- areas disturbed by turbine foundation excavation;
- track batters;
- laydown areas;
- borrow pits.

6.42. The reinstatement strategy would be based upon reuse of materials which are removed and stockpiled during the construction process. It is proposed that crane pads and tracks are retained in a condition such that they can be readily reused in the event of failure of a major turbine component.

Construction Traffic

6.43. **Table 6.2** summarises the estimated construction traffic movements, which are explained in more detail in the transport assessment presented in **Chapter 12** and the Transport Statement (**Appendix 12.1**).

Table 6.2 Summary of Estimated Construction Traffic

Item being transported	Type of vehicle	Total two-way vehicle movement
Construction personnel	Car or Minibus	8684
Preconstruction delivery Including construction plant, equipment and site offices, construction plant fuel.	HGV / Low Loader	190
Turbines (including towers, nacelle units, blades and hub)	HGV abnormal load	560
Cranes	HGV abnormal load	10
Concrete for foundations (options for ready mix or batching)	Ready mix concrete trucks or HGVs	2618 -1928
Steel reinforcement for foundations	HGV	72
Cabling and cabling sand	HGV	798
Substation	HGV	20
Miscellaneous	HGV	100

- 6.44. It is proposed that the site will be accessed via Brora and the C6 minor road along Strath Brora. Two routes have been identified (**Figure 6.10**):
- via the Clynelish Distillery Road at the junction at the north end of Brora;
 - via the C6 at Brora Bridge.
- 6.45. In practice it is likely that blades will be delivered via the Clynelish Distillery Road and other loads will be delivered via the C6.
- 6.46. The Transport Statement (**Appendix 12.1**) outlines the different transportation options considered, including rail transport, and explains why the above are the preferred routes. This document also identifies the modifications to the public roads which are likely to be necessary, summarised below:
- temporary opening up of the junction of the A9 and Clynelish Distillery Road at the Old School House;
 - removal of humps on the C6 at Brora;
 - realignment of the road on the approach to Oldtown Bridge;
 - localised widening by placing a pipe in the ditch and placing hardcore;
 - creation of new passing places;
 - localised tree removal or road realignment at Gordonbush;
 - temporary removal of bridge parapets.

OPERATION

- 6.47. The windfarm has been designed with an operational life of approximately 25 years. On a day to day basis the wind turbines would operate automatically, responding by means of anemometry equipment and control systems to changes in wind speed and direction. The windfarm would be connected to Scottish and Southern Energy's Generation control centre in Perth, from where output and key alarms would be monitored.
- 6.48. Each turbine would have a routine maintenance programme involving a number of checks and changing of consumables, including oil changes. Routine maintenance is estimated to be eight man days per turbine per year, or 280 days per year for the whole windfarm. In addition there will be a requirement for unscheduled maintenance, which might vary between resetting alarms to major component changes requiring a crane. Typically maintenance traffic will be Land Rovers and vans.
- 6.49. In addition to the turbines, the substation and tracks will also require periodic maintenance.

DECOMMISSIONING

- 6.50. At the end of the operational period there are two potential options. The first option will involve decommissioning the windfarm and the removal of the turbines and associated surface infrastructure and reinstatement of the site. Where practical, components would be recycled. In general it is likely to be preferable to leave buried structures and equipment such as foundations and cables *in situ* since this minimises ground disturbance. The access tracks will either be left for use by the estate or reinstated. Alternatively an application could be made for the redevelopment of the site as a windfarm.

DESIGN PROCESS AND ITERATION

- 6.51. The process of undertaking an EIA involves ongoing modification of the scheme design in response to the emerging findings of the ES. The modifications to the scheme design are set out in **Table 6.3**.
- 6.52. The following technical factors are also taken into account in formulating an appropriate design for the windfarm:
- turbine size, which is influenced by efficiency, capacity, cost, proven status of technology, and access restrictions.
 - turbine layout, which is influenced by wind resource optimisation, spacing requirements, ground conditions, gradients, landowner boundary.
 - track layout, which is influenced by site ground conditions, gradients, and the objective of minimising length.
 - borrow pits, which is influenced by the extent, type and accessibility of stone, and proximity to end use.
 - substation, which is influenced by ground conditions, gradient, and tower type.
- 6.53. **Appendix 7.1** provides a fuller description of the design issues which were taken into account as part of the iteration process.

Table 6.3 Summary of key stages in the iteration and design process

	Revision	Purpose	Effect of Modification
A	Modifications to scoping layout	To provide a layout which functions effectively in operational terms	Reduce the number of turbines
B	Further modifications to scoping layout	To optimise wind power generation from the development.	Provision of an efficient scheme.
C	Modifications to optimise generation and composition of layout	To take into account design considerations	Development of a layout based on consideration of topographic composition and overall scheme, whilst also taking into account wind resource and energy yield.
D	Changes to layout	To move turbines away from sensitive ecological sites including blanket bog	Minimising impacts on sensitive habitats and species
E	Changes to layout	To move turbines away from south western side of the site adjacent to Coir' an Eoin SSSI	Minimising potential impacts on birds moving between the site and the protected area
G	Finalised layout	To move turbines away from watercourses where possible and to minimise watercourse crossings by the access track. To move turbines away from the site boundary,	Minimising potential hydrological impacts and effects on otters whilst maintaining design structure. Reduction of visibility from the Strath of Kildonan.

GORDONBUSH WINDFARM

Scottish and Southern Energy

Location and Layout of Development Components

- ⊕ Turbine Location
- Substation
- Construction Compound
- ⊠ Permanent Anemometer Masts
- Borrow Pit
- Access Track

Scale 1:35,000

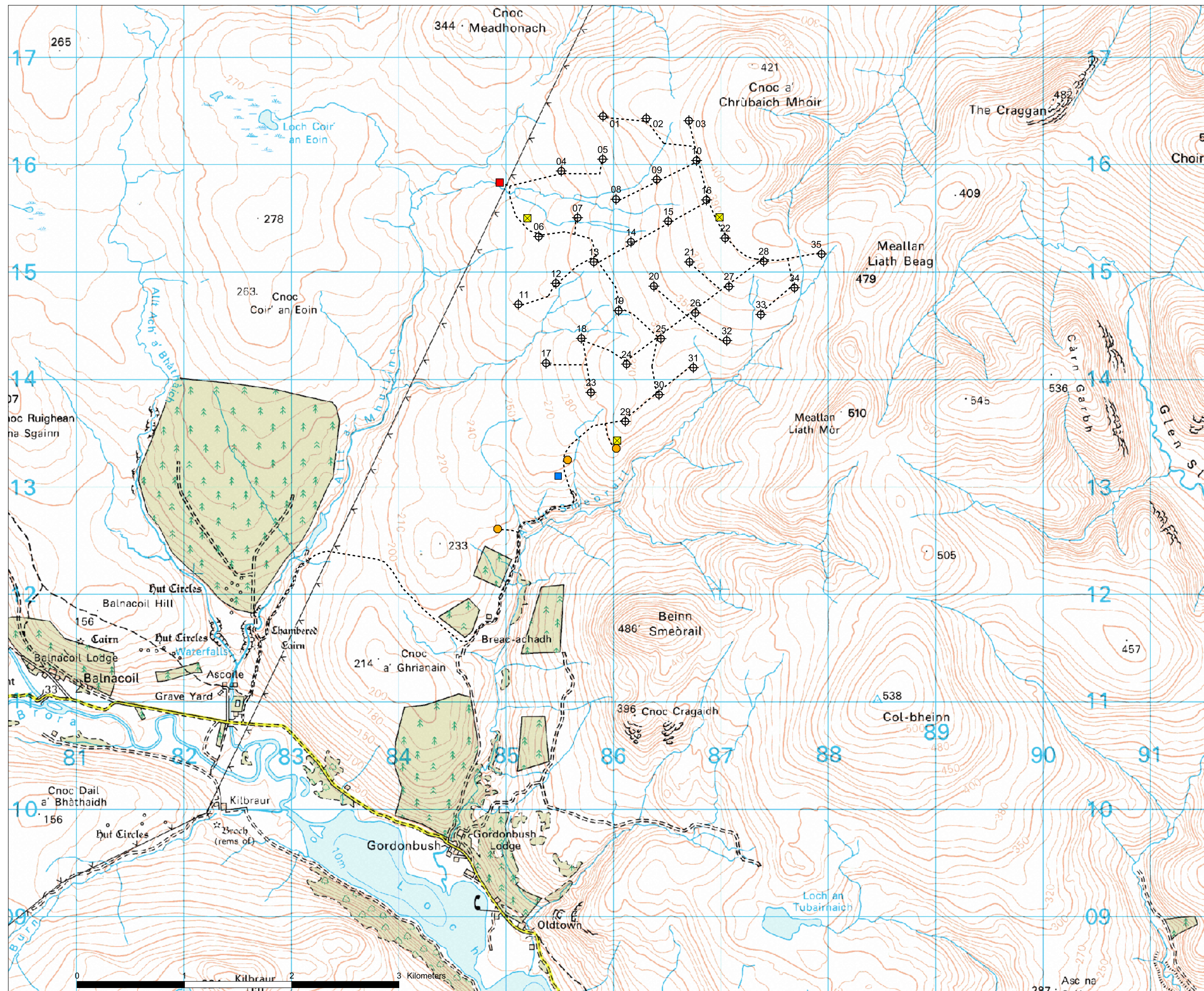
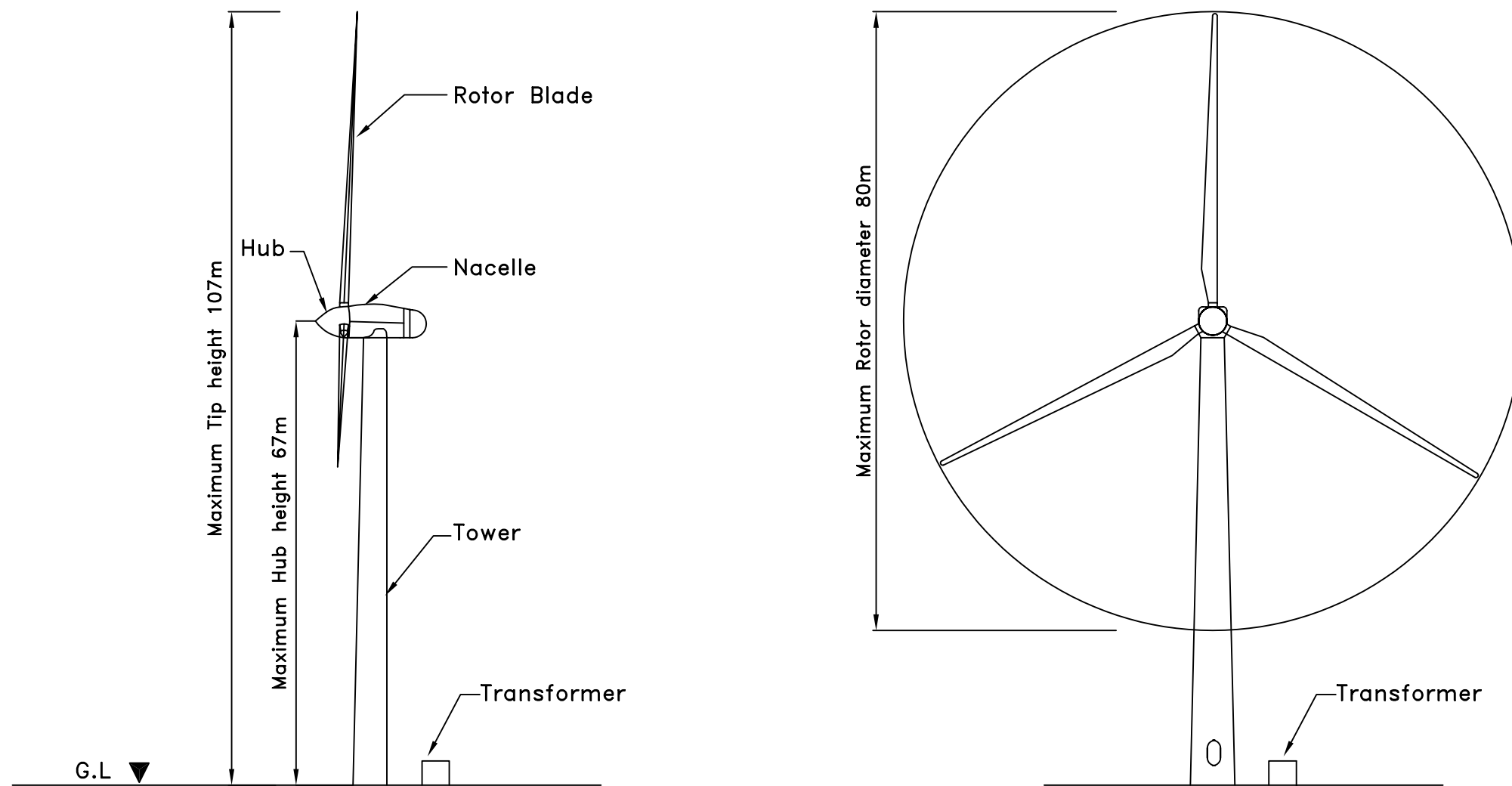


Figure 6.1

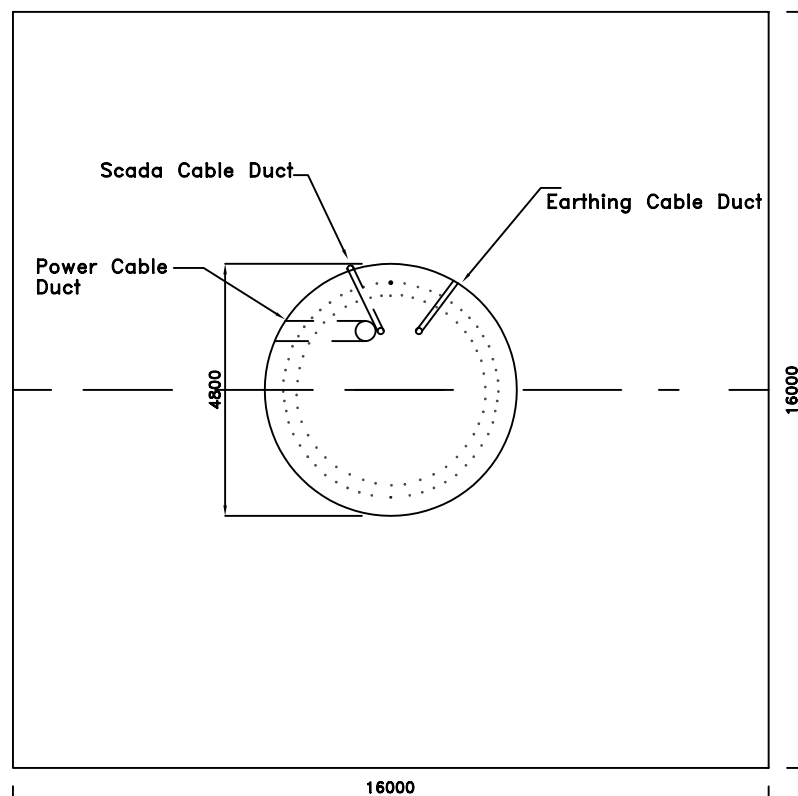


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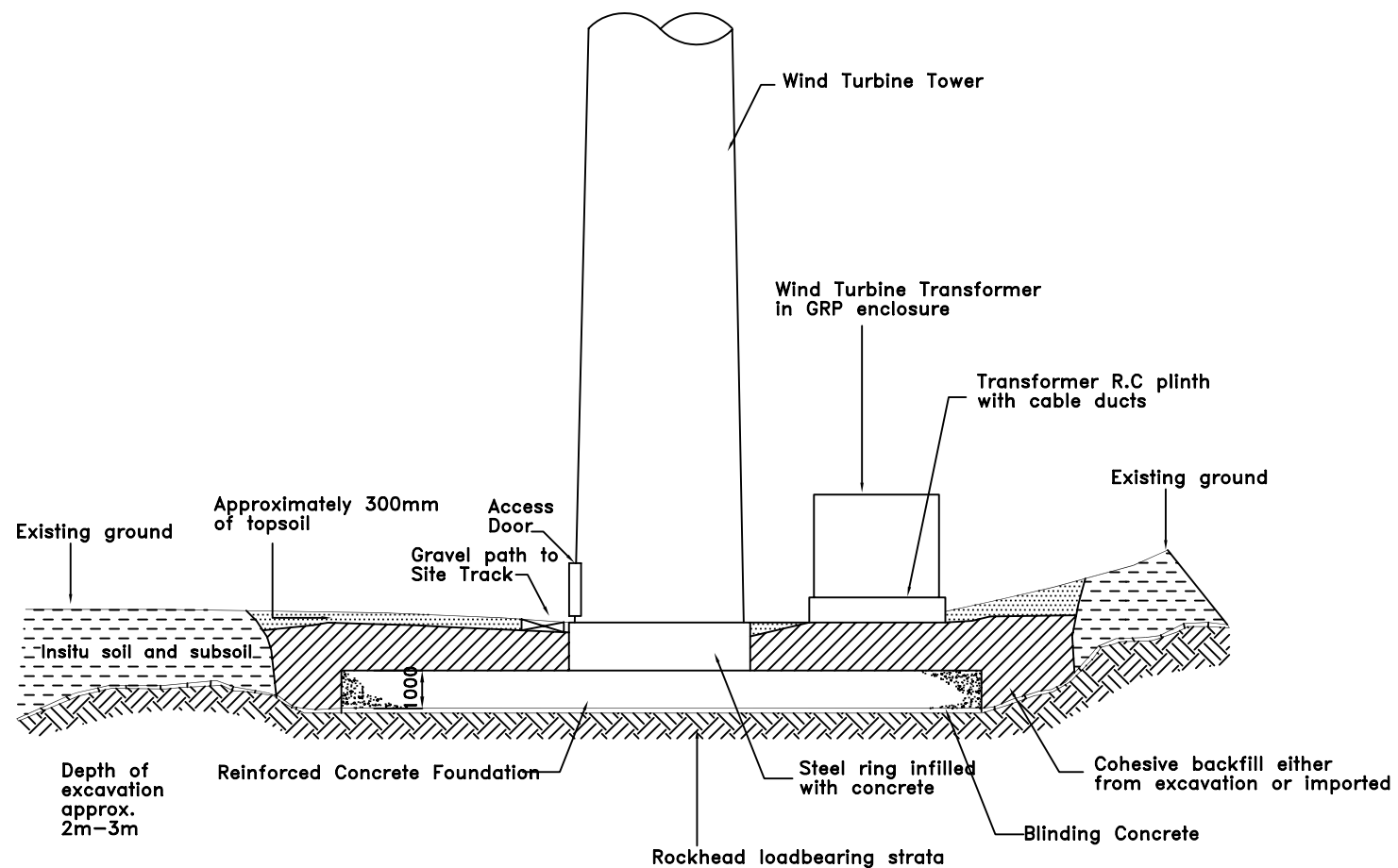
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Scottish and Southern Energy plc	
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DATE 26/05/03	Title TYPICAL TURBINE ELEVATION
SCALE N.T.S	
DRAWN L.GORDON	
CHECKED C.MARDEN	Location GORDONBUSH WINDFARM
APPROVED C.MARDEN	SSE Drawing Number 137/1000/0003
	ShtNo 00
	RevNo 00

Figure 6.2



TYPICAL PLAN FOR WIND TURBINE TOWER BASE



TYPICAL SECTIONAL ELEVATION ON WIND TURBINE TOWER BASE

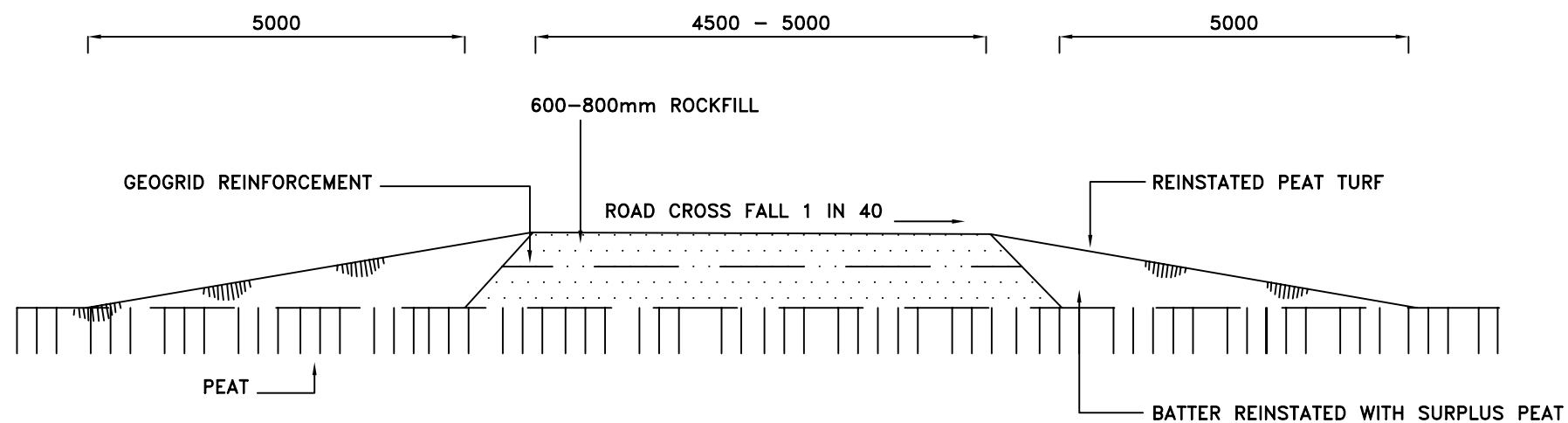
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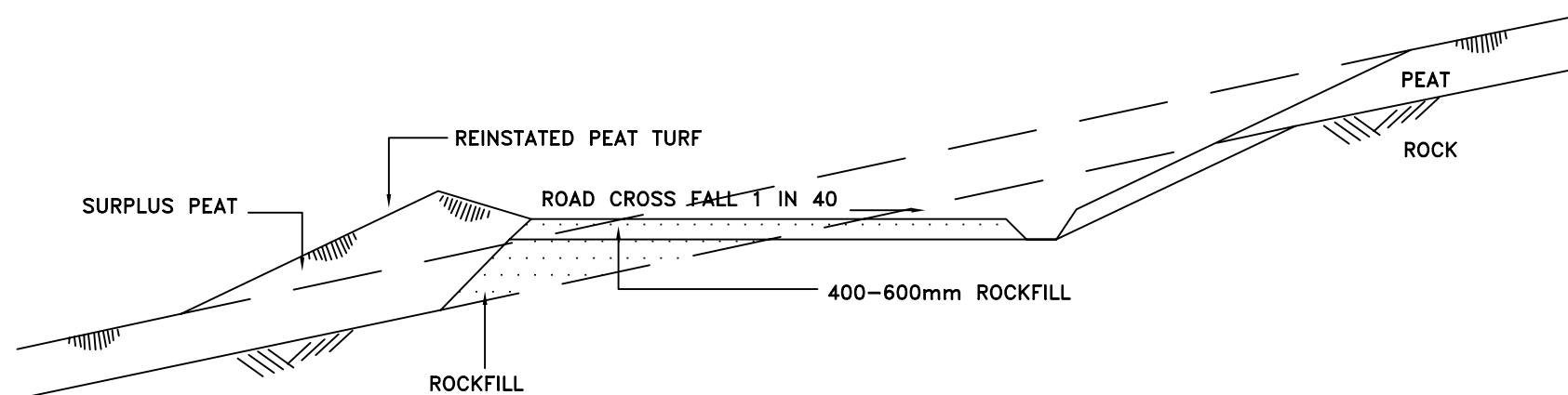
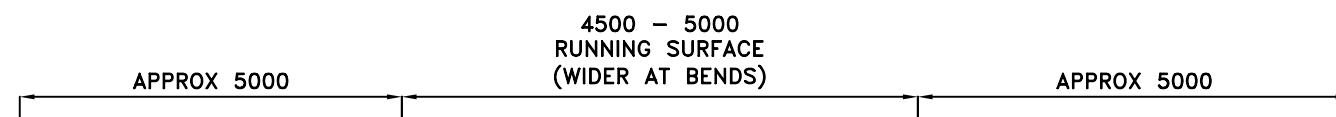
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DATE	26/05/03	Title		
SCALE	N.T.S	TYPICAL TURBINE FOUNDATION		
DRAWN	L.GORDON	Location	SSE Drawing Number	ShtNo
CHECKED	C.MARDEN	GORDONBUSH WINDFARM	137/1000/0004	00
APPROVED	C.MARDEN	RevNo	00	

Figure 6.3



FLOATING TRACK SECTION



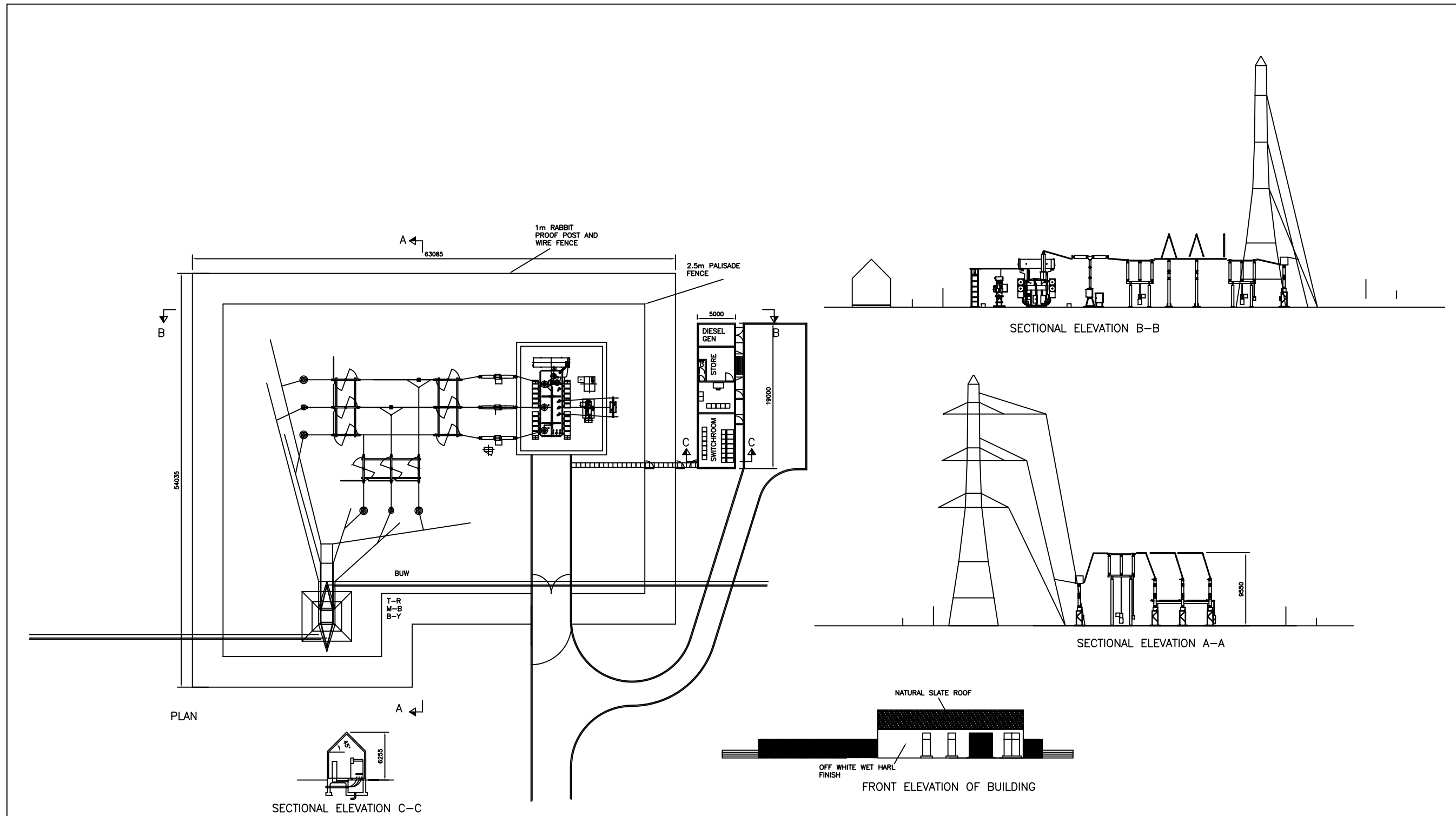
CUT TRACK SECTION

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															DRAWN	L.GORDON	Location	SSE Drawing Number	ShtNo	RevNo
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Figure 6.4



ALL PLANT INDICATIVE, DESIGN TO BE FINALISED ON RECEIPT OF VENDOR INFORMATION AND SITE SURVEY FOR PLANNING PURPOSES ONLY
P R E L I M I N A R Y

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Rev	Date	Checked	Rev	Date	Checked	Rev	Date	Checked	Rev	Date	Checked	Rev	Date	Checked	Rev	Date	Checked	Rev	Date	Checked	Date
Drawn		Approved	Drawn		Approved	Drawn		Approved	Drawn		Approved	Drawn		Approved	Drawn		Approved	Drawn		Approved	04/03/03
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Title TYPICAL SUBSTATION ARRANGEMENT AND CONTROL BUILDING		Project GORDONBUSH		Drawing Number GORDONBUSH		Sheet No.		Rev. No.	
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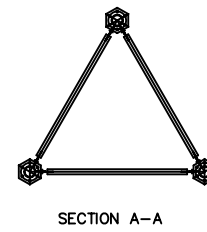
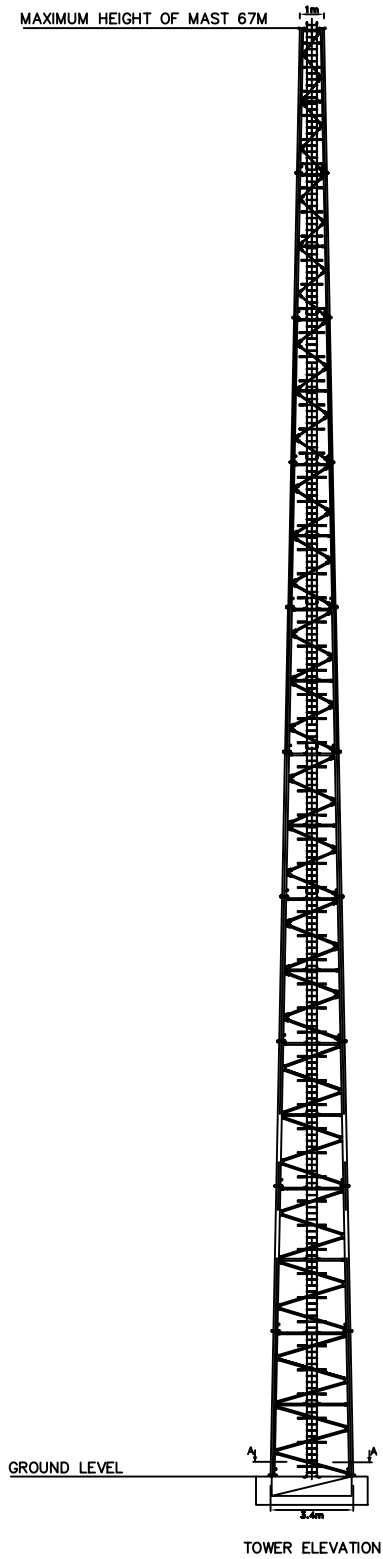


Power Systems
PERTH



LAND USE
CONSULTANTS

Figure 6.5



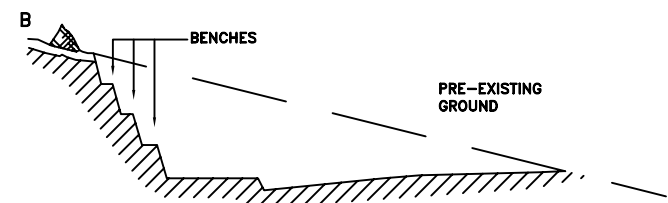
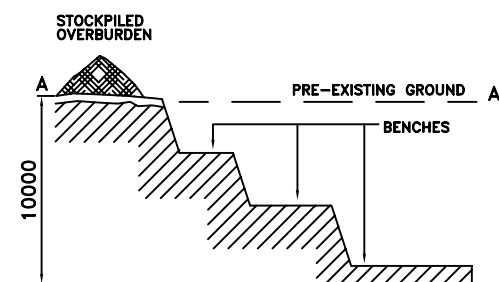
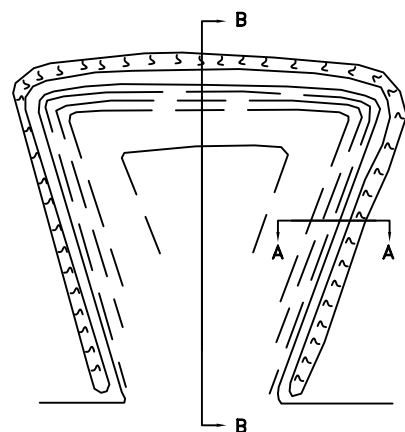
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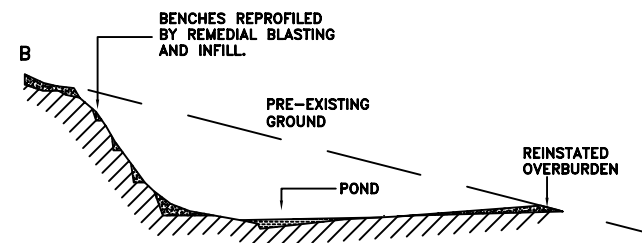
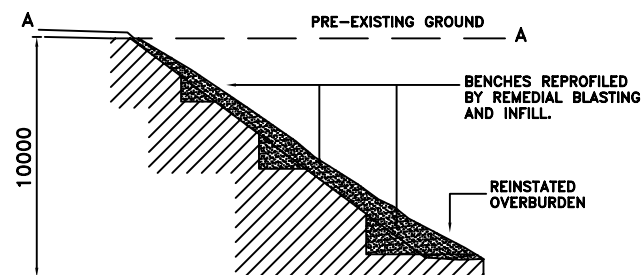
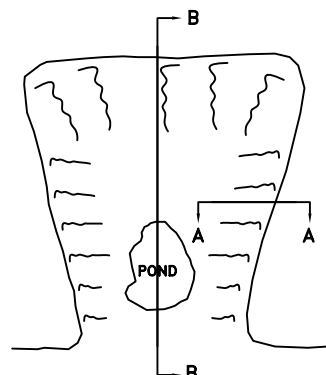
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CHECKED	C.MARDEN
APPROVED	C.MARDEN

Scottish and Southern Energy plc			
Project Number 81961		Drawing Status FOR ILLUSTRATIVE PURPOSES ONLY	
Title TYPICAL LATTICE MAST (PERMANENT ANEMOMETER)			
Location GORDONBUSH WINDFARM	SSE Drawing Number 137/1000/0001	ShtNo 00	RevNo 00

Figure 6.6



WORKING BORROW PIT



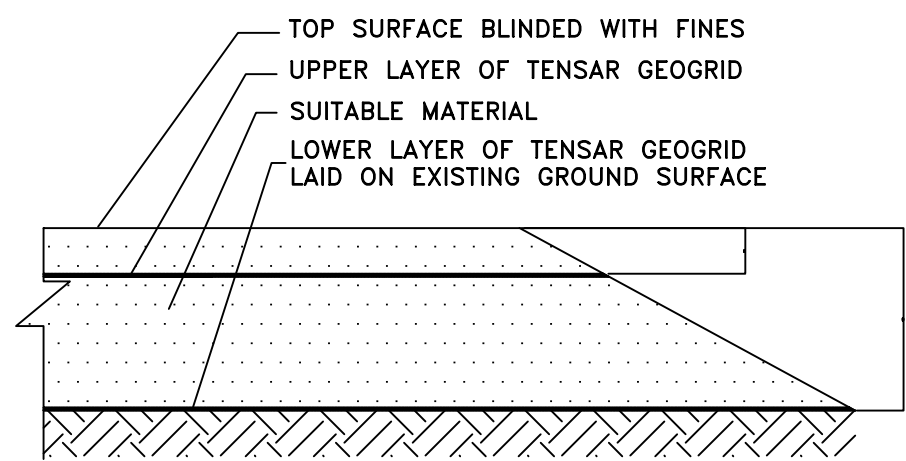
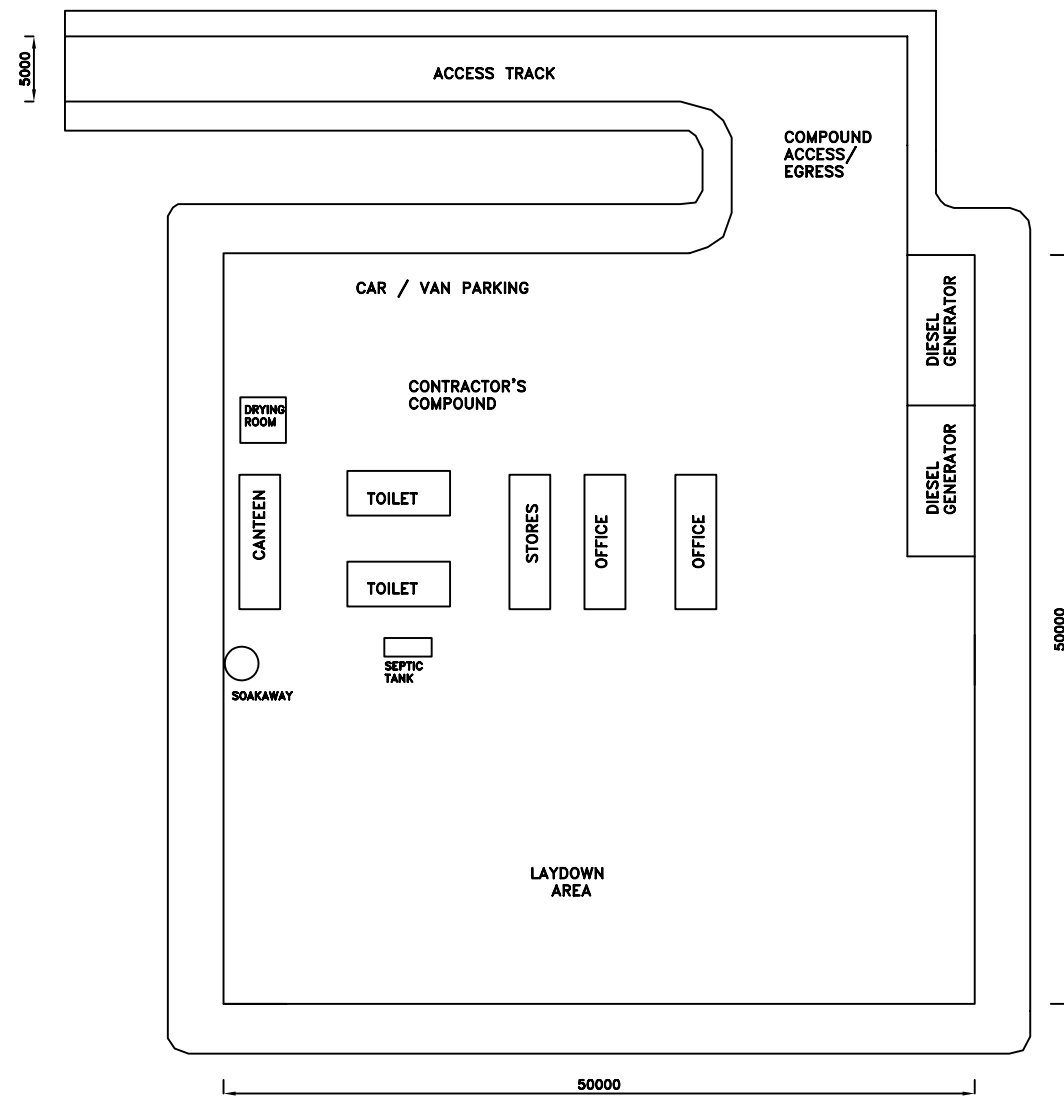
REINSTATED BORROW PIT

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Title TYPICAL BORROW PIT ARRANGEMENT	
Location GORDONBUSH WINDFARM	SSE Drawing Number 137/1000/0005
ShtNo 00	RevNo 00

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Figure 6.7



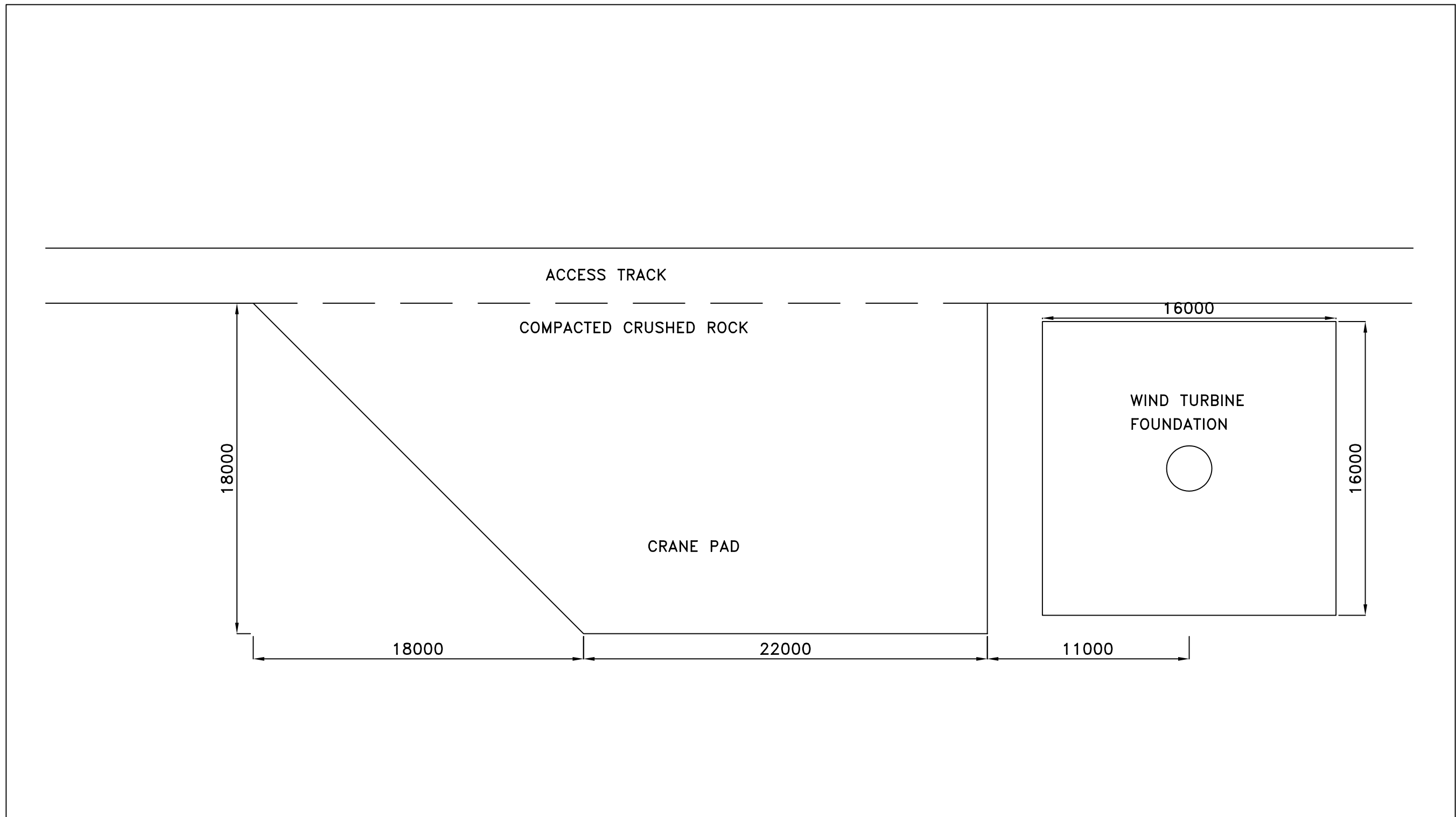
INDICATIVE PLAN ON CONTRACTOR'S COMPOUND

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Project Number 81961		Drawing Status FOR ILLUSTRATIVE PURPOSES ONLY	
Title TYPICAL CONTRACTOR'S COMPOUND			
Location GORDONBUSH WINDFARM	SSE Drawing Number 137/1000/0002	ShtNo 00	RevNo 00

Figure 6.8



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DATE	30/05/03
SCALE	N.T.S
DRAWN	L.GORDON
CHECKED	C.MARDEN
APPROVED	C.MARDEN

Title TYPICAL CRANE PAD			
Location GORDONBUSH WINDFARM	SSE Drawing Number 137/1000/0008	ShtNo 00	RevNo 00

Figure 6.9

GORDONBUSH WINDFARM

Scottish and Southern Energy

► Suggested Abnormal Load Route

- ⊕ Turbine Location
- Access Track
- Suggested Abnormal Load Route

Scale 1:210,000



Figure 6.10

Part D: Assessment of Effects

7. LANDSCAPE AND VISUAL EFFECTS

INTRODUCTION

- 7.1. The aim of the landscape and visual effects assessment is to assess the effects that the windfarm will have upon the landscape and the people who view that landscape.
- 7.2. In this chapter, the potential impacts of the windfarm on the character of the landscape of the site and the surrounding area are identified and the effects on the perception of the landscape are assessed in terms of significance. Also in this chapter, the impacts of the visibility of the windfarm in views from the surrounding area are discussed, and the likely effects that the windfarm will have are identified and assessed.
- 7.3. The purpose of the *landscape* assessment is to determine perceived changes in the character of the landscape in terms of physical features, landform, sense of openness or enclosure, landcover, scale and various other factors, including changes to the experience of travelling through the landscape. The assessment of *visual* effects is strongly related to the landscape assessment and determines visual effects in terms of changes in views and overall visual influence of the development.
- 7.4. Both landscape and visual assessments considered cumulative effects of multiple windfarm developments within the landscape as appropriate.
- 7.5. The objectives of the assessment were to;
- understand and evaluate the current landscape of the site, the role of this landscape in the wider landscape setting, and its contribution to landscape character;
 - identify and determine the nature and extent of any direct impacts of the proposal on the nature and character of the existing landform and landcover;
 - identify and determine the nature and extent of any direct impacts of the proposal on the views of the site and the visual prominence of the site from the surrounding area;
 - evaluate the significance of any identified effects;
 - identify potential measures to reduce or mitigate the adverse effects of the proposal including design modifications;
 - determine and describe any residual effects.
- 7.6. The assessment of landscape and visual effects took into account the following components of the development: the turbines (height, colour, siting), the access track and site tracks, substation and control building, construction plant, borrow pits, and anemometer masts.
- 7.7. The Landscape and Visual Assessment is relevant to a number of other chapters within the ES, including Archaeology and Cultural Heritage (in terms of potential effects on the setting of sensitive sites), and Recreation and Tourism as a result of the relationship between landscape and tourism and recreational use.
- 7.8. The study area was taken to have a radius of 30km from the centre of the site in all directions. A radius of 30km was considered appropriate, based on Landscape and Visual

Impact Assessments of other proposed windfarm developments in Scotland and agreed with Scottish Natural Heritage (SNH).

- 7.9. The assessment was carried out by two landscape architects at Land Use Consultants (LUC) who have extensive experience of environmental impact assessment, including the assessment of several potential windfarm sites throughout Scotland. (**Appendix I.1**).

POTENTIAL SIGNIFICANT EFFECTS

Key Issues

- 7.10. **Table 7.1** identifies potential landscape and visual effects. Potential effects are those which could result from the construction and operation of a windfarm, according to the project, site and receptor characteristics and their interactions, and their inclusion in **Table 7.1** does not imply that they will occur, or be significant at Gordonbush. The landscape and visual assessment is based upon an assessment of the potential effects, in order to identify predicted effects.

Table 7.1: Potential Significant Landscape and Visual Effects

- | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">• changes in the landscape character as a result of the construction and operation of a windfarm in an upland landscape;• changes in views to the area from surrounding areas during construction and operation of the windfarm. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

CONSULTATION

- 7.11. In addition to the formal scoping process, consultation has been carried out with Statutory Consultees and a number of interested parties to obtain their opinions on all aspects of the scheme. The responses have been summarised in **Chapter 3**.

7.12. **Table 7.2** below provides a summary of key relevant consultation responses:

Table 7.2 Summary of Consultation Responses relating to Landscape and Visual Effects

Consultee	Summary of Comments
Highland Council Director of Planning and Development	<ul style="list-style-type: none"> • SNH recent policy guidance on LVIA to be taken into account, as well as NPPG14 and in the Structure Plan with regard to Landscape and Visual Impacts. • Recommends that versions of ZVI using bare ground modelling and including existing forestry should be included given that visual obstructions can change over time.
Historic Scotland	<ul style="list-style-type: none"> • Notes that the windfarm does not affect the site of any scheduled ancient monument directly, but that unscheduled sites may be affected. • Refers to views to and from monuments or other cultural heritage features.
Royal Fine Art Commission for Scotland	<ul style="list-style-type: none"> • Advocates that windfarms should be designed in response to an overall design strategy • Highlights that the commission's current views on windfarms and EIA on their website • No objection in principle but requests further consultation in due course, and would wish to comment on final proposed layout, turbine and ancillary buildings
Scottish Natural Heritage	<ul style="list-style-type: none"> • Makes recommendations for LVIA including : <ul style="list-style-type: none"> • the need to take into account impacts on wildness qualities of the landscape; • the distinctive visibility and light conditions in Caithness; • all components of the development should be taken into account in the LVIA; • viewpoint selection should take into account the sensitivity of the receptors; • sequential views and overall experiences of the windfarm should be assessed; • The issue of wild land should be considered • Information for 30km ZVI and notes that impacts on these sites should be addressed in the LVIA. • Suggests recommendations should consider mitigating against effects on the setting of archaeological and cultural heritage sites.

7.13. Key issues raised in this and the wider consultation included:

- the assessment should consider cumulative effects with other windfarms in the area.
- SNH requested consideration of all of the existing and proposed windfarms nearby, where information is in the public domain;
- the assessment should consider sequential effects along certain transport corridors;
- the assessment should consider impacts on wild land characteristics;
- all components of the development should be taken into account in the LVIA;

- Historic Scotland has requested assessment of the effects on the setting of two archaeological sites in Strath Brora.

7.14. Following an initial desk and field study, a list of 24 potential viewpoints was drawn up representing a range of landscape experiences and landscape character types that are potentially affected by the proposed windfarm. A final list of 17 representative viewpoints was selected following consultation with Highland Council (HC) and Scottish Natural Heritage (SNH). Suggestions from other interested parties, in particular landowners on adjacent estates, were also taken into account.

POLICY CONTEXT

7.15. NPPG14 *Natural Heritage*ⁱ sets out national policy relating to landscape. It requires that new development takes into account landscape considerations and ensure windfarms are 'carefully sited and tied into the surrounding landscape' (paragraph 72). The guidance also recognises the need for society to accept windfarms and paragraph 71 states: 'There are no landscapes into which a wind farm will not introduce a new and distinctive feature'.

7.16. NPPG6 *Renewable Energy Development*ⁱⁱ, PAN45 *Renewable Energy Technologies*ⁱⁱⁱ and PAN60 *Planning for Natural Heritage*^{iv} also provide guidance in relation to landscape and visual effects of windfarms.

7.17. The Highland Structure Plan^v includes policies that seek to protect National Scenic Areas (NSA) and Areas of Great Landscape Value (AGLV) by limiting development within these areas that would adversely affect the character of the landscape. The site itself is not designated for its importance in landscape or scenic terms. However, an area to the east of the site is a proposed AGLV (Ben Horn AGLV), and an adopted AGLV is located to the south of the site around Loch Brora. Three additional AGLVs are also proposed to the north of the site around Kinbrace, Morvern and Ben Klibreck. As the South and East Sutherland Plan was adopted prior to the proposals for new AGLVs in the Highland Structure Plan, these AGLVs have not yet been precisely defined or accepted in statutory policy.

7.18. SNH policy towards windfarms is set out in *Renewable Energy*^{vi} and *Strategic Locational Guidance for Onshore Wind Farms in Respect of the Natural Heritage*^{vii}. The *Strategic Locational Guidance* states that SNH encourages a strategic approach to minimise the impacts on the natural heritage. To this end it identifies, in a series of maps, zones that have low, medium and high natural heritage sensitivity. These zones are drawn up using natural heritage designations, of which three are landscape designations (NSAs, AGLVs, Historic Gardens and Designed Landscapes), and two are designations for which the value of the landscape plays a role (National Parks, Regional Parks). Search areas for wild land are also included, although these are not formal designations, and their boundaries are indicative.

7.19. The Gordonbush site lies within an area of medium to low sensitivity (shown as hatching on Map 5 of the *Strategic Locational Guidance*), while two areas of high sensitivity and two areas of medium to high sensitivity exist within the study area, to the northwest.

7.20. Policy relating to wild land is given in NPPG14 *Natural Heritage*ⁱⁱ and NPPG11 *Sport, Physical Recreation and Open Space*^{viii}. While wild land is not a designation, these areas of uninhabited and inaccessible countryside with minimal human influence are considered to be a national resource, and are now covered by national policies relating to their conservation. NPPG14 states that areas of wild land are to be safeguarded against development which might adversely affect them, including proposals for development outwith the wild land areas. SNH