



Development Application

High Road Wind Farm

October 2010

Prepared by:

RPS

135 Abbott Street

PO Box 1949

CARINS QLD 4870

T: +61 4031 1336

F: +61 4031 2942

E: sera.rohan@rpsgroup.com.au

W: rpsgroup.com.au

Prepared for:

High Road Wind Farm Pty Ltd

Transfield Services

Report No: PR100251-1/R66569

Version/Date: Final 1.0/October 2010

Contents

1	SITE INFORMATION	6
1.1	Site Details	6
1.2	Planning Context	6
1.3	Site Characteristics	6
1.4	Surrounding Land Uses	7
1.5	General Description	7
2	BACKGROUND	8
2.1	Pre-Lodgement Meetings	9
2.2	Community Consultation	9
3	PROPOSAL	10
3.1	Overview of Proposal	10
3.2	Proposal Detail	10
	3.2.1 Land Use	11
	3.2.2 Access and Vehicle Movement	11
	3.2.3 Cultural Heritage	11
	3.2.4 Environmental	12
	3.2.5 Visual	12
	3.2.6 Shadow Flicker	12
	3.2.7 Noise	12
	3.2.8 Traffic	13
	3.2.9 Electromagnetic Interference	13
	3.2.10 Aerodrome Operations	14
	3.2.11 Decommissioning and Site Restoration	14
4	LEGISLATIVE REQUIREMENTS	16
4.1	Sustainable Planning Act 2009	16
	4.1.1 Confirmation that the development is not prohibited	16
	4.1.2 Assessable Development	16
	4.1.3 Assessment Manager	16
	4.1.4 Level of Assessment	16
	4.1.5 Statutory Considerations for Assessable Development	17
	4.1.6 Referral Agencies	17
	4.1.7 Public Notification	17
	4.1.8 State Resource	17
4.2	Environmental Protection and Biodiversity Conservation Act 1999	17
5	STATUTORY PLANNING ASSESSMENT	18
5.1	Overview	18
5.2	Far North Queensland Regional Plan Regulatory Provisions	18
5.3	Far North Queensland Regional Plan 2009-2031	19
5.4	State Planning Policies	20
5.5	Herberton Shire Planning Scheme	21
	5.5.1 Planning Area	24
	5.5.2 Relevant Overlays	25
	5.5.3 Planning Scheme Policies	25
	5.5.4 Planning Scheme Conflicts	25
5.6	Referral Agency Response	26
6	CONCLUSION	27

Figures

Figure 1 Locality Plan

Figure 2 Proposed Layout RPS Drawing No. PR100251-31A & Indicative Lot Layout PR100251-32A

Figure 3 Mapping of Terrestrial Areas of High or General Ecological Significance and State and Regional Conservation Corridors RPS Drawing No PR100251-41

Figure 4 Mapping of Regional Ecosystems RPS Drawing No. PR100251-36

Figure 5 Regrowth Vegetation Mapping

Figure 6 Referable Wetlands Mapping

Appendices

Appendix A Certificates of Title

Appendix B Wind Turbine, Access and Crane Specifications

Appendix C Cultural Heritage Assessment

Appendix D Flora and Fauna Report

Appendix E Visual Impact Assessment

Appendix F Shadow Flicker Report

Appendix G Noise Report

Appendix H SKM Traffic Impact Report

Appendix I Electromagnetic Interference Assessment

Appendix J Email correspondence received from Civil Aviation and Safety Authority

Appendix K Bushfire Management Plan

Appendix L Road Corridor Permit and Resource Entitlement

Schedules

Schedule 1 Lots within Project Area

Executive Summary

This application, made on behalf of High Road Wind Farm Pty Ltd ('The Applicant'), seeks a Development Permit for a Material Change of Use for the purpose of an 'undefined' land use under the Herberton Shire Planning Scheme (Wind Farm), a Development Permit for a Reconfiguration of a Lot and a Preliminary Approval for Operational Works (roadwork), on land located at Tumoulin Road and Unnamed Road, Tumoulin. The project area consists of 6 individual lots (refer to **Schedule 1**) with a combined area of over 395 hectares plus road.

High Road Wind Farm Pty Ltd is wholly owned by Transfield Services. Transfield Services delivers essential services to key industries in the Resources and Industrial, Infrastructure Services and Property and, Facilities Management sectors and is a leading global provider of operations, maintenance and, asset and project management services. Transfield currently own and operate the existing Windy Hill Wind Farm, located 10km south of the project area, and seek to add to the 'green' power already established within the general locality.

'High Road Wind Farm' ('HRWF') is to be defined as: *"the use of premises used for any turbine, building or other structure used in or in conjunction with the generation of electricity by wind force. This includes ancillary infrastructure necessary to distribute electricity generated at the site, as well as facilities incidental to the use and necessary for the ongoing maintenance and enjoyment of the site."*

This definition is generally consistent with the Standard Planning Scheme Provisions, while also adequately reflecting the proposed development, which includes the establishment of 17 wind turbines on the site and ancillary infrastructure necessary to distribute electricity generated at the site, such as access tracks, access ways, transformers, underground cabling and a substation, as well as associated facilities including a visitor information centre and caretakers residence/depot. Ultimately, the wind farm will be connected to the existing Ergon distribution network, located North-east of the site. The transmission corridor connecting the proposed wind farm to the existing distribution network is yet to be determined and will be assessed through a separate community infrastructure designation process.

For the purposes of the Planning Scheme, the subject site is within the Rural Locality of the Rural Area. As such, an application for an 'undefined use' (Wind Farm) is subject to an Impact Assessable application. The Reconfiguration of a Lot and Operational Works components of the application are Code Assessable.

Given the unique nature of the proposal and scale of the associated distribution network required to reticulate electricity generated from the site, there is a lack of detail provided within the existing Herberton Shire Planning Scheme in terms of specific assessment criteria. Acknowledging these shortcomings of the planning scheme, various specialist assessments have been undertaken which identify and recommend strategies to manage potential impacts during the operational phase of the project. These relate to noise, electromagnetic interference, shadow flicker, visual amenity, flora and fauna and cultural heritage.

The specialist assessments provided and management strategies proposed form the technical elements of the application and the particular design elements of the proposal demonstrate that certain requirements are essential for the efficient functioning of the Wind Farm which can be appropriately managed without undue impact on the area.

Summary Table

Site Details			
Site Address:	Tumoulin Road and Unnamed Road, Tumoulin		
Name of Ward/Division:	Division 2 (Cr Shaaron Linwood)		
Real Property Description:	Refer to Schedule 1		
Site Area:	395 hectares		
Regional Plan Land Use Designation:	Regional Landscape and Rural Production		
Area Classification/Local Plan:	Rural Area		
Name of Owner:	Various – refer to Titles included in Appendix A		
Type of Application			
Aspect of Development	Preliminary Approval	Development Permit	
Making a Material Change of Use	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Reconfiguring a Lot	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Operational Works	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Prelodgement/Consultation			
Entity	Yes/No	Date	Contact Name
Council DA Team and Councillors:	<input checked="" type="checkbox"/> <input type="checkbox"/>	Various	Brett Nancarrow
DERM; DEEDI & DIP &:	<input checked="" type="checkbox"/> <input type="checkbox"/>	28/062010	Various
Referral Agency/s:	<input checked="" type="checkbox"/> <input type="checkbox"/>	3/03/2010	Various
Community:	<input checked="" type="checkbox"/> <input type="checkbox"/>	25/02/2010	Various
CASA:	<input checked="" type="checkbox"/> <input type="checkbox"/>	08/04/2010	Russell Dwyer
Proposal			
Brief Description/ Purpose of Proposal:			
<i>Material Change of Use to establish 'Wind Farm' including ancillary infrastructure and facilities (e.g. visitor information centre) and Reconfiguration of a Lot</i>			
Referral Agencies			
Agency	Concurrence Agency	Advice Agency	Pre-lodgement Referral Agency Response
Department of Environment and Resource Management	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Department of Infrastructure and Planning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Department of Transport and Main Roads	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Other			
Level of Assessment:	<input checked="" type="checkbox"/> Code <input checked="" type="checkbox"/> Impact		
Public Notification	<input type="checkbox"/> No <input type="checkbox"/> Yes (15 b.d.) <input checked="" type="checkbox"/> Yes (30 b.d.)		
Superseded Planning Scheme Application:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Applicant Contact Person:	David Finney (Principal – Environment) or Sera Rohan (Senior Planner)		

I Site Information

1.1 Site Details

Key details of the subject site include:

Address	Tumoulin Road and Unnamed Road, Tumoulin <i>(Refer Figure 1 – Locality Plan)</i>
Real Property Description	<i>Refer Schedule 1 – Lot Details</i>
Site Area	395 hectares plus road (subject to Permit to Occupy)
Land Owner	Various - <i>Refer Appendix A – Certificates of Title</i>

1.2 Planning Context

The planning context of the site includes:

Regional Plan designation	Regional Landscape and Rural Production Area
Strategic Plan designation	Rural Locality
Planning Area:	Rural Planning Area
Relevant Overlays	Bushfire Risk Analysis (low, medium and high)

1.3 Site Characteristics

Site inspection and searches of local and state government records indicate that key site characteristics include:

Topography	Undulating
Vegetation	<ul style="list-style-type: none">▪ Remnant Vegetation - Of Concern, Dominant and Essential Habitat▪ High Value Regrowth containing least concern vegetation and Essential Habitat▪ Terrestrial Areas of High and General Ecological Significance (FNQRP) and State and Regional Conservation Corridors <p><i>Refer Figure 4 – Regional Ecosystems; Regrowth Vegetation Mapping on RPS Drawing PR100251-36</i></p>
Services	Minimal

Waterways	<p>Various Category 1 and 2 Regrowth Waterways (Coolaboi Creek/Mill Creek)</p> <p>No referable wetlands have been identified on any lot within the project area</p> <p><i>Refer Figure 5 – Regrowth Vegetation Mapping</i></p> <p><i>Refer to Figure 6 – Referable Wetlands Mapping</i></p>
Existing use of site	Various rural pursuits – cattle grazing, agriculture

1.4 Surrounding Land Uses

The project area comprises 6 allotments and parts of 'road', situated on the Evelyn Tablelands, which is located in the southern Atherton Tablelands, approximately 13km north of Ravenshoe and 10km north of the operating Windy Hill Wind Farm. Access to the sites is primarily from Tumoulin Road. A majority of the project area has in the past been extensively cleared and primarily used for livestock grazing and agricultural pursuits (e.g. potato cultivation), with the balance of land being kept in a natural state. The land is improved by detached dwellings and associated farm sheds. Land surrounding the project area reflects the rural nature of the area, with grazing and agricultural production being predominant land uses.

1.5 General Description

Aspects of Development Sought	<p>Development Permit for a Material Change of Use for (Wind Farm, including ancillary infrastructure, access and facilities; Development Permit for Reconfiguration of a Lot; and Preliminary Approval for Operational Works</p>
Applicant	<p>High Road Wind Farm Pty Ltd</p> <p>c/- RPS Australia East Pty Ltd PO Box 1949 CAIRNS QLD 4870</p> <p>Phone: (07) 4031 1336 Fax: (07) 4031 2942</p>
Contact Persons	Sera Rohan (Senior Planner) or David Finney (Principal – Environment)

2 Background

Monitoring of the wind resource at this location has been undertaken at five different locations across the project area since 1998. The following table shows raw data collection details:

Tower ID	Height (m)	Start	End	Duration (months)	Status
9420	20	03/12/1998	15/07/2009	127	Ongoing
9421*	20	17/02/2000	14/09/2002	31	Removed
9422*	50	17/09/2002	13/10/2009	83	Ongoing
9423*	50	01/04/2003	20/03/2007	48	Removed
9424	50	28/03/2007	12/10/2009	30	Ongoing

**Tower 9422 replaced tower 9421 to provide wind records collected at a greater height. Tower 9423 was moved to location 9424 at the request of a landholder.*

A summary of the results from the wind monitoring undertaken is shown in the table below.

Key Statistics	9420	9421	9422	9423	9424
Record Height (m)	20.2	20.0	49.3	49.2	49.0
Valid Data Rate (%)	88.7	88.0	73.3	92.8	95.2
Min 10 min avg Wind Speed (m/s)	0.3	0.5	0.4	0.4	1.6
Max 10 min avg Wind Speed (m/s)	33.4	18.6	32.7	30.2	14.8
Max 3 sec Gust Wind Speed (m/s)	45.7				
Avg 10 min avg Wind Speed (m/s)	7.0	6.9	7.2	7.8	7.4
Turbulence Intensity (%)	14.0	13.1	12.5	11.4	12.9

The energy resource for HRWF can be quantified as a wind resource with a long-term average wind speed of 7.9m/s, at a hub height of 80m above ground.

The derivation of this wind speed is provided by consultants PB Power, and is based on a comparison of data recorded from all on-site wind monitoring towers, with a period of collection of over 10 years.

An investigation was conducted into the suitability of various reference meteorological data sets. No Bureau of Meteorology automatic weather stations are located within 40km of the High Road site. However, given the fact that there is 10 years of wind data from 9420 met mast, this site is considered a suitable source of reference data to enable the prediction of the long-term wind speeds for other site masts.

Given monitoring site 9423 is located the most centrally within all of the site land; the wind resource for this site best represents the High road wind farm.

Thus, the wind resource at High Road wind farm can be described as having an average wind speed of 7.9 m/s at a height of 80m and reveals that the site is amendable to productive and efficient wind farm.

2.1 Pre-Lodgement Meetings

Representatives of Transfield and RPS met with Brett Nancarrow of Tablelands Regional Council to discuss the approach and details of the proposal required to be submitted. Of particular importance was the inclusion or otherwise of the transmission corridor as part of the application under the *Sustainable Planning Act 2009*. It was determined that given the constraints in terms of project delivery, Council would be willing to accept the proposal independently, although it would be necessary to include the Corridor Selection Study as part of the supporting documentation. In this respect; since the time of this meeting, the proposal has been amended and as a result, will connect to the existing Ergon Network to the south-east of the site, most likely at the existing Evelyn substation.

A meeting with Department of Transport and Main Roads was also undertaken prior to lodgement, to discuss information requirements associated with the delivery of the wind turbines to the site. It was determined that a construction management plan will be required as a condition of approval, as this will depend on various engineering requirements as part of the construction stage of the project. Information on the ability of the existing roads to handle the expected load levels of delivery vehicles may be required where the Department does not have sufficient information. If required, this information will be requested during the application process (particularly in relation to the route from East Evelyn Road to the site). Information required to be considered as part of the application relates to the permanent access for the visitor information centre and substation. Specifications of the traffic management required to deliver the turbines is included for reference in **Appendix B**, with information on the permanent access arrangements provided in **Appendix H** by SKM.

Transfield representatives also met with the Jirribal traditional owner group in relation to cultural heritage matters, including field survey arrangements and a proposed voluntary Cultural Heritage Management Plan.

On 28 June, 2010, a workshop was held with representatives from Department of Employment, Economic Development and Innovation, Department of Infrastructure and Planning, Department of Environment and Resource Management and Tablelands Regional Council. Various issues were discussed in relation to requirements for Resource Entitlement and 'subdivision' under the Regional Plan.

It is noted that the proposal has been amended and significantly reduced since the time of consultation with relevant departments however, given the reduction in tower numbers and reduced impact on sensitive areas, it is unlikely that the issues will change and have been considered as part of this report.

2.2 Community Consultation

A public information session, held at the Evelyn Hall on Thursday 25 February 2010, was attended by approximately 50 residents of the nearby area. The majority of feedback was positive, with many people supporting the overall project. There was some concern raised in relation to the location of the initial transmission corridor connecting to the existing Powerlink distribution network to the west of the site, which is no longer required. Instead, an alternative transmission corridor connecting the site to the existing Ergon distribution network located at the south east of the site is being considered and a transmission line is likely to have a minimal impact as the number of landowners affected is less and distance is shorter than previous version. From this, a database has been established of interested participants who will be updated regularly as to the progress of the application and any amendments to layout (if required). An additional consultation session will be held during the Public Notification stage of the development application to seek further feedback on the overall amended project.

3 Proposal

3.1 Overview of Proposal

High Road Wind Farm will comprise 17 wind turbines, ancillary infrastructure and facilities. The wind farm will ultimately be connected to the existing Ergon distribution network, located to the south-east of the site. No confirmed location of the transmission line route connecting the wind farm to the existing electricity network has been determined at this stage, however, a transmission corridor investigation (nominating 3 provisional options) is currently being undertaken, which will ultimately recommend a transmission route with least environmental impact, while providing the most efficient and effective electrical connection. It is noted that the transmission corridor does not form part of the subject wind farm application, and instead will be assessed under a separate community infrastructure designation process if required.

3.2 Proposal Detail

High Road Wind Farm at completion will consist of 17 wind turbines of a nominal capacity of between 2 – 3 MW, with an estimated annual generation of approximately 100,000MWh. This would produce enough electricity to supply the annual needs of roughly 15,000 homes. The physical characteristics of the turbines include a tapering steel tower supporting a three blade rotor, with an overall height of up to 125m; blade length of 45m and a hub height of 80m. Adequate setbacks will be established for each turbine to ensure that no part of the turbine overhangs adjacent properties (not part of the application) or constructed roads. Each turbine will be connected to the proposed on-site substation via a network of underground cables. The on-site substation will then be connected via overhead transmission lines to the existing Ergon electrical network.

The proposed layout of High Road Wind Farm, including indicative turbine locations, cabling routes and internal access ways, is shown in RPS Drawing PR100251-31 A included for reference in **Figure 2**. The final turbine locations will ultimately be determined by geotechnical and topographical attributes of the site.

It is intended that Transfield Services will secure appropriate tenure over each turbine envelope as well as the connecting access and underground cabling layout by way of individual easements. The *Sustainable Planning Act 2009* makes reference to a 'lot' as 'a separate, distinct parcel of land for which an interest is recorded in a register under the *Land Act 1994*' and the definition of a Reconfiguration of a Lot includes the 'creation of an access easement providing access to a lot from a constructed road'. It is our understanding that the proposed access easements constitute Reconfiguration of a Lot (creation of an access easement), requiring a Development Permit from Council to develop the proposal.

Given the exact final location of the turbines will not be known until the completion of construction, the exact location and extent of such easements can not be determined at this stage and it is anticipated that this detailed information can be provided (such as the provision of as constructed co-ordinates), as a condition of approval prior to Council endorsement of the Survey Plan. A preliminary indicative lot layout is shown in RPS drawing PR100251-32A and is included for reference in **Figure 2**.

A visitor information centre and maintenance depot is also intended to be established on site, although the exact location of the visitor information centre, accesses to these facilities and details of the built form are intended to be determined as part of the application process in consultation with Council, community and other stakeholders. Further details will be provided at Building Approval stage.

It is noted that during construction, consideration to establishing a temporary concrete batching plant will be given. However, as no determination has been made, and will not be made until procurement of the construction contractor, no approval is sought for this aspect of the development at this stage. The appointed contractor will be responsible for obtaining the necessary approvals to operate a mobile and temporary concrete batching plant.

3.2.1 Land Use

For the purposes of the Herberton Shire Planning Scheme 2005, the use is 'undefined' given the unique nature of the proposal. Therefore it will be necessary to seek approval for the definition of a 'wind farm' which is proposed as follows:

"The use of premises used for any turbine, building or other structure used in or in conjunction with the generation of electricity by wind force. This includes ancillary infrastructure necessary to distribute electricity generated at the site, as well as facilities incidental to the use necessary for the ongoing maintenance and enjoyment of the site."

The above definition includes ancillary infrastructure (such as access tracks, underground transmission cabling and substation) necessary for the operation of the wind farm, ancillary facilities that provide the opportunity for the public to view the wind farm and learn about the specific characteristics of the proposal, as well as the potential to establish an operations and maintenance depot. It is considered these facilities are associated with and incidental to the use and therefore do not require separate applications to be established.

As such, it is necessary to include those ancillary infrastructure and facility components within the definition, so as to ensure adequate consideration is given to the entire proposal, although it is acknowledged that details such as setbacks, floor area and carparking numbers for the visitor information centre/maintenance depot cannot be provided at this stage of the application. The flexibility to construct these facilities in the future is sought and it is suggested the detail can be negotiated with Council and relevant agencies and ultimately controlled through imposition of relevant criteria on the parent application, with the necessary detail to be provided at Building Approval stage.

3.2.2 Access and Vehicle Movement

To ensure there is minimal disturbance to the project area and to reduce the risk of erosion, only necessary roads will be constructed along ridgelines, with existing tracks and constructed, gazetted roads being utilised as far as practical. A preliminary road layout has been determined with this in mind, and is shown in the proposed site layout (RPS Drawing PR100251-31A) included in **Figure 2**.

3.2.3 Cultural Heritage

The project area has been extensively cleared in the past and used long term for agricultural, grazing and some historical forestry uses. This history of land use reduces the likelihood any features of cultural significance remaining on the site. An assessment of the sites' Non-Indigenous and Indigenous cultural heritage has been undertaken, including assessment of the preliminary corridor layouts. The report recommends various actions including the preparation and negotiation of a cultural heritage management plan to manage areas of significance.

In terms of Indigenous significance, all significant indigenous sites that are not formally recognised will form part of the agreement with the Jirribal People and Transfield.

Refer to the Cultural Heritage Assessment undertaken by Converge which is included for reference in **Appendix C**.

3.2.4 Environmental

Given the relatively natural landscape upon which the wind farm is proposed, significant flora and fauna attributes of parts of the site have been recognised through various designations under the *Vegetation Management Act 1999*, *Management (Regrowth) Act 2009* (refer RPS drawing PR100251-36 included as **Figure 4**) and *Far North Queensland Regional Plan 2009-2031* (refer RPS drawing PR100251-41 included as **Figure 3**). Clearing of limited areas of vegetation will be required for the construction and ongoing operation of the wind farm, cabling and access ways. However, as the turbines are generally located on or close to the ridgelines where rocky outcrops and sparse vegetation occurs, it appears that the impacts will be relatively minor.

In summary, there is sufficient flexibility in the final location of the turbines to allow the ability to locate turbines in positions with least ecological impact. By doing so, and in combination with sympathetic routing of the associated cabling and access ways joining the turbines, the impacts of the overall proposal are 'relatively low in intensity and recoverable'. Impacts associated with the removal of vegetation need to be balanced with the overall benefit of renewable energy production and cumulative reduction in greenhouse gas emissions.

For detailed assessment, refer to the Flora and Fauna report included for reference in **Appendix D**.

3.2.5 Visual

The elevation of the site and size of the structures will inevitably create an impact on the natural landscape characterising the project area. How the impact is perceived is largely subjective, with both positive and negative elements. Ultimately, the largest visual impact is limited to the immediate location within Tumoulin Road and external to the site, with the majority of view scapes within and to the Tablelands generally remaining intact. The composition of the turbines, being large type structures within an otherwise soft natural landscape, creates a distinct and interesting landscape.

Refer to the visual assessment undertaken by RPS for further information, included for reference in **Appendix E**.

3.2.6 Shadow Flicker

Wind turbines, due to their size, cast shadows on their surrounds. When the shadow of a rotating wind turbine falls on a particular location, for example a house, it can cause a fluctuation in light levels. This phenomenon is referred to as "shadow flicker". Using simple geometry incorporating the sun's path, topography and wind turbine dimensions it is possible to calculate the annual hours that a receptor will be subject to shadow flicker. In the simplest of cases (worst case) the turbine is assumed to be operating all the time, is perpendicular to the receptor at all times, and the sun is shining at all times of the day. This case will provide an upper bound or maximum to the number of shadow hours expected each year.

The Shadow Flicker report concludes that the impact is within allowable limits for all neighbouring dwellings to the wind farm. If any dwelling experiences a level of disturbance then this can be mitigated through establishment of screening vegetation close to sensitive receptors. For detailed assessment, refer to **Appendix F**.

3.2.7 Noise

Noise Mapping Australia have undertaken an assessment of the likely noise impacts of the turbines and a copy of the report is included in **Appendix G**.

The report concludes that noise goals are met at all locations except for R6 (owned by the proponent) which is likely to be subjected to noise levels above the criterion for all wind speeds. Importantly though, the existing dwelling (R6) on Lot 53 will not be used for residential purposes during the construction or operation of the wind farm, instead will be the site for the site office and maintenance depot and therefore the requirement to achieve noise goals for a structure which is un-occupied is considered unreasonable.

3.2.8 Traffic

Construction of the turbines will generate significant traffic movements to and from the site, which will ultimately be managed through the provision of a Construction Management Plan post approval. During construction, turbines will be imported to the Townsville Port and delivered to the site in five separate loads, consisting of four tower sections and nacelle and blades. An onsite concrete batching plant may be installed to facilitate contiguous pouring of concrete for the turbine foundations and hence reduce the traffic associated with the delivery of concrete from external sites, although this is subject to determination by Transfield during the procurement stage for construction. While a temporary and mobile concrete batching plant does not require any formal approval under SPA as part of the current development application, any compliance and registration requirements under the Environmental Protection Act will be the responsibility of the appointed contractor.

The delivery of the turbines to the site will require special permit from Department of Transport and Main Roads (DTMR) and police escorts given the size, height and weight of the vehicles required to deliver the turbine components and will be conducted in consultation with DTMR. Information regarding the capability of the existing road network to safely transport the components is maintained by the Department, with preliminary indications suggesting that the road network has necessary capability up until East Evelyn Road turn off. From this point to the site, further information may be required; however the Department may assess the engineering standards of this section as part of the application process or request further information.

Specifications of the wind turbine, provided by the manufacturer and included for reference in **Appendix B**, outline the access requirements for the delivery and construction of the wind turbines (including crane platforms) external and internal to the site. It is anticipated that these operational requirements will be referenced and/or provided for within the Construction Management Plan.

Approximately three (3) permanent accesses will be required from Tumoulin Road for the ongoing operation and maintenance of the turbines. Indicative locations of these accesses are identified on RPS plan PR100251-31A (**Figure 2**). Traffic generated by the establishment of the wind farm and proposed visitor information centre via the majority of access points (to wind turbines and substation) will be infrequent and limited to authorised personnel, although the visitor information centre is likely to generate more frequent tourist traffic. Final locations for access will be determined at an appropriate location at the time the final location of the turbines is known and adequate access to the site, including a dedicated right hand turn will be considered at that time to ensure safety of Tumoulin Road.

SKM have undertaken an assessment of the likely traffic impacts during and post-construction and provided recommendations for safety as detail within the Traffic Impact Report within **Appendix H**. Please note that while the SKM Report is based on a previous layout, it is noted that Access Point 2 is no longer required although this is not expected to significantly alter the outcomes as outlined in the report.

3.2.9 Electromagnetic Interference

Given the wind turbines have such a large physical structure, there is potential for inference with communication services to occur. As such PB have investigated any potential impacts to radio wave communication services and radar communication services in the locality, the findings are detailed within the High Road Wind Farm – Electromagnetic Interference Assessment within **Appendix I**. While the assessment was undertaken in respect of the previous layout, given the reduced number of turbines and similar location and area covered in the assessment, no amendments were considered necessary.

PB note that there are three (3) categories of radio communication services that can potentially be affected, these include Point-to-Point transmissions, Point-to-Multipoint transmissions and Radar transmissions (please refer to Section 2.2). Section 2.1 identifies there are a number of effects which maybe caused to these services, which include, near field impacts, obstruction impacts, reflection and scattering impacts, and electromagnetic fields /RF interference. PB have assessed the potential impacts to Point-to-Point and Point to Multipoint transmissions.

PB utilise the 2nd Fresnel exclusion zone calculation, to identify that the following turbines would intrude the obstruction exclusion zones of surrounding road communication service sites, turbine 2, 26 and 32 (please refer to Section 4.3). It is recommended that the indentified turbines do not intrude the exclusion areas, however before any layout adjustments are undertaken, further investigation into the details of the coordinates, licence requirements and current operations of the sites is undertaken.

Section 4.4 provides an overview that Point-to-Multipoint services are unlikely to be affected given the receiver is usually mobile and can move a short distance to an unobstructed area for service.

Potential reflection of an analogue video signal can result in impact to analogue television services (please refer to Section 4.5). However, PB noted that *no population centre lies such that the wind farm is obstructing either of these broadcast stations lines of sight. Additionally The Australian Government has declared analogue television will be phased put of service by the end of 2013, and given a reasonable construction schedule, many users will have converted to digital television by construction has commences. It is further noted that digital television signals are generally not degraded due to interference from wind turbines.*

PB outline that investigations with respect to potential impacts on radar services has not been included within their assessment and recommend that Transfield undertaken further consultation with the Department of Defence, Air Services Australia and the Bureau of Meteorology.

3.2.10 Aerodrome Operations

It is noted that the subject site is not located within any within or located in close proximity to any identified operational airspace and as such there is no particular requirements to be met.

RPS have discussed the application with the Civil Aviation Safety Authority (CASA), who have provided the following advice in particular to this proposal (refer to **Appendix J**).

The Civil Aviation Safety Authority's (CASA) statutory power only requires obstacle marking and lighting on obstacles within the vicinity (approximately 30km) of an aerodrome, under CASR Part 139. CASA cannot mandate the lighting or marking of structures outside the vicinity of aerodromes. It is CASA's view that this is a decision for, and the responsibility of, the developer.

CASA have requested that when any of the wind turbines are erected, further liaison with CASA is undertaken to ensure navigation charts are appropriately amended. CASA further advise the Royal Australian Air Fore also maintain a database of significant structures and should also be advised upon the erection of any wind turbines to ensure their databases are updated accordingly.

3.2.11 Decommissioning and Site Restoration

The project economics are based on a wind farm design life of 25 years, after which Transfield Services will either; continue generating power from the existing turbines, upgrade the turbines or remove the infrastructure and decommission the site. Decommissioning the site would involve the following:

- Dismantling the turbines;
- Removing towers and replacing soil over foundations;
- Removing all material from site for recycling;

- Where tracks are no use to the land owner, the land would be reinstated for agricultural purposes;
- Underground cabling would be removed if at risk of being ploughed/tilled. All above ground lines would be removed; and
- The substation and associated buildings would be removed.

Following the decommissioning phase, it is important that any disturbed areas are rehabilitated as soon as possible and the site is restored to its original condition to prevent the degrading process such as erosion or the spread of exotic species. A site restoration plan may be prepared to guide the process. It will incorporate the following stages.

- Restore areas where subsurface components have been removed such as underground cabling. Cut off at appropriate depths infrastructure, such as concrete foundations, and grade land to match adjacent contours.
- Sites will be seeded with native and endemic species or restored to cropping land depending on the location. The use of native vegetation will prevent the spread of invasive and exotic species, and will provide appropriate habitats for the local fauna. Once germinated, this will serve the purpose of stabilising loose soils and reducing exposed topsoils, therefore preventing potential erosion and sediment runoff. Consultation with landholders will be carried out to ascertain whether the proposed species composition is compatible with their plans for the site.

4 Legislative Requirements

4.1 Sustainable Planning Act 2009

This section provides an overview of the legislative context of the application under the provisions of the *Sustainable Planning Act 2009 (SPA)*.

4.1.1 Confirmation that the development is not prohibited

The proposed development is not prohibited. This has been established by considering all relevant instruments which can provide prohibitions under SPA including:

- State Planning Regulatory Provisions (Section 21); and
- Prohibited Development defined at Schedule 1 of the *Sustainable Planning Regulations 2009* (Section 234).

4.1.2 Assessable Development

The Material Change of Use component of the application is made assessable by the Herberton Shire Planning Scheme 2005.

The Reconfiguration of a Lot proposed by this application is assessable development pursuant to Schedule 3 of the *Sustainable Planning Regulations 2009* (Table 3, item 1).

The Operational Works component of the application is made assessable by the Herberton Shire Planning Scheme 2005.

4.1.3 Assessment Manager

The Assessment Manager for this development application is Tablelands Regional Council as determined by Schedule 6 of the *Sustainable Planning Regulations 2009*.

4.1.4 Level of Assessment

The table below summarises the assessable development subject to this application and the relevant level of assessment for each aspect of development.

Aspect of Development	Planning Instrument that determines Level of Assessment	Level of Assessment
<i>Material Change of Use (wind farm and ancillary infrastructure, access and facilities)</i>	<i>Herberton Shire Planning Scheme</i>	<i>Impact</i>
<i>Reconfiguration of a Lot</i>	<i>Herberton Shire Planning Scheme; Schedule 3</i>	<i>Code</i>
<i>Operational Works</i>	<i>Herberton Shire Planning Scheme</i>	<i>Code</i>

4.1.5 Statutory Considerations for Assessable Development

As the development is subject to Impact Assessment, the relevant considerations of the Assessment Manager in making the decision pursuant to Sections 324, 326 and 314 of the *Sustainable Planning Act 2009* have been assessed at Section 7 of this Town Planning Report. Inconsistencies and resolution of these inconsistencies has also been addressed within Section 7.

4.1.6 Referral Agencies

Referral Agencies triggered by this proposal and their jurisdictions have been established with reference to Schedule 7 of the *Sustainable Planning Regulations 2009*, as follows:

- **Department of Transport and Main Roads** is identified as a 'Concurrence Agency' due to the project area containing lots contiguous to a State Controlled Road (namely Kennedy Highway) (*table 2, item 2 and table 3, item 1(a)*);
- **Department of Environment and Resource Management** is identified as a Concurrence Agency for vegetation matters; (*table 3, item 10*); and
- **Department of Infrastructure and Planning** is identified as a Concurrence Agency in relation to the subdivision outside of the Urban Footprint; (*Table 2, item 40*). It is noted that while confirmation from DIP has been provided confirming that the referral trigger is only intended to relate to subdivision within an urban growth area, notwithstanding this advice, Schedule 7 is not explicit on the matter and as such, referral is technically triggered.

4.1.7 Public Notification

This application requires public notification pursuant to Section 295(1) of the *Sustainable Planning Act 2009* for a minimum period of 30 business days in accordance with Section 298 (1)

4.1.8 State Resource

The proposal involves a State Resource being those parts of Unnamed Roads and Tumoulin Road where cabling from the turbines to the substation traverse the gazetted roads. Pursuant to Section 264 of the *Sustainable Planning Act 2009* this application is supported by evidence required by items 8 & 9 of Schedule 14 of the *Sustainable Planning Regulations 2009*. Specifically, this includes:

- Permit to Occupy and Resource Entitlement issued by the Department of Environment and Resource Management dated 5 October, 2010 for those works within unnamed roads.
- Road Corridor Permit (including a Resource Entitlement as **Appendix L**) from the Department of Transport and Main Roads dated 16 July 2010 for those works within Tumoulin Road.

4.2 Environmental Protection and Biodiversity Conservation Act 1999

A concurrent referral will be made to the Department of the Environment, Water, Heritage and the Arts under the *Environmental Protection and Biodiversity Conservation Act 1999* to determine whether the proposal constitutes a controlled action.

5 Statutory Planning Assessment

5.1 Overview

This section assesses the application against relevant statutory planning provisions for the application.

5.2 Far North Queensland Regional Plan Regulatory Provisions

The project area is included in the “Regional Landscape and Rural Production Area” designated under the Far North Queensland Regional Plan and is subject to Division 3 of the Regulatory Provisions.

Given that the definition of a ‘lot’ pursuant to section 10 (1) of the Sustainable Planning Act 2009 makes reference to ‘a separate distinct parcel of land for which an interest is recorded in a register under the Land Act 1994’, the proposed easements necessary to facilitate the establishment of appropriate tenure for the ongoing operation and maintenance of the High Road Wind Farm constitute creation of a single ‘lot’ across the entire project area, which is defined as Reconfiguration of a Lot.

It is anticipated that the easement area will incorporate a wind turbine envelope, inclusive of the circumference of the rotor blades as well as accesses between the towers and underground cabling necessary for the connection to the substation proposed to be located on Lot 53 on CWL1229. No areas have been defined at this stage as exact locations and areas for each turbine will depend on the geo-technical attributes and detail survey of the area.

It is submitted that the proposal is not prohibited by the Regulatory Provisions as the proposal does not include ‘subdivision’ as defined by the Regulatory Provisions. This is predicated on the fact that the creation of an easement does not render different parts of the lot immediately available for ‘separate disposition’ or ‘separate occupation’. Rather, the proposed easements merely formalise access to the turbines and cables from the constructed roads. As this element is a distinct difference between the Reconfiguration of a Lot definition contained within the Sustainable Planning Act 2009 and definition of subdivision within the Regulatory Provisions, it is anticipated that this was of a direct consequence so as to avoid the need for access easements to be complicated by the Regulatory Provisions.

An indicative layout of the proposed easement is shown in RPS drawing PR100251-32A, subject to final detail survey and dependent upon final locations of actual turbines. It is anticipated that this detailed information will be provided during Operational Works stage, prior to Council endorsing the final Survey Plan.

It is also noted that the development does not constitute an ‘urban activity’, as it relates to “electricity infrastructure”, being the generation of electricity through harnessing energy from the wind and is therefore consistent with policies contained in the Regional Plan and outcomes sought for the Regional Landscape and Rural Production Area, subject to environmental considerations.

The proposed visitor information centre constitutes a tourist activity for the purposes of the Regulatory Provisions and will be significantly less than the 2000m² maximum floor area prescribed under Division 2 of the Regulatory Provisions. As such, the proposal itself complies with the requirements and does not trigger referral to the Department of Infrastructure and Planning for assessment.

5.3 Far North Queensland Regional Plan 2009-2031

The assessment of the proposal against the Regional Plan is relevant to aspects which are not appropriately included within the current Planning Scheme pursuant to Section 314(2) of the *Sustainable Planning Act 2009*.

The Planning Scheme does not identify that the Regional Plan has been appropriately addressed. The statutory provisions in the Regional Plan which are relevant to this application are:

1.1 Biodiversity Conservation

RPS drawing PR100251-41 (refer to **Figure 3**) shows that parts of the project area contain Terrestrial Areas of High or General Ecological Significance. Policies relating to these areas restrict 'urban development' in these areas and as such, do not apply to the proposal, as the wind farm is not considered an 'urban activity'. The proposed visitor information centre, which is considered to be an urban activity, is not located in or near areas identified as containing high or general ecological significance or within designated strategic rehabilitation corridors. As such, the proposal is considered to be in compliance with these policies.

An assessment of the flora and fauna characteristics of the general area was undertaken via desktop and field assessment, the findings of which are included in **Appendix D**. Ultimately, these findings have informed the location and layout of the turbines, however it is noted that the locational attributes of the turbines requires some vegetation to be removed. No significant impacts on the existing flora and fauna attributes of the site are expected to result from the establishment of the turbines.

1.3 Air and Acoustic Environment Protection

Given the nature of the use, potential noise impacts have been assessed by Noise Mapping Australia, who conducted on-site investigations and modelling and provided recommendations to ensure compliance with *Environmental Protection Policy (Air) 2008*. A copy of this report is included in **Appendix G**.

2.1 Regional Landscape Values

The project area includes areas identified as being Terrestrial Areas of High and General Ecological Significance, as depicted in RPS Drawing PR100251-41 included in **Figure 3**. Turbines 15, 16 & 17 are located close to or within mapped remnant vegetation and areas identified as Terrestrial Areas of High and General Ecological Significance. Specifically, turbine 17 is located in area mapped as Least of Concern Regional Ecosystem and within Terrestrial Area of General Ecological Significance; turbine 16 is within close proximity (and subject to micro-siting may be located within) 'of concern' regional ecosystem and Terrestrial Area of High Ecological Significance and turbine 15 is within mapped regrowth vegetation and Terrestrial Area of High Ecological Significance.

No large scale clearing is required for the siting of turbines, which are generally located in cleared areas. Where clearing is required for access tracks and turbines, this has been limited as far as practical to ensure significant vegetation can be maintained. As the majority of turbines are located at or near the ridgelines, the vegetation is relatively sparse within these locations and can be accommodated once the turbines are established given the height of the turbines.

A full assessment considering the flora and fauna values of the project area and likely impacts of the wind farm is included for reference in **Appendix D**.

Given the rural nature of the area and existing agricultural and grazing uses, it is not surprising that the land is identified as being Good Quality Agricultural Land. Importantly, the establishment of the turbines will not prejudice the ongoing operation of the existing farmlands and will inevitably provide greater income for the landholders to invest back into the properties.

2.3 Scenic Amenity, Outdoor Recreation and Inter-urban Breaks

Land use policies relating to scenic amenity within the Regional Plan recognise that the rural landscape and natural areas are a major economic asset of the region, containing culturally significant landscapes, and importantly, contributes to the way of life. Specifically, land use policy 2.1.1 recognises the value of the landscape for renewable energy, whilst recognising that public utilities and infrastructure should be appropriately managed to protect the natural values of the region.

Inevitably, the turbines will have a strong visual presence within and external to the site, given the height of the structures is 80m to the hub and 120m overall and being situated on the highest road in Queensland at 1, 143m above sea level. Impacts associated with the juxtaposition of such industrial grand structures within soft natural landscape impacts remains relatively subjective and based on individual perceptions. By locating the turbines to reflect existing ridgelines and separation of the turbines over large areas, adverse impacts are somewhat minimised by being uniform and repetitive. It can even be suggested that the establishment of the turbines will add to the scenic amenity of the landscape at this location, evidenced by the attraction of wind farms for tourists within Australia and particularly Windy Hill.

For further information regarding visual amenity, refer to the assessment included for reference in **Appendix E**.

6.1 Infrastructure Planning and Coordination

Overall, the project represents a collaborative partnership between Transfield and Ergon to produce additional energy in a renewable form and is consistent with the aligned policy 6.1C which encourages collaboration in the design and provisions of infrastructure within a chosen corridor.

6.3 Energy

Land use policy 6.3.1 encourages the establishment of viable renewable energy sources such as wind farms, which are 'recognised as a legitimate land use and supported for their contribution to reducing greenhouse emissions'.

High Road Wind Farm will complement the existing Windy Hill Wind Farm, to create a wind farm node within the Tablelands which will enhance the security of renewable energy supply for residents of the region, and potentially creating a 'wind energy node' which will allow for the efficient maintenance and operation of the overall project area.

5.4 State Planning Policies

State Planning Policies are relevant to the assessment of this application where they are not appropriately reflected in either a Regional Plan or Planning Scheme relevant to the site. The applicability of relevant State Planning Policies is identified in the table below. Compliance with relevant provisions from State Planning Policies is also addressed in the table below.

State Planning Policy	Applicability to Application
SPP1/92 Development and the Conservation of Agricultural Land	Applicable however this policy has been adequately reflected in the Herberton Shire Planning Scheme and does not require separate assessment
SPP2/02 Planning and Managing Development Involving Acid Sulfate Soils	Not Applicable – project area is not subject to Acid Sulfate Soils

SPP1/02 Development in the Vicinity of Certain Airports and Aviation Facilities	Not Applicable, although relevant in terms of potential impact of military training and crop dusting/aerial spraying paths
SPP1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide	Applicable – project area contains low, medium and high hazard areas however this policy has been adequately reflected in the Herberton Shire Planning Scheme and does not require separate assessment
SPP1/05 Conservation of Koalas in South East Queensland	Not Applicable – project area is not within SEQ
SPP1/07 Housing and Residential Development	Not Applicable – SPP applies to Local governments when preparing planning schemes
SPP2/07 Protection of Extractive Resources	Not Applicable – No identified KRA's are in the project area
SPP1/09 Acceleration of Compliance Assessment	Not Applicable – proposal does not require compliance assessment
SPP2/09 Reconfiguration of a Lot Code for land in indigenous local government areas to which a local planning scheme does not apply	Not Applicable – project area is not in an indigenous local government area
State Coastal Management Plan – Queensland's Coastal Policy	Not Applicable – project area is not located in a Coastal Area
Draft Queensland Coastal Plan 2009	Not Applicable – project area is not located in a Coastal Area
Draft State Policy Coastal Management 2009	Not Applicable – project area is not located in a Coastal Area
Draft State Planning Policy Coastal Protection 2009	Not Applicable – project area is not located in a Coastal Area
Draft SEQ Koala Conservation State Planning Policy 2009	Not Applicable – project area is not located in SEQ
Draft State Planning Policy Guideline for Healthy Waters 2009	Not Applicable – not yet in effect
Draft State Planning Policy: Air, Noise and Hazardous Substances 2009	Not Applicable – proposal does not include a 'sensitive use' or reconfiguration within or adjacent to an identified Management Area or Industrial Planning Area
Temporary State Planning Policy 1/10 Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments	Not Applicable – site is not within an area identified on Map of Referable Wetlands.

In the compliance assessment above no inconsistencies were identified.

5.5 Herberton Shire Planning Scheme

The current Planning Scheme does not adequately capture the proposed use and as such, there are few provisions of the Herberton Shire Planning Scheme which are relevant to this application.

Whilst there is potential conflict 'by omission', it is considered that sufficient grounds exist to warrant approval of the proposed High Road Wind Farm project, given that the Planning Scheme did not anticipate the type of development proposed by the application.

An assessment of the proposal in respect to the Desired Environmental Outcomes sought by the scheme is provided below:

DEO 1. Development within the Shire recognises and protects the natural environment and resources in the area and focuses on a network of townships and villages that provide for the wellbeing of the residents;

It is considered that the Rural area is most suitable for the establishment of such a unique proposal, as it does not prejudice the establishment or continued operation of rural uses on the affected sites and is appropriately located away from the existing urban areas. As such, the proposal is considered to be consistent with the Strategic Framework Plan.

High Road Wind Farm has been designed, as far as practical, to ensure that existing landscape values, and significant natural features are not compromised by the establishment of the towers. This has been achieved by designing a layout which respects existing features, ensuring that all operational impacts are managed appropriately, and ensuring that the facility can be operated with minimal input from natural resources such as water and extractive materials.

DEO 2. Herberton, Ravenshoe and the village areas have discrete urban areas which:

- a. Have a distinctive and recognisable character;*
- b. Provide a range of housing options;*
- c. Provide employment opportunities;*
- d. Provide access to community facilities and services;*
- e. Provide useable open space and recreation opportunities; and*
- f. Provide opportunities for community interaction;*

While not directly applicable, the proposal is appropriately located within proximity to Ravenshoe and will assist in meeting the energy requirements for the growth of urban area without impacting upon the character or establishment of required land uses of the urban areas.

DEO 3. The existing economic base of the townships and rural areas builds upon the Shire's strengths in rural production and tourism, while also encouraging new and diverse opportunities;

It is anticipated that during construction, the project has the potential to generate significant demand for local products and labour which will support the local economy in the short term, creating approximately 100 jobs. Post construction, there is opportunity for continued injection of jobs throughout the region through the increase in tourism generated by the wind farm. Previous experience with Windy Hill Wind Farm and from other wind farms established throughout Australia and New Zealand indicate genuine interest in such proposals, given that they are not as common in other International cities.

DEO 4. Rural areas are sustainable and productive with areas of Good Quality Agricultural Land protected from alienation, fragmentation and incompatible development;

It is considered the High Road Wind Farm will not prejudice the establishment or continued operation of rural uses on the affected lands, due to the relatively small footprints of the turbines at the ground level, combined with the infrequent access required to maintain the turbines and ability for the site to be operated with relatively few inputs, once constructed.

The construction, operation and maintenance of the wind farm is therefore consistent development in the rural area and ensures that the land is not fragmented. Further, the reconfiguration of a lot component is essentially a form of tenure and will not physically fragment the affected lands for livestock grazing purposes or agricultural uses by utilising (as far as practical) existing access tracks and do not require physical barriers (such as fences) to ensure movement through the site can occur in the same manner as it is currently.

DEO 5. Physical and social infrastructure including water, effluent disposal, community facilities and the transportation network are efficiently used and extended, meet community needs and ensure the sustainable use of resources;

High Road Wind Farm represents a component of physical infrastructure (electricity supply) required to meet community needs and expectations in terms of the sustainable use of resources.

DEO 6. The Shire's landscape values and the natural environment and ecosystems area managed to ensure enhancement of biodiversity and nature conservation values;

While the area has been extensively cleared and is largely devoid of significant vegetation, there are some areas on the site which are identified as containing significant vegetation, regrowth corridors and watercourses under the *Vegetation Management Act 1999*, *Vegetation Management (Regrowth) Act 2009* and *Far North Queensland Regional Plan 2009-2031*. These are depicted in RPS Drawings PR100251-41 and 36, included for reference in **Figures 3 & 4**. In respect of these attributes, negotiations with Department of Environment and Resource Management as the administering authority will be necessary to demonstrate that impacts can be minimised and managed appropriately so as not to detrimentally affect the scenic and biodiversity values of the area, including the potential for an offset.

While turbines are relatively fixed in location (i.e. need to be in those areas where wind resource is consistent and productive), the large project area provides the ability to site individual turbines in areas of least ecological significance. The final location of each turbine will be determined through contour survey and geotechnical assessment, in conjunction with an assessment of the ecological attributes of each location. Fortunately, the wind turbines are generally located in established cleared areas and where clearing is required, the vegetation is relatively sparse or located on the edges of the rocky outcrops (refer to **Appendix D** for flora and fauna assessment). Importantly, the physical presence and ongoing operation of the turbines will not adversely impact the existing or future habitats or corridors of identified fauna.

DEO 7. The values of significant natural and cultural features and the scenic landscape of the Shire are not compromised;

Converge Heritage + Community were commissioned to undertake an assessment of the Non-Indigenous Cultural Heritage values of the project area. A copy of their findings is provided for reference in **Appendix C**. Essentially, while no sites or places have been identified or recommended to be included on the Heritage Register, there were three places identified as representative of development of the region generally and while they were considered to be of low significance, they are relevant to the historic value of the project area. Overall, the project area contains low European Heritage values and can be easily managed.

While the majority of the project area has been extensively cleared and disturbed by existing and continuing agricultural uses, preliminary research of potential Indigenous Cultural Heritage within the project area has identified moderate potential for this to be disturbed. It is noted that Lot 47 on DWL 3490 also contains a registered campsite, although on ground site investigation failed to identify the site. No Native Title claims have been made within the project area, although two claims have been made by the Jirribal people to the north and west of the project area.

Despite the scale of the proposal, given the minimal ground disturbance required for construction, operation and maintenance of the wind turbines, it is considered that the proposal is able to ensure that the significant features are maintained. It is understood that a Cultural Heritage Management Plan is to be prepared in consultation with the traditional owners.

The scenic landscape of the area is characterised by natural features amongst rural uses and while this will essentially be altered by the construction of the wind turbines, this is considered to enhance the scenic value of the area, as both uses can occur concurrently (refer to visual assessment included in **Appendix E**).

DEO 8. Natural resources, such as extractive and mineral resources, Good Quality Agricultural Land, forestry and water resources, area protected from encroachment and the adverse effects of development and are utilised in a sustainable manner;

Post construction, the establishment of the proposed Wind Farm on the relevant sites will allow existing grazing and crop cultivation to continue with minimal impediments, whilst also providing existing landowners with an opportunity to increase income from the land by diversifying into energy. Operationally, the turbines are maintained on a relatively infrequent basis and essentially access to the site is only needed on an as required basis. As such, there are minimal, if any, impacts on the Good Quality Agricultural Land characteristics of the land and the development itself has relatively few inputs, with all operational impacts (noise, shadow flicker, traffic etc) able to be managed to ensure minimal impacts on the receiving environment.

5.5.1 Planning Area

All sites in the project area are within the Rural Planning Area of the Herberton Shire Planning Scheme 2005.

The outcomes sought for long term land use which the Rural Planning Area are as follows:

- *The Rural Planning Area comprises a range of rural activities including agriculture, animal husbandry and support activities which are appropriate to maintain the rural amenity and character;*
- *Good Quality Agricultural Land is protected and is not alienated or fragmented;*
- *Intensive rural activities are located away from sensitive land uses and do not have a detrimental impact on the rural amenity of the area;*
- *Extractive Industry operations utilise significant local resources and are appropriately located and designed to mitigate any significant environmental impacts;*
- *Rural activities are protected from the intrusion of incompatible uses;*
- *Rural industries and other higher impact activities are only development in locates where the use does not detrimentally impact on the rural nature of the area;*
- *Development maintains a high standard of rural amenity;*
- *Rural activities and development are suitably located and appropriately managed to minimise any potential adverse impacts on areas of significant vegetation and biodiversity values;*
- *The risk of bushfire and other natural hazards are not increased; and*
- *Development provides an appropriate level of infrastructure.*

It is considered that the Rural Planning Area is the most appropriate designation to site development of the type proposed and is therefore consistent with rural uses, by ensuring that continued viability and operation of all rural uses is maintained post construction. It is anticipated that the community has a certain level of acceptance of such proposals, given established Windy Hill Wind Farm, greater public knowledge of the need for renewable energy sources generally and policy direction of the State and Federal government which encourage development of renewable energy.

The Development Principles outlined in the Rural Locality Code address built form requirements, such as setbacks and heights, which are not relevant to the proposal. Given the nature of the proposal, wind turbines necessitate an overall height far beyond any existing built structure likely to be established in the Rural Locality. However, turbines will be setback from roads and existing dwellings appropriately, to ensure no overhanging of rotor blades on adjoining properties or constructed roads. As such, a minimum of 50m from any boundary will be necessary and can be achieved for the proposal.

Where practical, significant vegetation has been retained, with the majority of turbines requiring no clearing. As stated above however, turbines have certain locational requirements which necessitate the removal of vegetation to ensure maximum efficiency and allow safe construction.

Typical impacts during operation relating to noise impacts have been addressed by Noise Mapping Australia, with the results of their modelling being included for reference in **Appendix G**. The report concludes that the wind farm has been designed and can operate within acceptable levels of noise criteria to ensure rural amenity of the area is maintained.

Other typical impacts, such as electromagnetic interference and shadow flicker have also been considered and can be appropriately managed (refer to **Appendix F & J**).

5.5.2 Relevant Overlays

The project area is subject to the Bushfire Hazard overlay and is identified as containing low, medium and high bushfire hazard. Given that the proposal relates to structures which do not increase the amount of people working or residing on the land, the proposal complies with the intent of the code. The potential for the structures themselves to ignite (from malfunctions of internal equipment) is extremely low, but will be managed through consistent and regular maintenance program, complemented by a specific Fire Management Plan (refer to **Appendix K**) for all operation and maintenance activities which will be included in the site Environmental Management Plan.

5.5.3 Planning Scheme Policies

No Planning Scheme Policies are directly applicable, although it is noted that Council may make a request for further information in relation to particular aspects of the proposal.

5.5.4 Planning Scheme Conflicts

In the compliance assessment detailed above, no inconsistencies have been identified. We note however that there is potential that, because the planning scheme did not anticipate this type of development, there may be conflict by omission. In this instance, it is considered there are sufficient grounds for approving the development, despite the conflict having regard to;

- State government policies, notably the Far North Queensland Regional Plan Statutory Policy 6.3 which states that developments sourcing energy from the wind are '*recognised as legitimate land uses and supported for their contribution to reducing greenhouse emissions*';
- Underpinning this support are higher level policies of the Queensland Government such as ClimateSmart Strategy 2050, as well as numerous national and international commitments to reduce greenhouse gas emissions and impacts of climate change;
- Wind farms represent a safe and clean form of electricity generation with relatively benign impacts when compared with traditional sources of energy production, such as coal;
- Significance of the project to the energy industry in Far North Queensland is recognised by being the second project of this type in the area, which provides the potential to create a wind energy node;
- The short term economic benefits during construction phase, through support for local industry/suppliers and construction labour, and long term job placements from tourism resulting from the wind farm;

- Importantly, the proposal does not prejudice establishment of rural uses post construction nor result in fragmentation of rural land holdings;
- While the locational attributes of wind turbines necessitate the removal of some identified significant vegetation, any such impacts can be managed through micro-siting of the turbines;
- Operational impacts can be appropriately managed;
- Minimal impact on Cultural Heritage values by limiting the majority of the development to existing cleared areas;
- Visual impact is considered to enhance the existing landscape and will ultimately create a distinct character for the area; and
- It is anticipated that given the existence of Windy Hill, and public knowledge of the need for renewable energy in Queensland, that there is greater community acceptance and knowledge of the benefits of such proposals.

In summary, if there is considered to be any conflict by omission, it is considered minor given that the Planning Scheme had not anticipated such development. This report has demonstrated that the proposal does not offend or compromise the achievement of the outcomes sought for the Rural Area or Planning Scheme area generally. In any event, any conflict with the Planning Scheme is resolved by overriding policies contained within the Far North Queensland Regional Plan, which encourage the proposed development.

5.6 Referral Agency Response

No referral agency responses have been obtained prior to the lodgement of this development application. This will be obtained as part of the information and referral stage at Chapter 6, Part 3 of the *Sustainable Planning Act 2009*.

6 Conclusion

This report forms the supporting information for a development application to obtain a Development Permit for a Material Change of Use, for the purpose of an 'undefined' land use under Council's Planning Scheme (i.e. Wind Farm), Development Permit for a Reconfiguration of a Lot and Preliminary Approval for Operational Works (roadworks), on land located at Tumoulin Road and Unnamed Road, Tumoulin.

The report has included an assessment of the proposal against relevant planning considerations at both State and Local level and is considered to be in compliance with these documents. The proposal is consistent with land use designations and it has been demonstrated that operational impacts can be appropriately managed.

There is demonstrated support in State government policies towards provisions of renewable energy such as wind and solar power. Energy generated by the wind represents an environmentally friendly, readily available natural resource which can provide electricity cheaper and more cost effectively than traditional alternatives such as coal and gas fired plants.

Ultimately, the proposal will have both direct and indirect economic, social and environmental outcomes for the area and region.

Environmentally, the design of the turbine layout has been carefully considered to ensure clearing of vegetation is minimised without compromising the effective operation of the wind farm. By utilising a renewable energy source that does not contribute to greenhouse gas emissions, extrapolation of the proposal will have a positive cumulative impact by contributing to the reduction greenhouse targets generally.

The HRWF will enable agricultural and grazing activities to continue, while participating landholders will be provided with an additional income source which could add to the viability and sustainability of the rural holdings, which indirectly improves social and economic well being of the community.

The project will provide opportunities for local employment and will rely on various local inputs which will directly improve economic well being of those involved in the construction phase of the project. It represents the coordinated provision of utility infrastructure while ensuring protection of natural features of the site which reflects a socially responsible development.

In summary the proposal is considered to advance the principle of ecological sustainability by meeting the energy needs of today through environmentally benign structures that do not contribute to greenhouse gas emissions, so as not to compromise the ability of future generations to meet their energy needs.

We therefore commend the application to Council for approval.