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Initial Site Assessment

This detailed site assessment report is designed to assist in your own assessment of the site, but does not cover all possible Radar, Aircraft, Communications and Radio issues. We undertake a desk-based Initial Site Assessment for the area lying within the boundary details supplied. This includes:

- TV and Radio transmitters;
- Microwave communications links;
- Military airfields and radars; Military low flying areas;
- Maximum, Minimum and Average Ceiling Height are provided for weather radar, based on 250 sample points; Radar Calculations takes Earth Curvature into account;
- Radar Calculations take standard radar refraction into account;
- Calculations are undertaken using Pager Power's custom Sight Lines software;

Radar Impact Assessment

This report includes radar Line of Sight analysis chart(s) of representative arbitrary wind turbine(s) (location to be agreed with the customer) in order to confirm the NATS line of sight analysis and to identify potential areas of above-ground shielding for possible further analysis. Also covered is a full analysis of:

- air traffic and airspace above the proposed development;
- an assessment of the operational impact on NATS En-Route Ltd's operations due to possible technical impacts on the radar system from the proposed development;
- assessment of the likelihood of the sustainability of a NATS En-Route Ltd objection to the proposed development on the grounds of operational impact.

Details of all working methods, analysis and conclusions are provided.

Aviation Impact Assessment

This detailed report includes:

- radar Line of Sight Analysis for all proposed turbines with respect to relevant primary radar;
- analysis of turbines as physical obstructions, considering protected surfaces, minimum safe altitudes, Radar Minimum Altitudes and other obstructions;
- analysis of air traffic and airspace above the proposed development;
- assessment of the operational impact on existing and future operations at relevant airport(s);
- consideration of obstruction lighting.

Details of all working methods, analysis and conclusions are provided in a detailed report encompassing all of the above.

TV Analysis Report

We offer to undertake TV analysis work for your proposed wind development, with respect to the relevant TV transmitters for the region. The analysis will take Earth Curvature and Refraction into account, and will be superimposed onto a 1:250 000 Ordnance Survey map of the area. The assessment will cover an area of up to 400km² at a resolution of 250m. Following completion of the assessment you are provided with a report, which contains interference charts banded as follows:

- Red – interference likely;
- Yellow – interference possible.
- This chart would have X & Y axes marked with National Grid Scales.

Our report covers each transmitter providing: full transmitter details; full wind development details; chart for each transmitter; map showing likely areas of impact and interference (for each transmitter); schedule of options and indicative prices for baseline study and mitigation.

Microwave Link Survey and Analysis Report

We offer to survey the communication link ends and provide a full microwave link survey and analysis report for all potentially affected links in the vicinity of your proposed wind development. These link reports include a chart showing the required exclusion zone calculated using the published Ofcom method.

A range of surveying instruments is used to determine the position of the communications link ends and the link path. Where access is limited, link end positions are determined using interpolation to a precision of up to 1 metre. The typical accuracy is 10 metres. These accuracy limitations result from GPS accuracy and access limitations. Each report contains calculations and calculation basis; exclusion zone chart; antenna location record sheet for each link.

CAP 764 Method Assessment

We offer to undertake a CAP 764 assessment for the proposed development, with regard to relevant radar for your proposed development.

The work includes a single Line of Sight Assessment for a single turbine from the proposed wind development, which assesses the issue and identifies any potential shielding. Following this a CAP 764 analysis is undertaken according to Civil Aviation Authority guidelines. This uses provided data wherever possible, if data is not available, then assumed data is used. A report is prepared including a briefing note of the findings.

If required a formal report version of the above findings can be prepared. This would include extrapolated data of the initial findings for the remaining turbines in a proposed development. A full introduction is included which details the CAP 764 process, and a conclusion and summary of findings. The report is suitable for submission to all aviation stakeholders.

Pre-screen Report

This is a basic overview of the proposed development, which details the most significant aviation issues identified, and any ATC radar within 30km which may be affected. It lists any microwave links identifiable on our database, which may pass over or near the site. The report consists of a single spreadsheet, and a one page notes overview - basically it would highlight any showstoppers, and indicate the effort that would be required to overcome likely issues.

Civil Aviation Authority (CAA) Assessment

This is our view of what the CAA would say following an initial consultation. Although we cannot speak for the CAA, we have a good understanding of their concerns: the definitive answer can be obtained through a standard CAA consultation. (However, this can take up to 12 weeks or more). The Pager Power CAA Assessment would be delivered within 2 weeks.

Note: the above Assessment report is meant only to give an overview of the situation in order to assess the potential for a proposed site – it may be that further, more in-depth assessment would be advised, and we will arrange quotations for this accordingly if required.

Ministry of Defence (MoD) Assessment

This is our view of what the MoD would say following an initial consultation. Although we cannot speak for the MoD, we have a good understanding of their concerns: the definitive answer can be obtained through a standard MoD consultation. (However, this can take up to 12 weeks or more). The Pager Power MoD Assessment would be delivered within 2 weeks.

Note: the above Assessment report is meant only to give an overview of the situation in order to assess the potential for a proposed site – it may be that further, more in-depth assessment would be advised, and we will arrange quotations for this accordingly if required.

Civil Aviation Authority (CAA) Consultation

As part of a number of services that we can offer in support of your proposed wind development, to examine potential issues at an early stage, we are able to offer to submit a CAA Consultation pro-forma. This includes the submission of a completed CAA consultation pro-forma and covering letter and electronic feedback of the response, with no further iterations. The documentation is submitted within one week of order, please note that formal response of CAA observations can take up to 12 weeks or more.

Ministry of Defence (MoD) Consultation

As part of a number of services that we can offer in support of your proposed wind development, to examine potential issues at an early stage, we are able to offer to submit a MoD Consultation pro-forma. This includes the submission of a completed MoD consultation pro-forma and covering letter and electronic feedback of the response, with no further iterations. The documentation is submitted within one week of order; please note that formal response of MoD concerns can take up to 12 weeks or more.

National Air Traffic Services (NATS) Report

We offer to prepare a report identifying likely NATS technical and operational issues for this proposed wind farm development. It must be remembered that only NATS can decide whether to object or not. This assessment is Pager Power's view on the likelihood of a sustained NATS objection based on Pager Power's knowledge of historical cases, and factors likely to be considered by NATS.

This document is intended to reduce the risk of decisions relating to the development of the specific wind farm. If doubt remains, a NATS consultation will provide the definitive answer as to whether they would sustain an initial objection to a planning application; however, this is only valid at the time of the consultation: NATS' findings may change on submission of a planning application. The purpose of the report will be to determine the likely outcome of a full NATS operational assessment by: Working out which radar are likely to detect the wind farm; Assessing airspace use and NATS operations in the area; Determining NATS likely operational decision from the above.

NATS Technical Consultation

As part of a number of services that we can offer in support of your proposed wind development, to examine potential issues at an early stage, we are able to offer to submit a National Air Traffic Services (NATS) Consultation pro-forma for a Technical only Assessment.

This includes the submission of a National Air Traffic Services (NATS) consultation pro-forma and covering letter and electronic feedback of the response, with no further iterations. The documentation is submitted within one week of order, please note that formal response of NATS concerns can take up to 12 weeks or more.

NATS Technical and Operational Consultation

As part of a number of services that we can offer in support of your proposed wind development, to examine potential issues at an early stage, we are able to offer to submit a National Air Traffic Services (NATS) Consultation pro-forma for a full Technical and Operational Assessment

This includes the submission of a National Air Traffic Services (NATS) consultation pro-forma and covering letter and electronic feedback of the response, with no further iterations. The documentation is submitted within one week of order, please note that formal response of NATS concerns can take up to 12 weeks or more.

Comparative Aviation Impact Assessment

For existing sites which are being re-powered, we can provide a Comparative Aviation Impact Assessment and Obstacle Assessment for the site examining issues both before and after the proposed re-powering, for comparison. Following completion of these assessments you are provided with a detailed report.

This includes radar Line of Sight Analysis for all proposed turbines with respect to relevant primary radar; assessment of the likely impact on the radio navigation aids including secondary radar where applicable; analysis of air traffic and airspace above the proposed development; obstruction analysis, including high level assessment of instrument flight procedures that may be affected, also including consideration of requirement for obstruction lighting.

Details of all working methods, analysis and conclusions are provided in a detailed report encompassing all of the above for both the current and proposed situations

Blocking Point Survey

This assessment provides you with a detailed report which includes: Radar Line of Sight Analysis for the proposed turbine with respect to the relevant radar; Identification, physical survey and verification of potential blocking points; Examination of buildings, and structures in the blocking point vicinity; Aerial and local photographs of blocking points; Radar Line of Sight Analysis for the proposed turbine, with blocking point data; Analysis of turbines as physical obstructions, considering protected surfaces, Minimum Safe Altitudes, Radar Vectoring Area Altitudes and other obstructions; Analysis of Air Traffic and Airspace above the proposed development; Assessment of the operational impact on existing and future operations at relevant installations; Analysis and consideration of cumulative impact; Consideration of obstruction lighting.

Details of all working methods, analysis and conclusions are included in a detailed report, which will be prepared in a format suitable for presentation in support of a planning application and will be provided in paper and electronic formats.

Area Assessment

This detailed area based radar impact assessment of your proposed development takes Earth Curvature and Refraction into account. The assessment covers an area of (up to) 200km² at a resolution of 250m.

This assessment provides you with a report, which contains a ceiling charts with variable bands – e.g. as follows: <70m; 70m – 80m; 80m - 90m; 90m – 100m; 100m – 110m; 110m – 120m and > 120m. This chart has X & Y axes marked with OS British National Grid scales.

Line of Sight Assessments

We offer to undertake Line of Sight charts for a proposed development, and provide some notes, together with a shielding estimate, in respect of all relevant potentially affected installations. These brief reports can be prepared and dispatched within two weeks of receipt of order.

Microwave Link 3D Analysis

We offer to prepare a 3D Microwave link chart with respect to the proposed Wind Development, with regard potentially affected microwave links in the vicinity.

This comprises a desk-based report which would analyse any potential link issues in detail, to identify exclusion zones. A chart is prepared, illustrating the exclusion zones, which are superimposed onto a 1:50 000 OS map. Where required we can additionally undertake a communications survey and report, to establish the precise locations of the link ends and specifically the height data of the transmitters/receivers. This then provides the data upon which 3D link calculations, if required, can be based.

Desk-based Microwave Link Analysis

As an alternative to a full microwave link survey analysis report, we are able to offer to undertake a desk based link calculation report for the proposed wind development, using a provided turbine layout for the development. This report utilises the data either previously gathered on a microwave link survey report, or provided data by the customer / link operator. We prepare an exclusion chart, showing the required exclusion zone calculated using the published Ofcom method and undertake exclusion zone calculations for those links which may be affected by the proposed turbine layout. Each report contains full calculations and calculation basis; an exclusion zone chart; a calculation sheet for each turbine / link issue and a conclusion.

Microwave Link Constraints Map

In addition to the above microwave link reports, we can if required, prepare a constraints map, which illustrates the findings of the report on a map, showing preferable turbine siting areas (from a communications link viewpoint only).

Microwave Link Mitigation and Consultation

We are happy to assist with the progression of microwave link issue by email / telephone as appropriate, with the aim of overcoming objections through negotiation / mitigation. To this end our proposal is to: progress this issue with the link operator by email/telephone starting within 10 days of receipt of order; contact the operators at 2 weekly intervals in the event that they do not respond; discuss and progress issues with a view to closing the objections; report back after 1 month and 2 months.

Environmental Statement Chapters

We are able to undertake the preparation of Environmental Statement Chapters for a range of aviation and communications issues, either based on reports previously prepared by Pager Power, or assessing documentation supplied to us by the clients.

Report scope could include: Review and assessment of all Aviation and Communications correspondence forwarded to Pager Power Ltd; Identification of any constraints and/or impacts for the site and advising of any specific assessment work required; Review of consultation list and advising if there are any other relevant bodies who should be contacted; covering both aviation and communications issues; Production and supply of EIS Chapter in your specified format

Meeting arrangement and attendance

There are many situations when we are required to arrange, attend and report on a meeting with relevant stakeholders, to discuss their consultation responses to the proposed wind development, take issues forward, or examine mitigation options

We are happy to arrange and attend meetings with stakeholder representatives and provide full post-meeting discussion and provide an informal report explaining any technical matters arising from the meeting.

All reports are provided in both digital and hard copy formats, and major reports are prepared in a format suitable for presentation to stakeholders.