

“Utilising highly developed modern equipment our GPS Survey & Mapping Service has a wide variety of applications - from mapping of large estates to intricate conservation projects.”

Front cover: surveying on Oswaldtwistle Moor, Lancashire;
Below: GPS map of Stean Moor, North Yorkshire, showing position of grips.



Case Study

Peatland Management Research Programme

Northern-hemisphere peatlands, such as the blanket peatlands of north Wales and the north Pennines, contain three times as much carbon as the Amazon rainforest. Functioning peatlands take carbon out of the atmosphere and store it on land thereby reducing the effects of global warming. However, years of over-drainage has caused peat to erode or dry out and decompose releasing carbon in the form of CO₂ into the atmosphere where it can contribute to global warming. Restoring damaged peatlands is therefore important in both reducing carbon loss to the atmosphere and in increasing how much carbon can be taken back out of the atmosphere and stored on land.

The University of Leeds is leading a major £1.1m investigation (funded by the Department for Environment, Food and Rural Affairs) into how climate change can be mitigated through better management of the UK's peat bogs. Over a 5 year period researchers will look at how blanket peatlands can be restored in a way that minimises greenhouse gas emissions.

Under the Knowledge Transfer Partnerships (KTP) programme DMS is working together with Prof. Joseph Holden and colleagues at the University of Leeds and Dempsey Precision Limited to develop new geophysical surveying and interpretation techniques (utilising ground penetrating radar technology) for peatlands. This knowledge will improve data collection on peat carbon stores and underground peat features. The work will inform practical methods employed and the most suitable locations for moorland management techniques in order to maximise the carbon capture and minimise carbon losses.



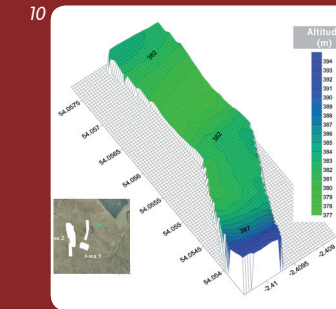
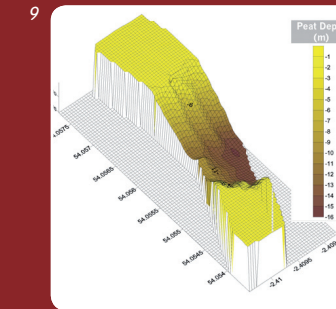
UNIVERSITY OF LEEDS

If you have a specific Environmental Surveying project that you wish to discuss please contact us.

Telephone:
01729 840088
Email:
moorland@dinsdale.co.uk

Dinsdale Moorland Services Limited
Deepdale Head, Wigglesworth, Skipton
North Yorkshire
BD23 4RH

Tel: 01729 840088 Fax: 01729 840259
Email: moorland@dinsdale.co.uk
www.dinsdale.co.uk



8. Excavation of geotech test holes;
9 & 10. Images generated by Ground Penetrating Radar survey on Keasden Moor, Forest of Bowland SSSI.

Surveying & Consultancy Services



Surveying & Consultancy Services



We offer a comprehensive GPS surveying & mapping package in addition to a host of other consultancy services including Habitat Surveys, Ecological Impact Assessments and Environment Agency Licence Applications.

GPS Surveying

A conventional Ordnance Survey map or even an aerial photograph of an area of land only shows a limited fraction of the information that is required to enable large scale projects to be planned effectively. Dinsdale Moorland Services (DMS) offers a fully integrated GIS mapping package, from collection of raw data and analysis, to production of finished maps. Custom maps can be created to show specific items or a variety of data can be grouped together depending upon the individual client's requirements.

For remote environments DMS is well equipped with GPS survey vehicles and the necessary on-board computer equipment needed to build a complete picture of the ground including grips, vegetation type, hazards, bogs, holes, bare peat etc.

The ability to edit maps or build upon base maps greatly increases their usability and is particularly helpful when undertaking ground treatment plans over a number of years as locations can be accurately pinpointed and changes on the ground compared. DMS uses Ordnance Survey backing maps and this allows the overlaid information to be easily read and analysed in the field, as well as providing a permanent record of the work undertaken.

In recent years DMS has developed its use of GIS and GPS as vital elements in facilitating safe and efficient moorland contracting. Prior to work on open moorland commencing, a full GPS survey is completed and all machines working in such areas are equipped with GPS equipment so that they can work to a task plan and record progress. Moreover, from a safety perspective, contractors always know their exact position. With fast data collection and handling DMS regularly maps its works as a matter of course. This record of works can then be used to develop future management plans.



1. An in-cab GPS data capture device.

A GPS Survey can offer numerous benefits:

Pre-tender

- project is mapped and quantified, enabling accurate costing
- identification of potential hazards
- clear budget planning

Post-tender

- forms basis for a detailed work plan
- solutions can be specified task by task
- project can be optimised to suit budget

On-site

- optimised work pattern and clear tasking
- easy identification of tasks, even in poor visibility
- optimum equipment planning

Post-project

- presentable and measureable record of project
- digital and paper formats available

Health & Safety

- avoidance of natural hazards
- easy location of any on-site incident

Environmental

- optimum cross ground route planning reduces machine tracking
- less potential for fuel spillage

In addition to its moorland project applications GPS surveying and mapping also offers advantages in other areas:

• **Private estate mapping** - maps of estates can be produced to show all relevant features unique to your site (eg. beaters routes, bridges, fords) and overlaid on the most recent Ordnance Survey backing map. Such maps can help gamekeepers, contractors and guests familiarise themselves with the features around your estate. Using hand held GPS loggers any objects or boundaries can be plotted, as a part of your shoot or to aid in the planning of moorland management.

• **Conservation project planning** - to make sure a project succeeds in its aims and objectives the area of treatment and other success indicators need to be recorded. From budgeting to health and safety on site, a GIS plan of an area can be extremely beneficial. With vehicle-mounted and hand-held GPS computers DMS can offer a total package from data collection to data analysis.

• **Land management** - with all data geo-referenced site boundaries, areas of interest and hazards can be easily recorded. Any data set from SSSI (Sites of Special Scientific Interest) to geological features can be imported to show your site's location in relation to these areas as well as its national importance. Used as part of planning applications the GIS data will accurately pinpoint the intended works to ensure clarity of the proposal.

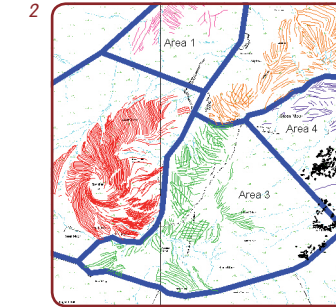
Environmental Consultancy Services

DMS is able to offer an integrated range of environmental consultancy services:

• **Design, planning & feasibility studies** - DMS can provide ecological advice in relation to feasibility and design as an integrated part of the planning process. Services include detailed ecological surveys and advice on protected species and the mitigation and enhancement of site biodiversity.

• **Ecological surveys** - as environmental legislation and enforcement become ever more stringent and public concern about the natural environment continues to grow, ecological surveys and assessments are an increasingly important requirement in the planning and development process. DMS can undertake a wide range of surveys, including Phase I and Phase II (NVC) habitat surveys, specific botanical and tree surveys and protected hedgerow surveys. It can also survey habitats for wildlife suitability.

• **Ecological Impact Assessments** - working closely with one of the UK's largest multi-disciplinary consultancies, Capita Symonds, DMS can prepare full Ecological Impact Assessments which include scoping and desk studies; consultation with statutory and non-statutory consultees; design and implementation of habitat and species specific surveys and the subsequent interpretation of information; and the reporting of mitigation, compensation and enhancement measures.



DMS's own Geographic Information System can incorporate any of the Natural England GIS Data Sets including the following:

- Special Protection Areas*
- Special Areas of Conservation*
- Sites of Special Scientific Interest*
- Local Nature Reserve
- Ramsar sites*
- SSSI Unit *
- National Nature Reserves*

* England-wide

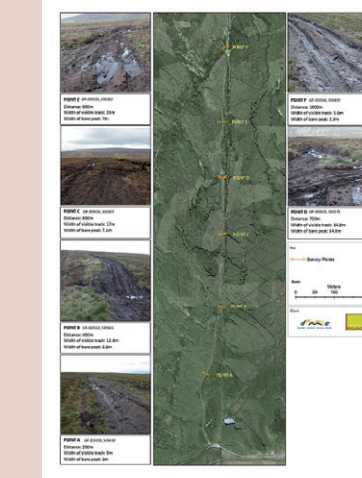


2. GIS survey map showing location of drainage grips on Stean Moor, North Yorkshire;
3. Species-specific surveys can be undertaken in isolation or as part of wider ecological surveys.

• **Environment Agency Consents & Licence Applications** - licences may be required if a proposed contracting activity is likely to have an impact on a European protected species, or a protected habitat. DMS can advise on licence requirements and assist with the preparation of licence application prior to any works commencing.

• **Tree safety surveying** - utilising technology-led applications DMS is able to provide cost effective and pinpoint accurate data that can be plotted into a geographic information system (GIS) to provide clients with a high quality detailed and versatile product. Using hand-held electronic data capture devices linked to a global positioning system DMS can conduct county-wide tree safety survey and inspection programmes for local authorities to allow appropriate tree risk management strategies to be developed. A tree survey programme based on risk zoning fulfils the duty of care and reduces the potential for injury or damage and the associated expense. More detailed surveys can identify management requirements that can be planned and budgeted for over a period of years.

• **Public Rights Of Way access surveys** - using electronic data capture devices in conjunction with modern GIS software, DMS is experienced in all aspects of surveying and inspection of public access amenities, particularly in remote and upland areas. Site safety is a high priority and all personnel are practised and trained in risk assessment and CDM regulations.



Example of Public Right of Way survey showing condition of an access track at specific points along its route.

In addition to the consultancy services listed above DMS also offers the following:

- Ecological & Biodiversity Audits
- Environmental Policy & Project Strategy Reviews
- Expert Witness / Public Inquiry Support
- Geological & Geomorphologic Studies
- Habitat Creation & Restoration Designs
- Habitat Management Plans
- River Habitat Assessment
- Soil pH Testing
- Site Appraisals
- Water Quality Assessment
- Wetland Planning (including sustainable drainage systems & constructed wetlands, ponds, lakes, river & flood plain restoration)



4. Appropriate licences must be secured prior to work being undertaken in sensitive locations;
5. Tree safety surveys;
6. Public rights of way surveys;
7. Site appraisals.