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Senior Associate and Chartered Landscape Manager

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RPS uses Autodesk Map[™] to set new standards in Trunk Road and Motorway Landscape Management.

The importance of proper maintenance

75,000 acres is the area of planted spaces, verges and grasslands that border England's trunk road and motorway network. It is a lot of land by any reckoning, especially if it is your responsibility to look after it. For reasons of safety, environmental concern and aesthetics, it is important that the UK's roadside landscape is properly maintained to a set of consistent, national standards. Badly maintained roadside verges can obscure visibility at junctions, with adverse consequences for road safety. Obscured signage can be equally hazardous. Landscape maintenance also involves central reservation cutting, tree thinning and coppicing, and enrichment planting. Maintaining this soft estate is the responsibility of the Highways Agency, an executive agency of the Department for Transport. The Agency has national responsibility for 6,500 miles of trunk roads and motorway, approximately 16,000 bridges, tunnels, retaining walls, sign/signal gantries, cycleways and footways. The Agency's number one objective is to maintain this estate to a high standard at the lowest whole-life cost. The Agency has contracted a number of companies to help it in this task. RPS is one such company and its Huddersfield office has implemented an Autodesk Map solution to support the development and operation of a plan for the management of this landscape.

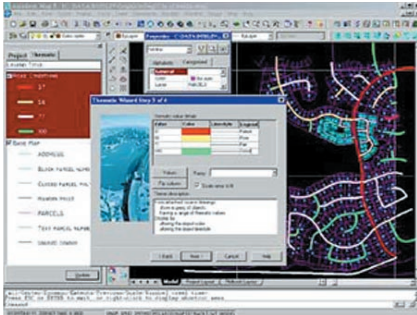
A major project made simple

Kevin Stubbs is Senior Associate and Chartered Landscape Manager at the Huddersfield office of RPS Planning Transport and Environment. He says, "We had just two years to take hundreds of out-of-date paper drawings, some of them 30 years old, and create a fully detailed up-to-date set of computerised Landscape Management Plans. This was a major project for us. Autodesk Map made it simple." RPS provides professional advice and technical support services on a wide range of environmental disciplines,

including landscape architecture, environmental assessment, town and transport planning, waste management, as well as asset, resource and risk management. Founded in 1970, RPS Group has been listed on the London Stock Exchange since 1995 and is a market leader in the environmental support services sector. Turnover in 2002 was £104 million, and the company now employs over 2000 staff. The key to RPS's success is a combination of employing highly professional specialists, with commercial understanding, political awareness and environmental sensitivity, in a proven financial management framework which promotes business innovation. The RPS team has specialists that can be deployed on-demand to provide the best available technical and commercial response. RPS's Huddersfield office offers one of the largest and most experienced truly multi-disciplinary environmental planning and design teams in the North of England. Current projects include the A1 Darrington to Dishforth DBFO section, the Clarence Dock development in Leeds and English Partnerships Southern Estate Landscape Management. Kevin has an MSc in Landscape Management from Manchester University. He is a member of The Landscape Institute and has been working in landscape management for 14 years.

RPS wins by competitive tender

Prior to the mid 1990s, the Local Authorities through which the routes passed carried out the maintenance of the soft estate for the Highways Agency. Although the authorities managed their sections according to the Agency's requirements, there was no overall process in place. Costs and work plans would usually be carried out from the original paper drawings, possibly long since out-of-date. On assuming direct responsibility, the Highways Agency divided its estate into 25 areas that were to be maintained through a series of term contracts, awarded by competitive tender. The work would be carried out by organisations contracted by the



Autodesk Map is instrumental in the preparation of the Landscape Management Plan, enabling RPS to prepare budgets and to programme and instruct works on behalf of the Highways Agency.

Highways Agency according to Landscape Management Plans devised by winning bidders. As environmental sub-consultants initially with the Owen Williams Group and then with the WSP Group plc, RPS tendered for and was awarded the contract for Area 16. Subsequently RPS have been appointed as environmental consultants as part of CarillionWSP's successful joint venture bid for Area 12 (Yorkshire and Humberside Motorway and Trunk Road Network) Managing Agent Commission (MAC).

Satisfied and successful users

To fulfil the contract, the team at RPS needed to produce an accurate, up-to-date and fully populated strip plan of the whole of the Yorkshire and Humberside section of the motorway and trunk road network. They had to identify, measure and map all the elements because the strip plan was to be used to cost and manage the Landscape Management Plan. Although RPS had access to the latest Ordnance Survey tiles, there were a large number of other paper drawings that contained additional information. There were two possible solutions for RPS. They could evaluate and implement a new system that would have required significant extra training and new processes, or they could enhance the existing AutoCAD system that had served them so well. After due consideration, the latter choice was made, and RPS became very successful and satisfied users of Autodesk Map. According to Kevin Stubbs, "We got the OS plans off the Highways Agency in NTF and converted the tiles into the right layers, re-surveyed the network, picked up all the vegetation and other features, then drew up the strip plan. Then we created a database that identified each landscape element, its measure – area, length, height and so on – also when and how that element should be managed. From this, we created the Landscape Management Plan, which enabled us to prepare budgets, programme and instruct works on behalf of the Highways Agency."

Autodesk Map has vital capability

There were a number of reasons why Autodesk Map was the best solution. To create the strip plan, Kevin Stubbs needed to orient the map tiles to obtain linear continuity. Only Autodesk Map had that vital capability. Kevin adds, "With Autodesk Map, you can keep drawing sizes to a minimum and that means better performance. The size of the drawing does not increase when attaching the OS tiles, either. When working on a specific area, say a junction, you can lift it out and save to another drawing. That means you can work without lots of extraneous detail." He continues, "We have tracked Autodesk Map through its various releases. One of the biggest advances was MVP (multiple view ports). Because of this, we were able to improve the way we worked. MVP allowed us to bring separate segments into one drawing per route. Up till then, each segment was a separate drawing." Kevin notes, "Although we were familiar with AutoCAD, we still felt that Autodesk Map training was necessary. We needed it because it was a new way of working with AutoCAD."

We needed to know the ins and outs so that we could make the best possible start to the project. Key Systems, who supplied the solution, also provided the training. We showed Key's consultant how we wanted to use Map. He put us on the right track and we never looked back." As a result, RPS's use of Autodesk Map extends beyond the Landscape Management Plan project. Kevin says, "We carry out lots of environmental assessments, many involving the use of OS data and the linkage of OS plans. We also use Autodesk VIZ in our environmental assessment, and use Key TERRA-FIRMA for our work on zones of visual influence."

Highways Agency adopts RPS database concept

RPS's work has set the standard for others to follow. The database concept used by RPS was adopted by the Highways Agency and was used subsequently in The Design Manual for Roads and Bridges (DMRB), Volume 10 Environmental Design and Management. Kevin Stubbs records, "The Agency had seen our methodology and liked what we were doing. Many of the ideas for the DMRB Environmental Database came from our landscape database. We tendered successfully to develop the DMRB in parallel with the Landscape Plan." He adds, "Autodesk Map allowed us to transfer the data we already had, into the format needed for input into the Environmental Database. The ability to export from Autodesk Map in MapInfo® format was a mandatory requirement. We needed to be able to link between the elements and Microsoft Excel. You can do this with Autodesk Map. The Highways Agency's aim is to upload all the information from their agents into one system."

Saves time and money

What was the impact of Autodesk Map? According to Kevin, "It enabled us to meet our timescales." He continues, "Without Autodesk Map we would have struggled. We would have had to implement a GIS. This may have initially appeared cheaper but there would have been the extra cost of training. Printing costs would have been higher with GIS, too. Autodesk Map has the ability to rotate and align sections to make a strip map. That capability alone has saved us a lot of time and money." How has the Highways Agency benefited from RPS's use of Autodesk Map? Kevin believes, "Because of Autodesk Map, we have been able to provide a more cost effective product, and the deliverable is accurate. There are economies of scale, there is better control, and a consistent approach." It is no coincidence that, thanks to Autodesk Map, Kevin's team has now carried out work for five of the 25 Highways Agency regions.

www.rpsplc.co.uk
www.highways.gov.uk
www.key-systems.com
www.autodesk.co.uk/map

Acknowledgements
 The Highways Agency