

## CASE STUDY

# Using an extranet on a small civil engineering scheme

Blackpool's St Stephen's Avenue coastal protection project, hailed as a leading example of a new approach to civil engineering, used BIW Information Channel to communicate and share information between design team members in different locations and to provide electronic as-built records for the scheme. The £2.74m project was completed 10 weeks ahead of schedule and below the Guaranteed Maximum Price (GMP), demonstrating that extranet technology can successfully be applied to even relatively small civil engineering schemes.

### Key benefits

- Improved team integration through a secure, single, shared source of the latest documents, drawings and other information (particularly important during the early planning and design phases when key parties were scattered in different locations)
- More transparency and better accountability by provision of a full audit trail detailing who accessed what information and when
- Cost and time savings in printing, copying, distribution, storage and retrieval of information
- Replacement of large paper-based archive of as-built information with easily searchable electronic record for operation and maintenance requirements, including an electronic Health and Safety File archived with BIW
- Lessons learned have been captured electronically and can more easily be carried forward to future projects

### Background

The St Stephen's Avenue coastal protection project, funded by DEFRA and Blackpool Borough Council, shields the north shore area and overlays a 400m length of existing sea defence built between 1917 and 1919. The works had to be in keeping with a previously completed, adjacent scheme (Red Bank Road), and involved sheet piling and a concrete toe beam at beach level, 8500m<sup>3</sup> of insitu concrete, a sea-wall and splash-wall, plus access improvements.

The principal designer was Blackpool BC, with support from Bullen Consultants, and Birse Civils was principal contractor. Strongly influenced by the 1998 Egan report "Rethinking Construction" and Movement for Innovation initiatives, the scheme was the first Blackpool BC had carried out under a partnering arrangement and the first where contractor selection was based on the quality of its bid rather than on price.



## The approach

From the outset, great emphasis was placed on all team members working closely together. By promoting communication between everyone involved in the construction process from day one, the objective was to avoid delays and cost overruns, and to encourage new ideas (a gain-share arrangement also helped incentivise the council, Birse and its supply chain). Encouraged by the client, BIW Information Channel was employed to provide a common information platform for all team members.

BIW Information Channel made data available to every team member through a unique, secure, project-specific website accessible by authorised individuals from any location. Users were able to create, and have access to, information on the site including drawings, specifications, comments, notes of meetings, schedules, photographs, team member details etc. The system provided a transparent, single repository of the most up-to-date information and all user activity was tracked and recorded, providing an audit trail detailing who did what and when.

As levels of ICT literacy varied across the team, BIW provided training in use of the system. Some proved competent with less than half a day's training; others, particularly those with Channel administration or co-ordination roles such as the project information co-ordinator (PIC), needed more in-depth training lasting up to two days. The team also ensured that each new member joining the project received training.

Being appointed early in the project, Birse was able to make significant inputs to a design review process (which included a constructive critique of the Red Bank Road scheme), taking account of all aspects of health and safety, quality, environment, buildability and risk. Suppliers were also involved at an earlier stage. As a result, there were several changes to the design concept and a number of innovations to the originally envisaged construction methodology, most notably the use of precast concrete sea-wall and splash-wall units, fabricated off-site, instead of an insitu concrete solution. Such changes could be quickly communicated to every interested party via the Channel.

The Channel was accessed more than 800 times by the project team; 200 documents and 212 drawings were published. Instead of distributing multiple packages of drawings, designers published drawings once - to the Channel - and individuals could then view, comment upon and, if necessary, print off just the drawings or details they needed. This reduced the volume of paperwork produced, distributed and stored (the reduction was also partly due to project's partnering ethos, which reduced traditional paperwork and eliminated conflict). Information could also be found much more readily.

## Key lessons

- Adopt early - collaboration technology will yield big benefits, particularly through better liaison between designers and contractors, if adopted early on major schemes where partnering is the ethos
- Give strong leadership - Client 'buy-in' to the extranet was vital, as was careful selection of the project information co-ordinator (PIC) responsible for allocating permissions and responsibilities.
- Do the training - Audit the skills and then provide appropriate levels of training for average users and for those requiring more sophisticated knowledge of the technology. Keep training as new members join the team.
- Check connectivity - Existing or proposed internet connections may not always be adequate (site access was via Blackpool BC's internet connection and users noticed a reduction in system speed when council web traffic increased - for example, at lunchtimes).
- Use the system sensibly - Particularly when the project is on-site, sometimes it is better simply to walk down the corridor and discuss an issue face-to-face, then capture the outcome in the next revision of the relevant drawing or document.

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