

# Cowbridge & Llanblethian Flood Alleviation Scheme

The scheme was designed to provide a measure of protection for residents and commercial properties, considered to be at risk from a 1 in 100 year flood event. It involved the construction of a shallow earth embankment dam and a 50m long reinforced concrete flood control structure on the flood plain of the River Thaw and divert flood flows onto the natural floodplain away from Cowbridge and Llanblethian.

The dam was constructed using 18,000m<sup>3</sup> of Class 2c material which was sourced from quarry waste and processed to meet the specification. All site excavated material was reused with the end result that no material was taken to landfill.

To facilitate construction of the structure, a 100m long river diversion was required. This was constructed out of blockstone to provide a natural habitat for fish.

## Scheme Features

Carillion and Atkins worked closely to develop the sequence of construction activities and gain planning consent. This involved planning the haulage route, access and local improvements. Carillion developed solutions to construct protection slabs and temporary bridges to eliminate the requirement for statutory undertaker diversions around the site. The dam came under the control of the Reservoir Act and all construction materials and methods were subject to independent approval.

Good community liaison was of paramount importance. A newsletter was published throughout the scheme together with press releases that kept the public informed. The site team arranged regular site visits and presentations with the Local Authority - Vale of Glamorgan Council and the local Rotary Club. Carillion worked closely with the EA, CADW and CCW on this environmentally sensitive scheme. Particular care was taken as the scheme was located close to Cowbridge Comprehensive School.

The environmental impact of the scheme was carefully considered and many features were constructed which have a positive effect on wildlife such as the creation of ponds and scrapes to attract water birds and insects and the development of an environmental area to encourage native wild flowers and plant life. Carillion is committed to sustainable construction and as well as sourcing secondary aggregates the team amended the design of the slopes to take any surplus topsoil. The scheme had positive KPI scores and was

nominated for a Wales ICE award.

## Cowbridge and Llanblethian FAS

### Value Engineering

- Increased thickness of Topsoil
- Reuse of existing river channel material
- Reuse of as dug material
- Removal of requirement for wheel wash
- Temp bridge to avoid diversion
- Protection slab to avoid diversion

### Environmental

- Noise and dust controlled working adjacent to secondary school - restricted hours of work
- Runoff controlled by using excavation and three stilling ponds
- Fish rescue for river diversion
- Silt control for in river working and diversions - liaison with EA - Env. Man
- Environmental enhancements constructed with EA biodiversity team

### Early Contractor Involvement

- Built up PAR report which includes construction methods, VE, costs and risks
- Liaised with Statutory Authorities

### Archaeology

- Enabling works were undertaken to investigate site

### Sustainability

- All material excavated reused on site by riddling or processing - zero taken to tip
- All timber sleepers from recycled source
- All fill secondary aggregate - quarry waste

### Supply Chain

- Carillion - Main Contractor
- J McCarthy - earthworks
- J Hasset - Formwork
- Hartley - Penstock
- Salix - Matting and environmental planting
- Afan - Landscaping
- Cleddwyn Gardener - Fencing

### Risks

- River diversion - contamination and silt
- Working hours reducing construction period
- Working adjacent to school

### Involvement of other consultants etc

- CADW
- CCW
- Additional EA - Biodiversity

### Project Successes

- Within PAR budget - few risks realised through careful planning
- Nominated for ICE award
- Successful KPI scores
- Signed off by Panel engineer with no hitches
- River Diversion viewed as successful and sustainable

### Partnering

- Framework with Atkins, EC Harris

### Whole Life Costs / Maintenance

### Unusual engineering techniques



Client	Environment Agency <b>Contact</b> Mr Scott Squires
Value	<b>Award</b> £ 1.4m <b>Outturn</b> £ 1.5m
Role	Main Contractor
Principal Designer	<b>Atkins</b> Tel: 01792 641172 <b>Contact:</b> Mr Huw Richards
Form of Contract	NEC Option C
Contract Period	26 weeks
Dates	May 2006 to Nov 2006

## Project Photos

- 



- 

