

Hampshire County Council Partners in Innovation (PII)

Demonstration Project 4

Bar End Household Waste Recycling Centre

Background

This series of leaflets describes a number of projects demonstrating the technical, environmental and cost benefits that arise from the use of recycled and secondary aggregates in highway works in Hampshire. Working in partnership together, Hampshire County Council, Raynesway Construction Southern and Foster Yeoman adopted sustainable policies for highway maintenance works. A Partners in Innovation project, carried out by TRL and funded by the Department of Trade and Industry, enabled these practices to be captured in a number of demonstration projects. The material diverted from landfill as a result of the partnership is assisting Hampshire County Council with their Public Service Agreement (PSA) target to divert an additional 40,000 tonnes of material from landfill per annum by 2005.



Activity: Use of recycled and secondary aggregates in the construction of a new household waste recycling centre and access road

Location: Bar End Industrial Estate, Winchester

Applications: General fill, capping, sub-base, structural backfill, cold recycled bitumen bound base & binder course, coarse aggregate for fibre reinforced concrete

Materials: Recycled asphalt, recycled aggregate, recycled railway ballast, incinerator bottom ash aggregate

Date: June - December 2004

Client: Hampshire County Council

Contractor: Natta Building Company (main contractor)
Foster Yeoman (cold recycled bitumen bound material)
Onyx (incinerator bottom ash aggregate)
Cemex (concrete)
Valetta (surfacing contractor)

Designer: Hampshire County Council

Specification: Specification for Highway Works and TRL Report 611



Summary

Hampshire County Council wished to build a new household waste recycling centre for Winchester on a previously developed site at Bar End. The use of recycled aggregates was maximised as part of the design philosophy. Hampshire County Council wanted the project to be an example of how the council should work on future developments. As a result, recycled and secondary aggregates were used in a number of applications, including high value applications such as asphalt and concrete.

Demolition material from the previous development was reused in the works. Other recycled and secondary aggregates were imported as necessary. Incinerator bottom ash aggregate from a local waste-to-energy plant was used as coarse aggregate in the base and binder layers of the access road. Recycled aggregates were used in the concrete base slab for the centre. The site includes a number of other sustainability features including a sustainable urban drainage system (SUDS).

Technical benefits

- The maximum use of material already on site minimised the overall import of aggregates to the site
- The recycled and secondary aggregates performed as well as primary aggregates in all applications
- High value use of incinerator bottom ash aggregate in asphalt and recycled aggregate in concrete



Environmental benefits

- Minimises use of primary aggregates and disposal of materials to landfill
- Less energy required for cold recycled bitumen bound material compared to conventional hot asphalt, saving in CO₂ emissions
- Demonstrates beneficial use for incinerator bottom ash aggregate



Benefits to Local Authorities

The use of recycled aggregates in this project had double benefits for Hampshire County Council. It contributed to targets under the Public Service Agreement for diversion of materials from landfill and also led to cost savings compared to conventional methods. It also demonstrated that recycled and secondary aggregates can be successfully used in a number of applications, including high value ones. Recycling had direct tangible benefits for the local authority as well as broader environmental and technical benefits.