Case study: Demolition recovery rates

Recycling demolition arisings in manufacturing site

MXG Demolition, Chesterfield

Despite no recycling target being set in the contract for the demolition works, MXG Demolition Ltd recycled more than 95% of the demolition arisings when 43 buildings were demolished in Chesterfield.

Through traditional tendering procedures, Thornfield Properties Plc appointed Interserve Plc (Interserve) as the main contractor for the redevelopment of the Bryan Donkin Valves Ltd manufacturing site. Interserve in turn commissioned MXG Demolition Ltd (MXG), as the demolition and recycling contractor for the required demolition works. The site is located at the junction of the A61 and A617 in Derby Road, Chesterfield, Derbyshire.

This former valve manufacturing site consisted of 43 one to three storey Victorian office and administration buildings and cast-iron trussed works buildings. The site was scheduled for demolition to make way for the construction of a new commercial estate including DIY store and major road improvements.

The initial phase of the demolition works carried out included soft stripping by systematically removing the interior fixtures, fittings, services and temporary structures. One building of poor structural condition and containing asbestos was left standing throughout the works. Demolition of the buildings was undertaken by demolition excavators equipped with grabs, grapples, shears and multi-processors. A small part of the demolition works was undertaken by hand at the boundary to the site in order to minimise risk and nuisance to nearby residents.

The structural elements were demolished and inert materials were segregated and prepared for recycling. Structural inert materials from the buildings such as concrete and brick were crushed on site to form a recycled aggregate, and all other materials were sent to suitably

Key facts

- 95.4% of the demolition wastes were recycled.
- Demolition by soft strip and excavators key to the resulting high recycling rate.
- Immediate on site source segregation.
- All inert materials were reused on site.
- Recycling of other materials off site at a recycling facilities.
- Good recycling market knowledge.
- Good contractor communication.
Materials that were salvaged, reclaimed, cleaned and sold off site included: pallet collars, Mansfield Imperial bricks, cast-iron columns and beams, beech flooring, rosemary roof tiles and slates and some timber.

**Recovery of demolition wastes**

Approximately 13,500 tonnes of demolition arisings were generated by the demolition works, of which more than 95% was recycled.

All of the inert material from the site was crushed to class 6F2 for reuse on site as a sub base for the construction of the roundabout extension, pavements, and as a working platform for the construction plant.

Source segregated metals from the site were sent off site for recycling by scrap metal merchants. All general 'soft strip' waste including all fixtures, fittings, services and temporary structures was taken to the local waste recycling facility where residual metal, timber, inert materials (not suitable for crushing on site), and plastics were sorted and separated. Timber waste that was not salvaged and sold for reuse was chipped for recycling by board manufacturers. Plastics were sent for recycling; however, this depended on their quality. Plaster and plasterboard was mixed with topsoil and used as a soil conditioner.

Most of the markets that were used for the salvage, reuse, recycling and disposal of the demolition materials were identified by MXG based on their knowledge and long standing relationships with the end users.

**Recycling targets**

Despite Interserve not setting any recycling targets for the works, MXG achieved good rates of recycling by using their nearby waste recycling facility meaning a recycling rate of 95.4% was achieved.

The potential barriers to the attainment of higher recycling rates were programme, space and the lack of recycling markets for materials such as roof felt, carpet and vinyl flooring, MMMF and polystyrene insulation.

The high recycling rate represented an optimum recycling achievement and the identification of recycling markets for the materials that could not be recycled may outweigh the environmental burden of transporting these relatively small quantities of wastes to suitably licensed facilities far away from the demolition site.

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