

## Clitheroe Road, Whalley

<b>Customer:</b>	Redrow Lancashire	<b>Value:</b>	£450k
	Redrow House, 14 Eaton Avenue, Matrix Office Park, Buckshaw Village, PR7 7NA	<b>Contact:</b>	Peter Dartnell Technical Director

### Scope of Work

- Site Clearance
- Archaeological Works
- Silt Mitigation Measures
- Works associated with Haweswater Aqueduct
- General earthworks
- Re-inforced embankment design and construction
- Additional site investigation and geotechnical design for SW attenuation ponds
- Construction of attenuation ponds
- Foundation assessment and design
- PC supervision of developers roads/sewers and piling contractors



### Project Description



This 53 unit semi-rural greenfield site on the outskirts of Whalley posed a number of problems from the very start, with the site team having to create their own access before site activities could commence.

The site's variable soft clays and sands presented the potential for settlement issues beneath the development loadings particularly under the infrastructure.

Urban Regen were challenged to develop a geogrid reinforced design for the embankment that would mitigate settlement issues within the carriageway and drainage.



Shallow groundwater also presented considerable headaches for the developer with regards to proposals for the development's attenuation ponds, sited on the opposite side of the Haweswater Aqueduct. UR in liaison with United Utilities, developed a temporary works design for an RC crossing, to allow use of 15T construction plant to install the designed ponds.

The housebuilder's pond design has also been further developed by Urban Regen and their consultants to counter the artesian groundwater issues with a Bentomat liner used in conjunction with the site won silty clays and temporary cut off drains, to seal the ponds without the need to import the more expensive puddle clay alternative.



Urban Regen engineered the site to achieve a range of piled and trench fill foundation solutions, with post embankment settlement monitoring undertaken to verify settlement movements fell within the required design parameters.