

Amp 4 Framework – Dams, Aqueducts, Raw water & River Structures

Contract Value	£2M	Commenced	2005
Contract Period	6 Years	Completed	2011

Features

- Framework Contract
- Partnering / NEC Conditions – Option A
- Maintenance / Upgrade of operational assets
- Design and construct
- Civil engineering, Structures, Mechanical, Pipework, Site infrastructure and environment

Brief Description

Byzak is one of two Framework Contractors appointed to deliver Northumbrian Water's AMP4 Minor Works Programme for water and sewage treatment facilities for the period up to 2011 which include the assets associated with raw water supplies such as dams, reservoirs, aqueducts and river structures. Byzak has prime responsibility for works in the area generally north of the River Tyne..

The contract includes a sub-programme for a variety of capital maintenance works associated with raw water supplies. The value of work undertaken at any one site is usually within the range than £10 to £100,000.

The scope of works covers:

- Demolition of redundant facilities
- Embankment / erosion protection works
- Cut off /collector drainage
- Spillway and weir improvements
- Works to Draw off tunnels and pipes
- Valve replacements
- Access road and bridge improvements
- Concrete repairs, masonry walling and fencing

Byzak assists with programme development and provides buildability and value management inputs to ensure best value solutions. Projects are valued on a Schedule of Rates basis. When required, design input is provided by Byzak appointed Consultant Earth Tech Engineering, co-located at Byzak's Regional Office in Gateshead.

Example of works include in the first three years of the programme include:

Catcleugh Reservoir and associated works (£59k)

Works at Catcleugh, Colts Crag and Hallington

Reservoirs involving the repair of spillways, rip rap (erosion control to bank side) and collector drainage for the land drainage system around the reservoir.



Hallington Gauge house Repairs

CESWI approved mortar repairs to aqueduct channel which was seriously eroded.



Kielder Water Erosion (£46k)

Leaplish Water Park is the focal point for Kielder's recreational and water sport activities. The works were required to prevent further erosion of the bank side adjacent to the restaurant, bar, leisure facilities and jetty, and comprised the installation of a fifty metre long by four metre high rock armour wall and associated anchor trench works. Materials were hand selected at a local quarry Works were coordinated to accommodate the departure and landing times of the "Osprey", the 80 seat Kielder Water cruise ship.

Fontburn Reservoir

Various works including

- Stone rip rap below stone pitching close to the secondary spillway.
- Pointing to brickwork in floor of overflow tunnel
- Clearance of saplings and shrubs from stilling basin and embankments
- Investigation and repairs to dam drainage systems
- Improvements to access roads



Whittle Dene and Great Northern Reservoirs

Various works including –

- Pointing of masonry in headwall and portal of outlet culvert and grouting of circumferential displacement in arch near portal
- Pipe culvert and tunnel repairs.
- Upstream face protection on all embankments
- Investigation of flows from pipes running around northern side of reservoir
- Invert pitching on the eastern bywash
- repairs to pitching overflow to NW corner
- Shrubs removal on rip rap

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Amp 4 Framework – Sewage Pumping Station Refurbishment

Contract Value £10M **Commenced** 2005

Contract Period 6 Years **Completed** 2011

Features

- Framework Contract
- Partnering/ ECC Conditions – Option A
- Capital maintenance and Upgrade of existing operational assets
- M&E works, instrumentation and controls
- Structures, buildings and site infrastructure

Brief Description

Byzak is one of three Framework Contractors appointed to deliver Northumbrian Water's AMP4 Water and Sewage Pumping Station Refurbishment Programme for the period up to 2011. Byzak's has prime responsibility for sewage pumping stations in the northern part of Northumbrian Water's operating region, Types of installations range from small scale stations serving isolated communities to large sewage transfer pumping stations.

Values of individual projects in the Programme range from £5,000 to £350,000 and cover a variety of work activities - from minor maintenance work on pumps and controls, to refurbishment of package pumping and ejector stations, and major rebuilds and new installations including civils works and structures. The programme for the first three years is:

Location / Project	Value (£k)
Alnwick Grange	111
Coronation Street	120
Linton Village	170
Berwick 2	150
Berwick 3	170
Red Row, WDC (Sleekburn)	319
St., Peters	50
East Dinnington Rising Main	302
East Dinnington Pump Station	273
Blyth(3) Rotary Way	237
Blyth (13) Bates Colliery	170
Nursery Park, Ashington	85
Ovingham	40
Seghill No 1	60
Lynemouth Dene House	170
Alston	96
Linden Hall	170
Seaton Sluice	119
Berwick 5 (Rail Station)	100
Black Close, Ashington	4
Brierdene	141
East Hartford	270
Friars Goose	120
South Shields Pilot	120
Wylam North	15
Stobhill No 1	13
Marden Quarry	67

Projects are undertaken as partnering contracts by dedicated teams (which include Northumbrian Water staff and pump suppliers) working from Byzak's regional office in Gateshead. Byzak assists with programme development and provides buildability and value management inputs to ensure best value solutions. These include innovative control philosophies for low maintenance operation. Byzak is responsible for procurement and co-ordination of mechanical and electrical plant and control equipment, and for installation and commissioning.

The Framework enables cost efficiencies through reduced overheads from clustering of projects, benchmarking, and improved project management brought about by team working and sharing of knowledge. Savings in project delivery periods result from simplified approval procedures, overlap of the project development and construction periods, and adoption of standardised equipment and modular construction methods.

Berwick Pumping Stations - Refurbishment of five pumping stations at Berwick-on-Tweed (2005-06) as a sub-programme - £655,000. Existing stations had been constructed in the 1970s and had received only basic maintenance. The stations were refurbished with 2 or 3 pump sets with appropriate duty/assist/standby configurations. The 5 station sites were treated as one integrated local network such that the stations remained in operation with minimal out-time during refurbishment.

A full refurbishment for extended 20 years life period was required for **Civil and building** works including safety and access; **Mechanical** equipment – pumps, pipes, valves, penstocks; **Electrical** equipment, associated control system and instrumentation;

Telemetry outstation, monitoring instruments and off site communication paths;
Manuals/Documentation –paper and electronic format.



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