

ENVIRONMENTAL

The need for sustainable mineral exploitation is a major consideration for today's mineral operators. To meet the related needs of minimising environmental degradation and providing opportunities for environmental enhancement, alongside economically viable mineral extraction, GWP Consultants LLP (GWP) provides a suite of environmental and related services to the extractive and construction industries, both alongside its design capabilities, or as stand-alone services.

The Environment and the Management of Mineral and Water Resources

GWP provides advice on environmental issues to the extractive industry at a variety of planning and operational scales, throughout the project design cycle. Inputs range from strategic environmental assessments for national planning policies to the preparation of site specific planning applications, and related EIAs and applications for permits and licences.



Environmental Disciplines

GWP provides technical advice and support relating to a range of environmental issues important for sustainable development of mineral and water resources.

Environmental issues on which GWP advises on include:

- Surface water (flood risk assessment, surface water management, treatment and discharge compliance).
- Groundwater (water supplies, dewatering impact assessments, groundwater contamination and remediation, groundwater level and quality monitoring and analysis).
- Noise surveys, blast vibration and air overpressure monitoring (Compliance monitoring for planning conditions and to reduce environmental impacts on neighbours and analysis to optimise blasting practice).
- Waste management (extraction and mineral process waste storage and management).

GWP often provides a complete service to clients where the organisation and implementation of all environmental monitoring, analysis of results and reporting to regulatory bodies is carried out in a package.

GWP frequently co-ordinates or participates in teams of consultants to deliver a wider range of environmental services on a project by project basis. It has well established working relationships with consultants who specialise in: landscape/visual, air quality and terrestrial ecology.

Environmental enhancement

GWP has specialist expertise in the research and implementation of various environmental enhancement methods including:

Quarry restoration using **landform replication** to minimise the impact of the restored quarry on the surrounding natural environment.

Quarry restoration to enhance the **ecological environment**, and to be sympathetic to the local area, including improved wetlands, flood alleviation, developing rare ecological habitats whilst providing safe, accessible environments to enhance learning opportunities.

Quarry after-use design to maximise the void potential for a range of end uses including built development, recreational facilities and enhanced bio- and geo-diversity to provide a sustainable future for a site.

Research and development in quarry design techniques, formation of secure and environmentally sound final slopes, and management of water for control, supply and environmental enhancement.



Selected projects

- Design and implementation of an environmental monitoring scheme at a limestone quarry, to comply with planning and licence conditions. This included responsibility for all environmental monitoring, including groundwater and surface water monitoring, dust monitoring, noise surveys and blast vibration and air overpressure monitoring.
- Re-design of a limestone quarry in Croatia to mitigate a range of environmental impacts, including visual/landscape impacts and noise, dust and vibration impacts.
- Investigation and modelling of chrome contamination in chalk arising from the unregulated tipping of cement kiln bricks at a site in central Europe. Also design and implementation of remedial engineering works.
- Design, implementation and marketing of the BLAST LOG blast monitoring system jointly with the University of Leeds through the spin-off company Blast Log Ltd.



- Contributions and co-ordination of numerous environmental impact assessments, undertaken as part of planning applications; due diligence studies for proposed quarries, open pit mines and sand/gravel extractions.
- Design, CQA supervision and reporting for landfill sites in the UK. This including sampling and testing of engineering materials, hydrogeological, hydrological and geotechnical risk assessments for hazardous sites, applications to the Environment Agency for approval of working plans and preparation of IPPC licence applications.
- Design of environmental mitigation measures at many extractive sites in the UK, including newt ponds and newt fences, blast designs to minimise vibration, secure screening mounds and backfill and surface water management facilities.

Key contacts

For details and to discuss your requirements, please contact one of the following:

Clive Carpenter, Partner, Head of Water Resources, and highly experienced in the project management of environmental impact assessments. E-mail: CliveC@gwp.uk.com

Emily Hunger, Geologist, with much experience in the design, implementation and interpretation of site investigations and resource estimations. E-mail: EmilyH@gwp.uk.com