



The Coal
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Project Scope

**PROJECT TITLE: Environment Programme
Bilston Glen Rising Minewater
Feasibility Study**

PROJECT REF: CA18/2311/Instruction 137

DOCUMENT REF: CA18/2311/137/PS

DATE: Version 1: 28th October 2014



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1. Scheme Background

Bilston Glen Colliery is located to the south of Loanhead, approximately 9km south of Edinburgh city centre. The mining extent and interconnected mine workings cover the Midlothian Coalfield, between Loanhead to the west and Dalkeith to the east (see figure 1). Mining in the block ceased when Bilston Glen Colliery closed in 1989

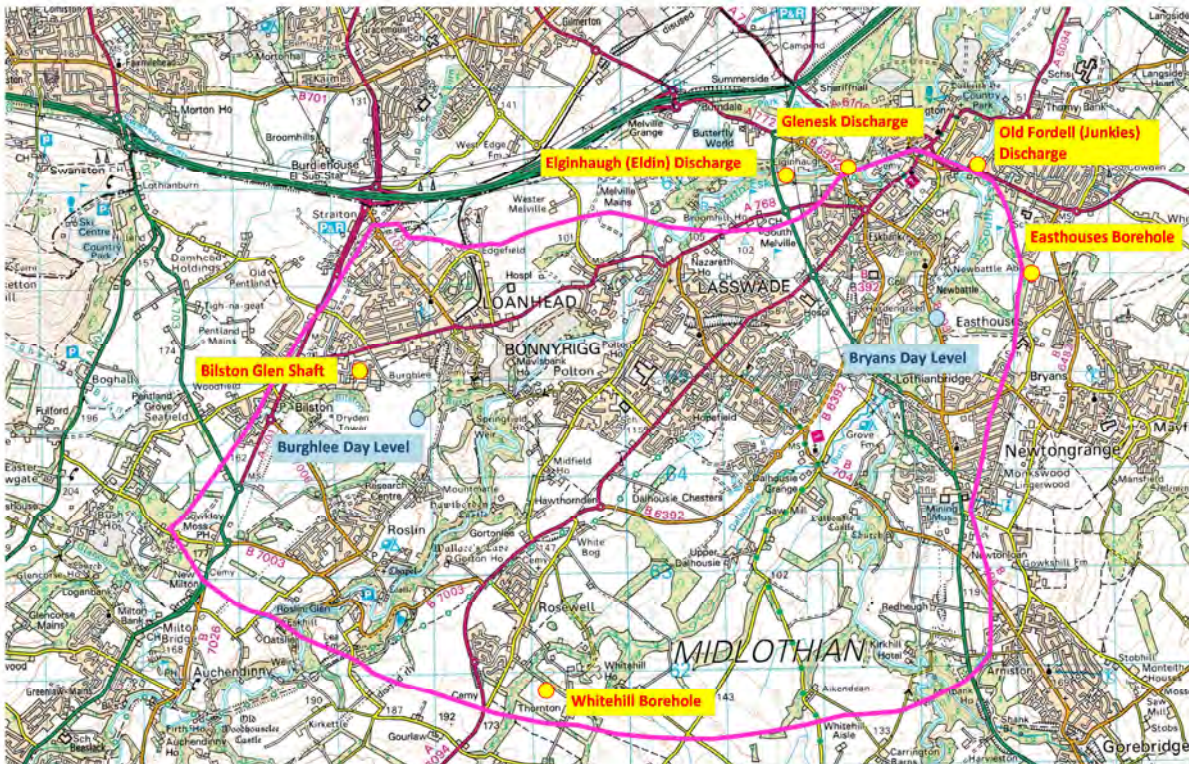


Figure 1 – Location map for Bilston Glen area and selected monitoring sites

Initial studies for the Bilston Glen area were undertaken by IMC in 1998, and more recently in the UK Overview Summary Report (WYG, 2012). URS were commissioned by the Coal Authority in Nov 2013 to produce a scoping report for the scheme; this was completed in March 2014. Both the 1998 IMC & URS reports identified possible sites of discharges including the Burghlee Day Level (and possibly Dryden Day Level) along Bilston Glen Burn at Loanhead; and through the workings to the Old Fordell Junkies Day Level and Bryans Day Level at Ochre Burn.

Rising mine water has been observed at Bilston Glen shaft since 2003 (see figure 2); projections have been made to determine likely timings for this water to reach the lowest possible discharge location (Old Fordell Junkies Day Level). These projections give a date for a discharge of between 2017 and 2020. The likely discharge location at Old Fordell Day Level is an existing discharge on the ranked SEPA list of remedial schemes at number 5.

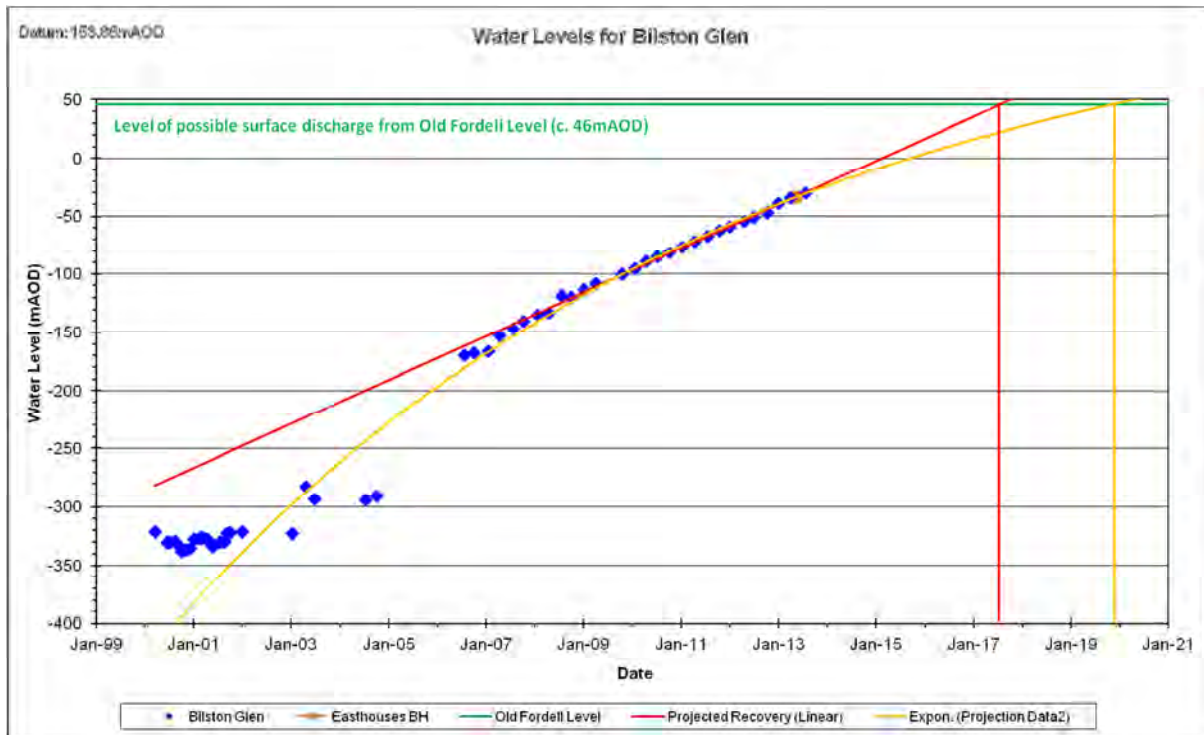


Figure 2 – Mine water levels in the Bilston Glen area

The preventative scheme for Bilston Glen is currently programmed for 2016/2017. Based on current information the most feasible option was considered to be a pumped scheme, either controlled & treated near to the industrial estate at Bilston Glen or pumped via a new BH & treated at a site near to Easthouses. The option at Bilston Glen would involve pumping from the monitoring shaft within the industrial unit carpark just off Dryden Rd & transferring the raw water to a treatment site which could potentially be located on the nearby colliery tip area currently in agricultural use. Although this is a potentially feasible option it would involve considerable operating costs (~250k/yr) due to the required pumping head of approximately 150m.

A Checkpoint 1 review was carried out on the scheme in July 2014. It was decided to take a whole scale review of the scheme to investigate any other feasible options whilst continuing to assess the feasibility of controlling the rising minewater at Bilston Glen.

2. Scope of Services

2.1 Objectives and Purpose of Feasibility Study

The main objective of the study is to assess the feasibility of various options to control and treat the rising mine waters.

The options should be assessed on a number of factors to include, but not limited to:

- Whole Life Costs (25yrs)
- Buildability (capture, transfer, treatment, access etc)
- Ecological & Environmental constraints
- Planning constraints
- Land availability
- Geotechnical risks
- Legislative requirements (consents/permits etc)
- Risk
- 'Zero cost' opportunities

A number of potential options to be considered are briefly discussed below. The extent of the feasibility study ***should not*** be limited to the options presented below and should incorporate any other options considered worthy of appraisal by the consultant.

Option 1

Control the rising minewater & construct a suitable form of treatment scheme (temporary or permanent) at Bilston Glen. It is thought that this would involve pumping from the shaft at Bilston Glen and transferring the raw water to a treatment site which could potentially be located on the nearby colliery tip area currently in agricultural use.



Option 2

Install a new pumping borehole near to the existing monitoring BH at Easthouses and pump the flows to a suitable treatment site to the North / North-East of Easthouses, potentially the Easthouses tip area or the agricultural land further to the East.



Option 3

Capture the increased flow at the Old Fordell discharge in Dalkeith and pipe/pump the flows to a treatment site which could be:

- A nearby development site where a passive treatment scheme could offer amenity value;
- A small footprint active treatment plant;
- An area of greenbelt on which the planners would be prepared to let us build a passive scheme;
- The existing Monkton Hall site or adjacent land.

When investigating the above consideration should be given to combining the Elginhaugh discharge to realise any combined benefits / cost saving.

2.2 Tasks

Detailed below are the tasks & deliverables required to fulfil the objectives of the study. The tasks have been split into project common services & feasibility tasks.

2.2.1 Project Common Services

Ref	Description
PCS 1	Programme The Consultant shall produce / maintain a detailed Master Project Programme, spanning activities up to and including the post construction stage.
PCS 2	CDM Regulations Throughout all stages of a project, the Consultant shall satisfy all requirements of the Construction (Design and Management) Regulations 1994 and Amendments in the role of the Designer.
PCS 3	Progress Reports Progress Reports shall be submitted by the Consultant on a monthly basis throughout each stage of the project.
PCS 4	Financial Reporting A monthly financial summary shall be submitted on a standard pro-forma.
PCS 5	Communications & Stakeholder Management Plan The Consultant should develop and maintain a Communication & Stakeholder Management Plan in conjunction with The Coal Authority.
PCS 6	Progress Meetings Consultant shall be required to attend regular progress meetings which may be held at CA offices in Mansfield or if agreed with the CA PM by Use of WEBEX and Telecon systems. Consultant should brief the project team of actions undertaken and planned activities to meet the Scope of Work. The number of progress meetings to be agreed with CA PM and specified. 1 meeting per month should be allowed for.

2.2.2 Feasibility Tasks

Ref	Description
F1	Start Up Meeting The consultant will attend a start-up meeting to clarify the requirements of the project, establish communication lines, and agree the project programme & required deliverables.
F2	Review of Scoping The Consultant shall undertake a full review of the scoping study. The Scoping Study contains full project background, thus Feasibility should avoid replicating work previously undertaken and Consultant team to gain full understanding of key issues.

F3	<p>Site Visit</p> <p>The Consultant shall undertake a site visit including all necessary disciplines and expertise. The site visit shall have clearly defined objectives aimed at adding value and improving understanding. Objectives should include; verifying previous assumptions, confirming site conditions and constraints, meet with appropriate 3rd parties and stakeholders, and consider alternative options and solutions for collection, treatment, and locations. This visit should be arranged in discussion with the Coal Authority and arranged at a point to be most beneficial to the project.</p>
F4	<p>Stakeholder Management / Engagement</p> <p>The Consultant shall engage with stakeholders to explore any opportunities or constraints applicable to the sites under consideration.</p> <p><i>This information should be used in preparation of the Communications & Stakeholder Management Plan.</i></p>
F5	<p>Conceptual Model</p> <p>The Consultant shall develop and adapt the conceptual model for the site produced at Scoping stage to take into account new information obtained during the Feasibility stage.</p>
F6	<p>Topo Survey</p> <p>The Consultant shall provide details of the site and features to be surveyed by one of the Authority's framework surveyors. The digital survey file will then be made available to the Consultant for inclusion in any site plans.</p> <p><i>The Ordnance Survey digital mapping for the area around the scheme will be provided under licence by the Coal Authority for use in scheme plans.</i></p>
F7	<p>Environment and Ecological Surveys and Assessments</p> <p>The Consultant shall provide details of likely site survey requirements including ecological and habitat assessments. The Consultant shall undertake desk based Environmental and Ecological assessments of the sites under consideration and include the results in the Feasibility Report. The Consultant shall undertake a risk assessment of all potential environmental impacts associated with the project as required by the Authority's Environmental Policy.</p>
F8	<p>Ground Investigations</p> <p>The Consultant shall undertake a desk study for the site to identify geotechnical issues and risks and use this data in assessment of Feasibility options.</p> <p><i>Refer to GI protocol for actions required by all parties during the Feasibility Stage.</i></p>
F9	<p>Utilities and Services</p> <p>Obtain details and plans of the utilities and services in the vicinity of the site. Plans should be included in the Feasibility Report along with assessments of constraints and availability of capacity for required services. Comment on the viability of supplying utilities for the options considered.</p>
F10	<p>Treatability and Process</p> <p>Consultant shall liaise with the CA Technical Team to determine the appropriate method of treatment & treatment area requirements.</p>

F11	<p>Licences and Permits</p> <p>The Consultant shall liaise with SEPA concerning the design.</p> <p><i>Discussions with the appropriate regulatory authority to understand the required environmental permits and the scope of any supporting documentation or detail and costs. Details should be included in the Feasibility Report.</i></p>
F12	<p>Planning</p> <p>The Consultant shall liaise with the Coal Authority's Planning Liaison Manager to ensure planning constraints are fully considered for all options. Provide the required support for any preliminary discussions / meetings.</p> <p><i>Only high level information will be required at this preliminary stage of the planning process. Attendance at public meetings to be notified separately if required.</i></p>
F13	<p>Functionality and Buildability (Liaison with Build and Operations Contractors)</p> <p>The Consultant shall attend a meeting with the Coal Authority Operations Contractor and Construction Contractor to discuss and explore the advantages and disadvantages of the options and solutions under consideration.</p>
F14	<p>Risk Register</p> <p>The Consultant shall continue to develop the project risk register at regular intervals to record risk mitigation and identify new risks that become apparent during the course of the design work. The updated risk register will be appended to the Feasibility report.</p>
F15	<p>Land</p> <p>The Consultant to liaise with the Coal Authority Property Manager to gain understanding of land ownership issues and the impacts on the scheme including access and services. Outline the type and scope of site surveys that will be required during the design such that suitable licences can be obtained early.</p>
F16	<p>Constraints</p> <p>The Consultants shall continue to develop and refine the list of site constraints for inclusion in the feasibility report.</p>
F17	<p>Whole Life Costs</p> <p>The Consultant shall develop WLCs for each of the options considered and append such calculations to the Feasibility Report. Liaise with Coal Authority PM on build-up of whole life costs to include scheme development and construction costs and on-going maintenance and operational costs.</p> <p><i>Scheme construction costs can be produced by the Construction Contractor based on preliminary scheme details provided by the Consultant.</i></p>
F18	<p>Plans and Drawings</p> <p>The Consultant shall produce Feasibility stage plans and drawings for each of the options considered during the Feasibility Study.</p>

F19	<p>Reporting</p> <p>Produce the Feasibility Report document and appendices.</p> <p><i>The feasibility report is an options appraisal exercise which should provide recommendations for a preferred option to be developed into a scheme taking into account a full range criteria including risks to delivery (planning, licences, land acquisition etc), cost benefit ratios, environmental impacts etc. The report should include descriptions of options considered with a detailed explanation of associated advantages and disadvantages</i></p>
F20	<p>Health and Safety</p> <p>The Consultant shall liaise with the Coal Authority SHE team, early design for scheme options shall take into account Health and Safety risks during site works, construction, operation and final decommissioning. Comments on significant risks and design mitigations to be included in the Feasibility Report</p>
F21	<p>Sustainability</p> <p>The selection of the preferred scheme option should take account of environmental and commercial sustainability and discussion should be included in the Feasibility Report.</p>
F22	<p>Cost Benefit</p> <p>The Consultant shall review the Cost benefit assessment prepared by 3rd Party and take account of Cost benefit within the option selection process.</p>
F23	<p>Zero Cost</p> <p>The Consultant shall identify opportunities for developing revenue from the site and the operation of the treatment process.</p>

3. **Project Deliverables**

The appointed Consultant will produce the deliverables detailed in the table below. These deliverables are to be identified within the programme.

Description	Latest Submission Date
Monthly progress & Financial reports, including programme update.	1 st report one month after award, monthly thereafter
Draft feasibility Report, including all tasks described above.	28 th February 2015
Review Meeting	2 weeks after submission of Draft feasibility report.
Final Feasibility Report	31 st March 2015

The Coal Authority reserves the right to award further stages of the project to alternative consultants. Following completion of feasibility study, the project milestones will be:

- Start Outline Design – June 2015

4. **Interfaces**

- The Coal Authority's Technical, Operations, Planning, SHE & Property teams (Obtain contacts from the Project Manager as required)
- Other stakeholders identified during the design process