



**Haweswater Aqueduct Resilience Programme - Proposed Marl Hill
Section**

Environmental Statement

Volume 4

Appendix 11.2: Soils, Geology and Land Quality Baseline

June 2021



Haweswater Aqueduct Resilience Programme - Proposed Marl Hill Section

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1. Soils, Geology and Land Quality Baseline

1.1 Introduction

- 1) This appendix presents the technical baseline information in support of the Soils, Geology and Land Quality chapter of the Environmental Statement for the Proposed Marl Hill Section. Specifically, the baseline information for the following sub-topics is presented:
 - Soil quality
 - Mineral Resources
 - Geologically Designated Sites.

Appendix 11.2. -A- Soil Quality

Soil types and Agricultural Land Classification Grades

ID	Section*	Encountered Soil Associations ¹	Provisional ALC Grades ²
1	Bonstone Compound and associated construction access	<p>The proposed Bonstone Compound and western extent of the construction access road are underlain by soil of the Brickfield 3 association. This soil association comprises slowly permeable seasonally waterlogged fine loamy over clayey soils. Cropping and land uses include stock rearing and some dairying on permanent grassland; grassland and winter cereals in drier lowlands. Habitats include seasonally wet pastures and woodlands.</p> <p>The eastern and southern extents of the proposed construction access road from Slaidburn Road is underlain by soil of the Wilcocks 1 association. This soil association comprises slowly permeable, seasonally waterlogged fine loamy and fine loamy over clayey upland soils with a peaty surface horizon. Cropping and land uses include wet moorland habitats of moderate and poor grazing value, some improved grassland; coniferous woodland and military use. Habitats include grass moor and some heather with flush and bog communities in wetter parts.</p> <p>Within the west of the study area are soils of the Fladbury 3 association. This soil association comprises loamy and clayey floodplain soils with naturally high groundwater. Cropping and land uses include stock rearing on permanent grassland with occasional winter cereals; more cereals in drier districts. Habitats include wet flood meadows with wet carr woodlands in old river meanders.</p>	This proposed compound is mainly located on Grade 4 land. Grade 3 land is located underlying the northernmost tip of the proposed compound. Grade 5 soil identified approximately 90 m east of the proposed construction access.
2	Braddup Compound with associated construction access	The proposed Braddup Compound with the associated construction access road from Slaidburn Road are underlain by soils of the Brickfield 3 association. This soil association comprises slowly permeable seasonally waterlogged fine loamy over clayey soils. Cropping and land uses include stock rearing and some dairying on permanent grassland; grassland and winter cereals in drier lowlands. Habitats include seasonally wet pastures and woodlands.	The proposed compound is located on Grade 4 land.

¹ Cranfield University (2020) *National soil map data*. [Online] Available from: <https://cranfield.blueskymapshop.com/> [Accessed: 22-10-2020]

² Natural England (2020) *Agricultural Land Classification (ALC) Grades – Post 1988 Survey (polygons)*. [Online] Available from: <https://data.gov.uk/dataset/c002ceea-d650-4408-b302-939e9b88eb0b/agricultural-land-classification-alc-grades-post-1988-survey-polygons> [Accessed: 26-10-2020]

Appendix 11.2. -B- Mineral Resources

Mineral Safeguarding Areas

- 2) Consultation with the minerals planning officer from Lancashire County Council was undertaken. The response received gave direction to Lancashire County Council's online planning portal containing information about the local planning policies for minerals and waste. Lancashire County Council's Maps & Related Information Online (MARIO) was consulted to identify the following Mineral Safeguarding Areas (MSA).
- 3) Part of the Proposed Braddup Compound lies within an MSA for Sandstone.

Active and historical minerals workings

- 4) There are no active or historical minerals workings within 500 m of the Proposed Marl Hill Section, the nearest is Waddington Fell Quarry located approximately 1.3 km to the south-east at its nearest point to the Proposed Bonstone Compound (access from the Slaidburn Road).

Appendix 11.2. -C- Geologically Designated Sites

Local Geodiversity Sites (LGS)

- 5) There are no LGS in the study area, the closest is Bashall Brook located approximately 1.3 km south of the southern construction access road.

Sites of Special Scientific Interest (Geological)

- 6) No Sites of Special Scientific Interest (Geological) were identified within 250 m of the Proposed Marl Hill Section.