

Countryside Partnerships

Redi-Rock Retaining Wall Design

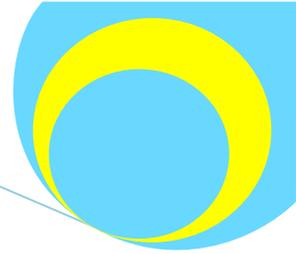
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Revision A

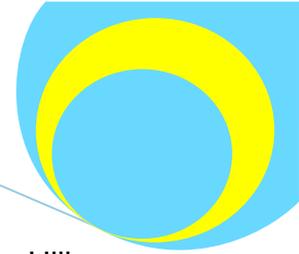




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Introduction & Project Info

This report details the design of a Redi-Rock type retaining wall for a project at Blue Hills Estate Farm, Birkenshaw for client Countryside Partnerships. This report includes the results and a summary of the technical calculations, an overview of the proposed design and any limitations and assumptions made.

Construction Sequence

The retained soils will be cut back to a temporary stable slope as determined by the Contractor. The foundations will be poured, Redi-Rock units will be installed onto the foundations.

Proposed Retaining Wall System

The retaining wall system proposed is a proprietary system called Redi-Rock. These concrete blocks have been designed to lock together to form a retaining wall face with 41mm steps at each block, forming a 5 degree slope. The mass of the interlocking concrete blocks is sufficient to resist the sliding and overturning forces of the retained material.

Design Parameters

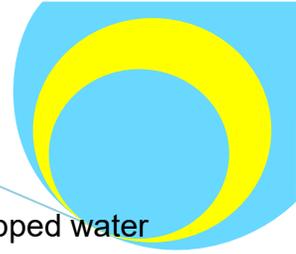
The following information provided by the client (Sam Buswell – Countryside Partnerships) has been used to determine the correct design parameters;

- Site Layout Drawings
- Site Investigation Report

The design parameters and levels used for the soils have been taken from information provided by the client. The following assumptions have been made;

- The Site Investigation Report shows one borehole in the vicinity of the proposed wall, WS09. This borehole shows that the proposed base of the new wall will likely be founded in firm-stiff clay of intermediate to high plasticity. This material has been assumed to extend a reasonable depth below the level of the proposed foundations.
- Note the higher section of the wall is assumed to be founded in the stiffer clay material as indicated in the SI report. Since this is based on one borehole only care must be taken during construction that this is accurate. If this found to be inaccurate during construction, an alteration to the design will be necessary.
- All soil design parameters have been taken as reasonably conservative values based on typical firm and stiff clay soils.
- Bearing capacity at the base of the higher sections of wall has been taken as $>150\text{kN/m}^2$ based on the SPT values of >20 at this depth. If this is found to be inaccurate during construction, an alteration to the design will be necessary





- A perforated drain should be installed to the rear of the wall to allow any trapped water to escape without allowing any hydrostatic pressures to develop.
- Surcharges of 2.50kN/m² have been allowed for on the top of the retaining wall. This is deemed to be appropriate for the location as the area on top of the wall will not be accessible by vehicles and will be garden/soft landscaping.
- It is assumed that the slope is generally stable. No assessment has been made of the global stability of the slope and wall system.
- Note that cranes, heavy plant and equipment must not be placed immediately behind the wall either during or after construction of the wall.

If any of the above details are found to be incorrect, the construction of the wall must cease and the design re-evaluated.

Redi-Rock Wall Design

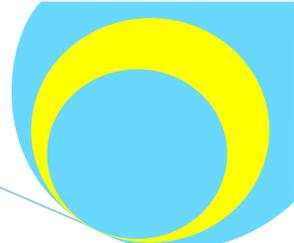
The design of the retaining wall was completed using GEO5 Redi-Rock Wall Design software. All calculations are completed in accordance with BS EN 1997, BS EN 1993, BS EN 1996 and other relevant UK and European standards.

The results of this analysis are presented in the table below;

Retained Height (m)	Required Foundation
up to 3.36	1900mm wide x 200mm deep (Sub-Base)

Full details of the design calculations are presented in Annex A.





Appendix A – Redi-Rock Retaining Wall Detail

