



Eden Local Agenda 21 Cumbria Green Build Fortnight 2007

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Eden Architecture – Mike Archer

Eden Architecture
Environmental Design

Architectural technologist Mike Archer is very interested in buildings made from rammed earth. “Clay Dabbins” as they are known, are architecturally very significant in Cumbria, particularly on the Solway Coastal plain where they have been an important part of the local vernacular for several hundred years. This type of construction has very low embodied energy due to low transport costs, the fact that no electricity or heat is required during construction, and because manmade chemicals are not necessary for the process. Along with the intrinsic beauty of the designs, these characteristics are prompting a resurgence of enthusiasm for earth building techniques.

At the Green Build Fortnight “Clay and Lime” event [*see separate entry*], Mike explained the history, structural properties, design possibilities and environmental benefits of rammed earth structures. He outlined his plans for a rammed earth house, which he has designed and obtained planning permission to build in Penruddock, nr Penrith. He also discussed the Building Regulation issues that have arisen from the use of non-modern construction techniques and materials.



Mike is interested in forming a Cumbrian Earth Building Association, along the lines of the Devon Earth Building Association (DEBA - www.devonearthbuilding.com). This would include professionals such as designers and structural engineers, local authority officers, builders and owners of local earth buildings. The purpose is to bring together and spread expertise for the benefit of existing and new clay buildings.

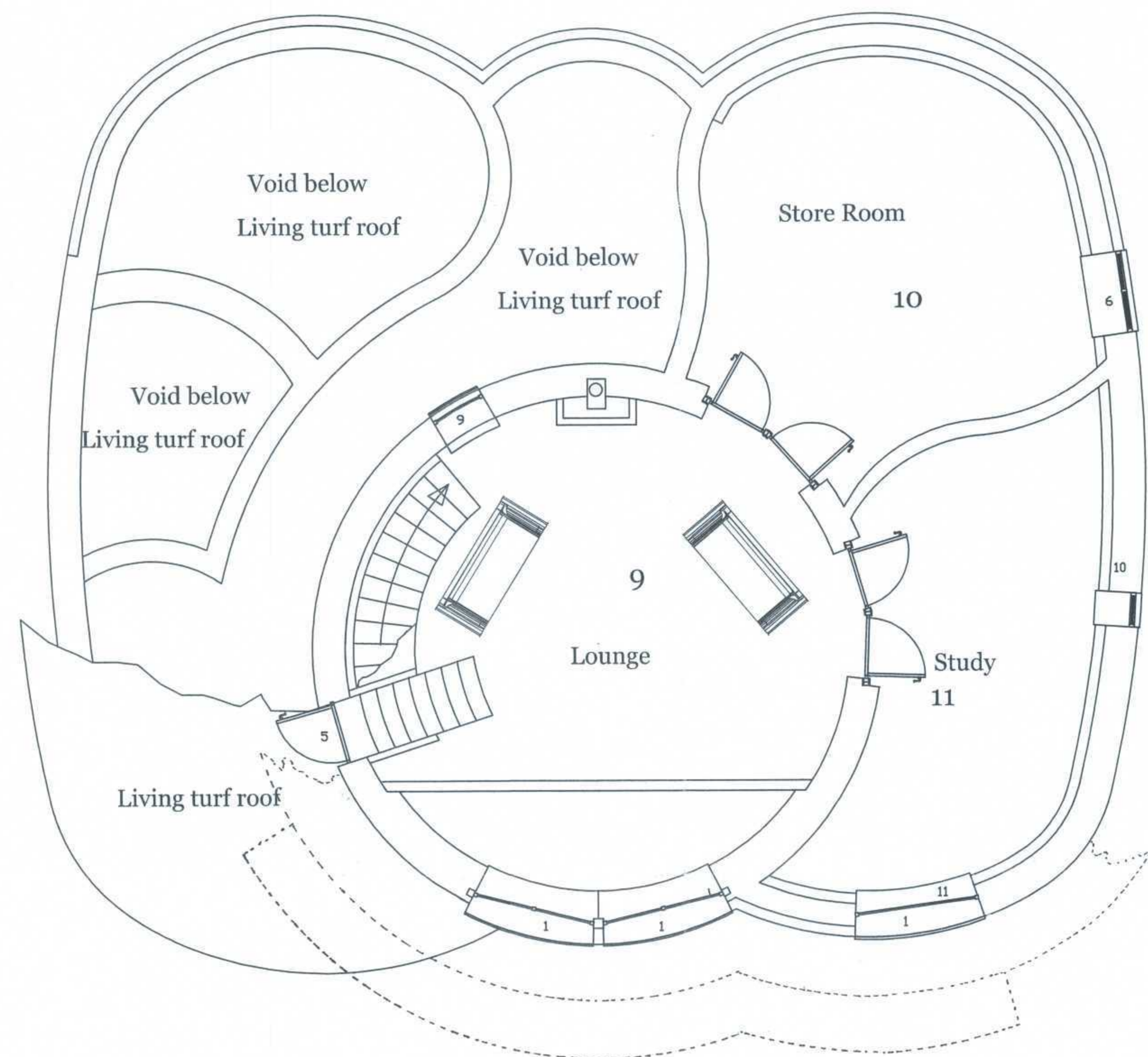
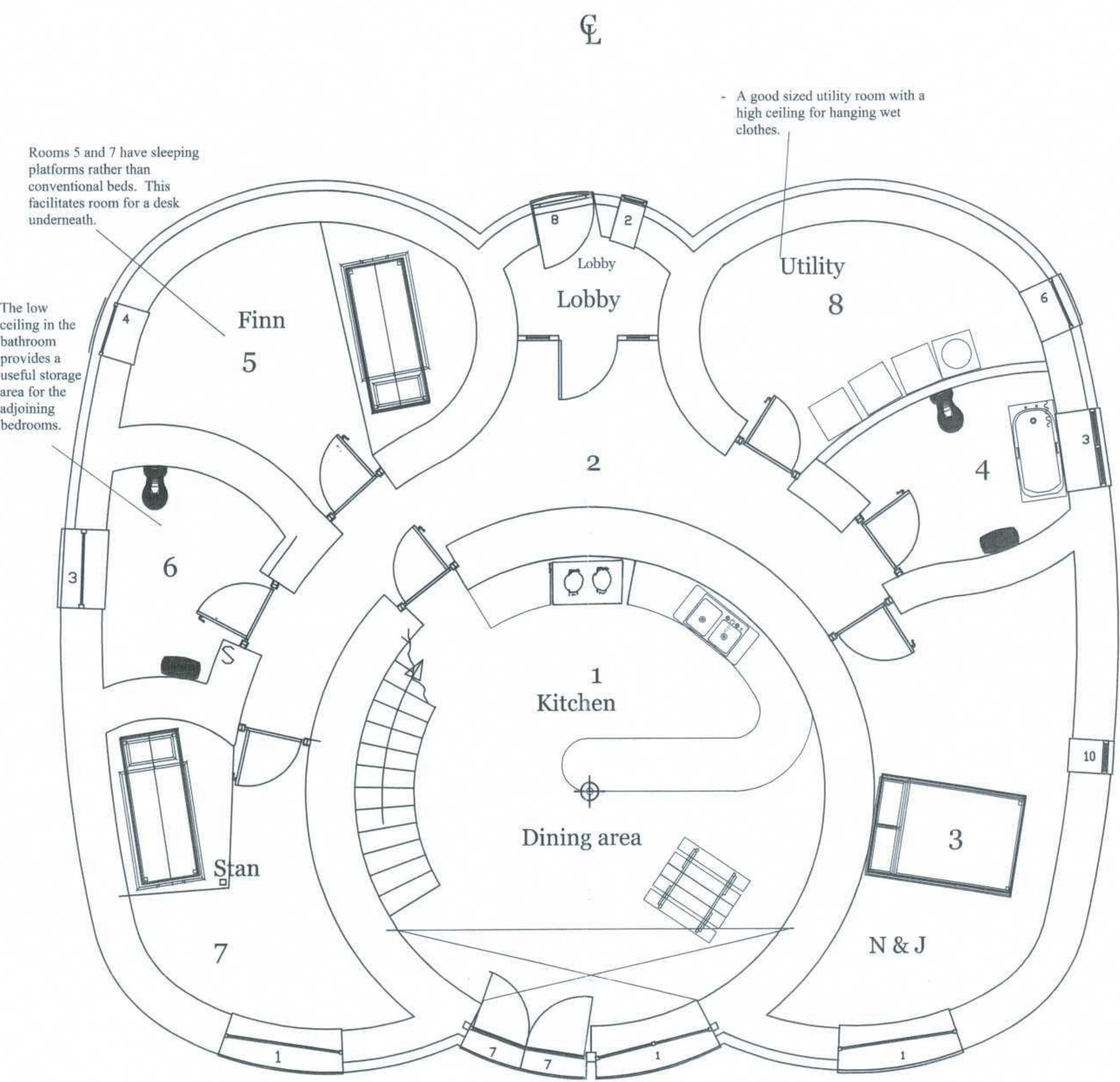
Other information

There are already many local earth building companies and organisations like DEBA. Now there are plans for a national organisation in England, to bring together and support earth build professionals from all over the country.

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Schedule of Accommodation

Room	Openable window area	Window area	Window type & no	Area provided	total area	clear / frosted	Ceiling Height
1 Kitchen	42.897	4.2897	2.14485 1/1 off 7/1 off	2.6	1.9	4.5 c	2660
2 Corridor All doors to be glazed above @ 0.2m ²	22.183	2.2183	1.10915 5/1 off 2/1 off 9/1 off 8/1 off	1.9	0.8374	2.73*4 c	2300
3 Master Bedroom	19.85	1.985	0.9925 1/1 off 10/1 off	2.6	2.6	c	2300
4 Master En-suit	4.88	0.488	0.244 3/1 off			f	2300
5 North West single bedroom	15.6	1.56	0.78 4/1 off	1.5	1.5	c	2800-3200
6 Family Bathroom	6.737	0.6737	0.33685 3/1 off			f	2100
7 South West single Bedroom	12.957	1.2957	0.64785 1/1 off	2.6	2.6	c	2800-3200
8 Utility / cloak room	14.78	1.478	0.739 6/1 off				2800
upper floor Room	139.884	13.9884	6.9942				
9 Lounge	34.456	3.4456	1.7228 1/2 off 9/1 off 5/1 off	2.628	5.256	c	2890-3200
10 storage area	19.85	1.985	0.9925 6/1 off			c	to suit
11 Study area	27.05	2.705	1.3525 10/1 off 11/1 off	1.5	1.5	c	2600-2850
Grand total of all floor area	81.356	8.1356	4.0678				
	221.24	22.124	11.062				

- Earth walls breathe - this is useful in damp environments such as the bathroom, utility room and kitchen. The earth walls take up excess moisture and maintain an ambient relative humidity for healthy living. The moisture is released when required.
- The walls are curved in order to maximise wall strength. This also gives the opportunity for creating symmetry.
- The walls are often divided longitudinally by two central lines which show the walls being stepped in to accommodate the floor or ceiling joists.
- The minimum wall thickness is 330mm at the top of the wall; this is 30mm greater than the recommended 300mm for an external wall in an earth build (P Walker et al. 'Rammed Earth: Design and construction guidelines' BRE 2005.)
- All internal doors to have .2m sq. glazed area at the top of them.

12m² Solar Collector, flat plate variety, mounted at 36°
To be used as a Bris soleil in order to protect earth walls from bad weather and prevent excessive solar gain in summer.

EDEN TECHNICAL SERVICES				
07 AUG 2006				
ACK REC	ACK REP	Plan Admin	DTG	SEC
SAD	CLIENT	LEIS	TC	
AD(P)	HSG	POLL	FOOD	
AD(P)	DN	DS	BN	BS

Eden Architecture: Environmental Design

Director
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Plans for The Old Station Penruddick
Date 30 / 5 / 06
Scale: 1:50

Amended Plan.
06/05/06

AMENDMENT MK 1 7/8/06