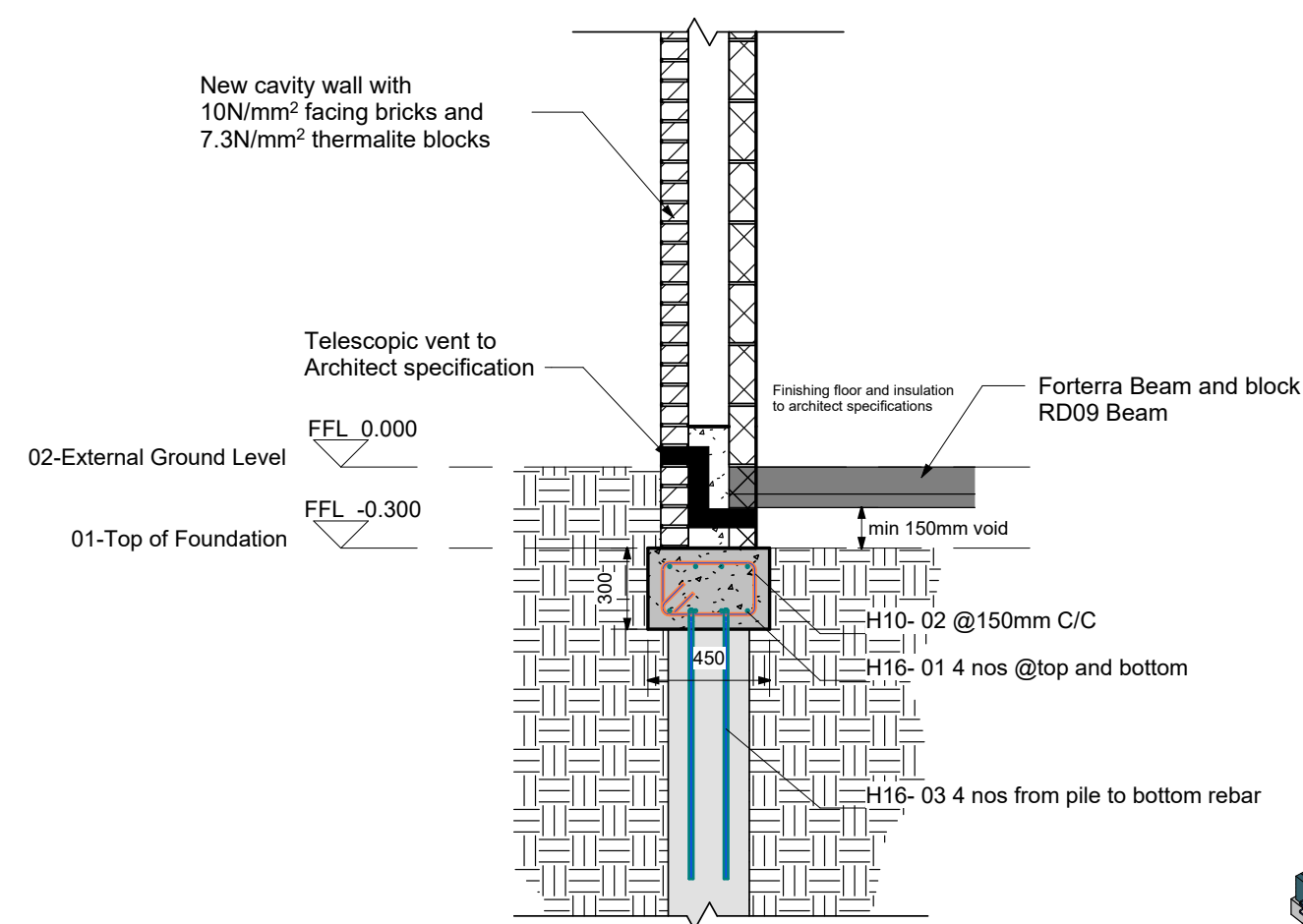


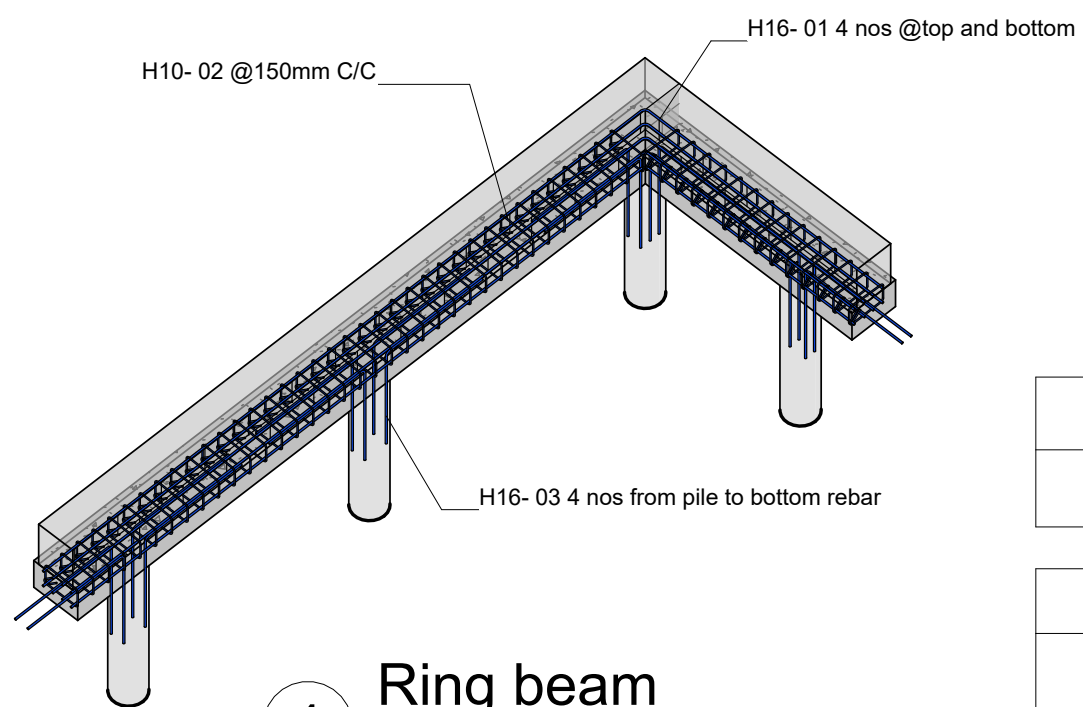


01-Top of Foundation
1 : 100
Minimum Pile Capacity
P1 = 83kN
P2 = 150 kN
P3 = 104kN
P4 = 33kN

OPTION 2:
P1 can be 1500x1500x700mm Pad footing
P4 can be 1200x1200x700mm Pad footing

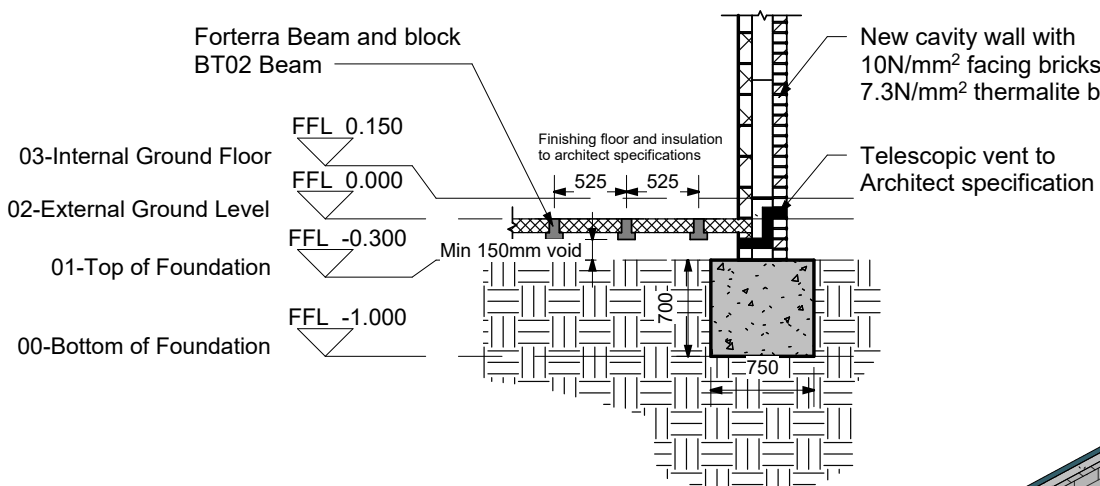


2 Ring beam detail
1 : 25

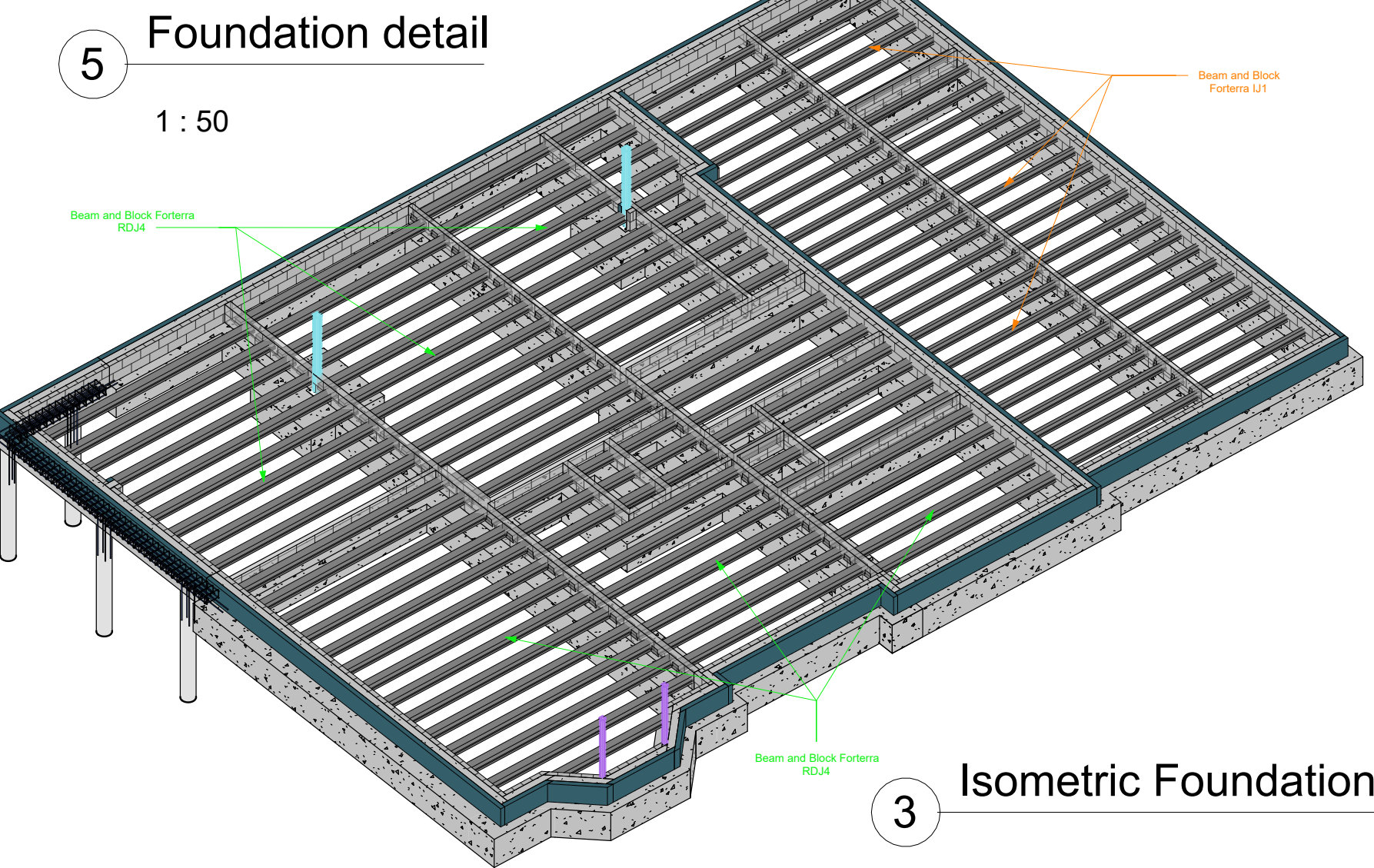


4 Ring beam

Structural beam and block Ground floor				
Type	Reference Level	Cut Length	Count	
Forterra-BT02	02-External Ground Level	2866	27	
2866: 27				
Forterra-BT02	02-External Ground Level	3084	5	
3084: 5				
Forterra-BT02	02-External Ground Level	3434	21	
3434: 21				
Forterra-BT02: 53				
Forterra-RD09	02-External Ground Level	4515	2	
4515: 2				
Forterra-RD09	02-External Ground Level	4563	1	
4563: 1				
Forterra-RD09	02-External Ground Level	4596	1	
4596: 1				
Forterra-RD09	02-External Ground Level	4608	9	
4608: 9				
Forterra-RD09	02-External Ground Level	4636	17	
4636: 17				
Forterra-RD09	02-External Ground Level	4655	10	
4655: 10				
Forterra-RD09	02-External Ground Level	4811	1	
4811: 1				
Forterra-RD09	02-External Ground Level	4986	2	
4986: 2				
Forterra-RD09	02-External Ground Level	5134	1	
5134: 1				
Forterra-RD09	02-External Ground Level	5161	2	
5161: 2				
Forterra-RD09	02-External Ground Level	5239	21	
5239: 21				
Forterra-RD09	02-External Ground Level	5240	1	
5240: 1				
Forterra-RD09: 68				
Grand total: 121				

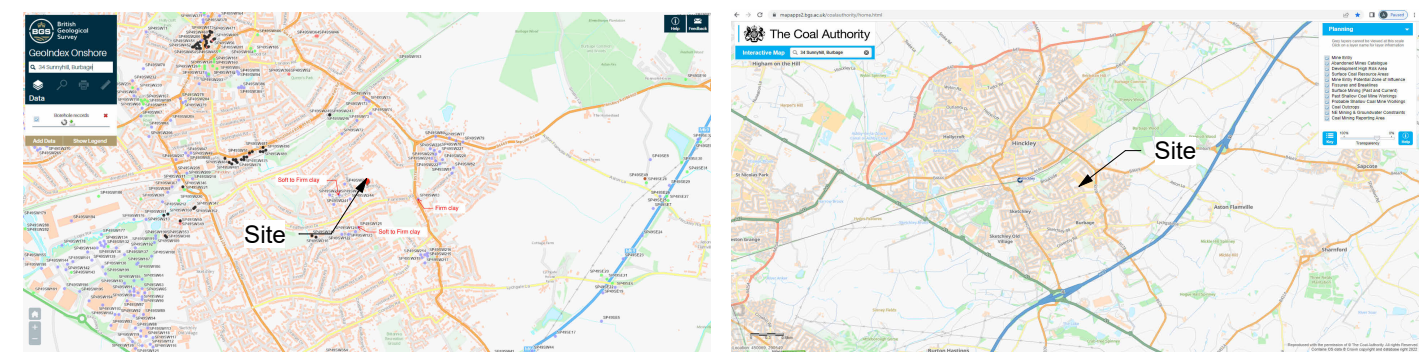


6 Internal wall
1 : 50



3 Isometric Foundation

Rebar Schedule										
Mark	Type	Bar Diameter	Quantity	Bar Length	Shape	A	B	Bend Diameter	Shape Image	Comments
01	H16	16 mm	8	<varies>	11	<varies>	<varies>	64 mm		4 nos @top and bottom
02	H10	10 mm	51	1300 mm	51	350 mm	200 mm	40 mm		@150mm C/C
03	H16	16 mm	16	<varies>	11	1000 mm	<varies>	64 mm		4 nos from pile to bottom rebar



Geological map highlighting the type of soils found in the region
In the absence of a full ground investigation report, the reasonable assumption is that soft to firm clay will likely to be encountered on the site, therefore the foundation calculations have that assumption as a basis for the structural design

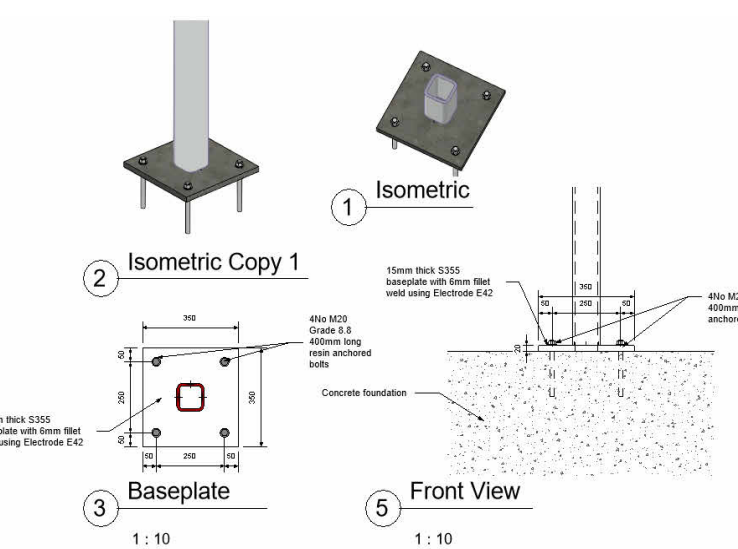
Coal map highlighting mining activity found in the region
In the absence of a full ground investigation report, the reasonable assumption is that coal mining will not likely to be encountered on the site, therefore the foundation calculations have that assumption as a basis for the structural design

METRIC BOLT TORQUE CHART			
Bolt Diameter	Property Class 4.8	Property Class 8.8	Property Class 10.9
M5	3	7	9
M6	6	12	16
M8	15	30	40
M10	25	55	75
M12	50	100	135
M14	80	160	215
M16	125	245	335
M20	240	480	650
M24	410	825	1125
M30	820	1640	2240
M36	1435	2870	3910

Structural Column Schedule				
Mark	Type	Structural Material	Approximate Length	Total Weight
C3	SHS140x140x10	Metal - Steel S355	2880	115.20 kgf
C4	SHS140x140x10	Metal - Steel S355	2880	115.20 kgf
SHS140x140x10: 2				230.41 kgf
C1	SHS100x100x10	Metal - Steel S355	6035	165.36 kgf
C2	SHS100x100x10	Metal - Steel S355	6035	165.36 kgf
SHS100x100x10: 2				330.72 kgf
C5	RHS150x100x10	Metal - Steel S355	381	13.44 kgf
RHS150x100x10: 1				13.44 kgf
Grand total: 5				574.56 kgf

Concrete volume	
Material	Volume
Concrete, Cast-in-Place - C30	84.38 m³
Grand total	84.38 m³

Approximate volume to be used as a ball park figure only.
Contractor is expected to carry out their own quantity survey.



Foundations
Foundations for cavity walls to be strip footing C30 mass concrete minimum 750mm in width and widened further locally to form pads as indicated on drawing under columns. Thickness of concrete strip to be minimum 700mm from the bottom of the trench upwards. Depth of excavation minimum 1 metre or to the level where natural ground is encountered whichever one is deeper. This is to be confirmed by BCO on site. Should disparity be encountered on site, work must be stopped at once and advice from structural engineer should be sought right away.

A minimum 1m wide non permeable pavement required around the whole of the perimeter of the structure with a 1:20 slope away from the perimeter walls or alternatively a perforated french drain along the foundation leading to a collection chamber/outlet could be used to prevent water accumulation at the base of the foundations.

Walls
Perimeter walls to be cavity with an internal skin of 440x215x100 7.3N/mm² blockwork with M4 mortar minimum.

Columns
20mm thick base plate and 4No M20x400mm resin anchored bolts to concrete

- GENERAL NOTES**
- All dimensions are to be obtained or confirmed by the Contractor on site prior to ordering the steel! DO NOT SCALE FROM THESE DRAWINGS.
 - Construction work not to be started until calculations have been approved by Building Control.
 - All foundations depths to be confirmed by Building Control Officer.
 - All temporary works, eg. propping before/ during installing new beams, to be responsibility of the Contractor.
 - To minimise deflections of existing structure, new beams must be pinned up tight to existing construction with dry-pack mortar (1:3 cement: sharp sand, low water content), and all mortar allowed to cure prior to de-propping.
 - Due to significant structural works, minor post-construction deflection and cracking of brittle finishes may be expected in the existing building.
 - All works to be undertaken in accordance with the current Building Regulations Part A, British Standards and good building practice.
 - Beams and lintels to have a minimum bearing length of 100mm when perpendicular to the wall, and 150mm when parallel to the wall unless noted otherwise.
 - Masonry to be clay or calcium silicate with a minimum compressive strength of 50N/mm² or class A or B Engineering bricks in accordance with BS EN 771-1. Inner skin must be 7.3N/mm² block. Mortar to be M4(iii) unless noted otherwise. Masonry repairs to match existing brick.
 - Any masonry/ brickwork/ foundations in vicinity of new structural members to be checked by the Contractor and replaced/ repaired, if defective.
 - Where floor joists, flat roof joists & rafters span parallel to external cavity wall provide 30 x 5 thick galvanised MS straps at 1.5m centres. Straps to be turned over blockwork into cavity minimum 100mm and fixed to 3 No. joists ensuring solid noggins provided between joists and last joist is packed tight to inner leaf.
 - Wall plates to be strapped to wall using 30 x 5 thick galvanised MS straps at 1.5m centres.
 - Your Structures Ltd have been instructed to produce structural design for the specific elements identified within calculations. We have not assessed any other elements of the structure.
 - CDM Regulations - Under the Construction (Design & Management) Regulations 2015 for commercial clients, the client duties apply in full. For Domestic clients, the client duties pass on to the Principal Contractor or Sole Contractor. For more information visit www.hse.gov.uk.
 - Specialist products such as: beam & block floor, engineered floor joists, staircases, glazing, balustrades to be designed by specialist suppliers.
 - Unless stated otherwise, use 3 courses of engineering brick or 450mm long or supreme padstones from Travis Perkins
 - All steel to be grade S355 unless otherwise stated.
 - Cavity wall ties to be spaced at a maximum of 600mm horizontally and 450mm vertically in accordance with manufacturers recommendations and BS EN 845-1.

Structural philosophy for substructure

- Existing foundation is assumed to have strip foundation unless otherwise noted
- Plot is assumed not within the range of known previous mining works as per The Coal Authority Map
- Type of soil from Geology of Britain in the area - soft to firm clay
- Bearing capacity of specific soils from Structural Engineers Pocket Book Third Edition by Fiona Cobb page 329 "Typical allowable bearing pressures under static loads" 100-150kN/m²
- Columns designed as pinned at base with all moments being distributed at columns head
- Foundations analysis and design for strip, eccentric strip and pad foundations to BS EN 1997-1:Eurocode
- Geotechnical design- calculations carried out using Tekla Tedds Software



34 Sunnyhill, Burbage

Foundation

Project number	B1614
Date	27/06/23
Drawn by	BL
Checked by	AG
Approved by	BB
01	Preliminary
Scale	As indicated