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Date: 10 November 2022
Ref: Let/PM/101122

TO WHOM IT MAY CONCERN

Dear Sir / Madam

RE: STRUCTURAL REPORT FOR MAIN HOUSE ON ERF No. 6520, BONZA VIEWS, BEACON BAY, EAST LONDON

1.0 Introduction

The Structural Engineer and author of this report, was appointed by the client, Mrs Precious Muleya, to provide structural engineering design for the proposed double storey main house on Erf 6520, Bonza Views, Beacon Bay.

The site was then a vacant site with no structure and construction started from scratch until the house was completed under my supervision.

Construction started in early May 2020 with site clearance by the Main Contractor, and by the end on the year the structure was already completed and finishes were in progress.

2.0 Information Supplied to the Engineer

The approved architectural plans of the project were provided to the Engineer, and it was on the basis of this plan that the structural design was carried out. The approved plan is attached in Appendix A.

3.0 Soil Test Report and Soil Classification

The engineer requested a soil test to be carried out by a soils lab and the results are attached in Appendix B. The Engineer, deduced that the soils lab carried out the test on sand dunes that were on site and therefore the bearing capacity results were not meaningful.

When the site was cleared and trenched excavated, a design solution consistent with the founding conditions was then specified by the Engineer.

4.0 Foundation Strip Footing Design

The founding were observed to be still sandy soils with very good bearing capacity, typically greater than 100kPa. In order to mitigate against loss of support due to the collapsibility phenomenon common in sandy soils, the strip footing foundations of the house were designed as reinforced concrete strip foundations with two layers of reinforcing bars.

The foundation drawings are part of the structural drawings and steel bending schedules package shown in Appendix C.

5.0 Wall Panel Design

All Walls were checked against the deemed to satisfy rules of SANS 10400 Part K and they were found to be satisfactory.

External and internal load bearing walls were made of one-brick (220mm) brickwork walls and the non-load bearing internal partition walls were consisting of half-brick (11omm) walls.

6.0 Ground Floor Slab Design

The ground floor slab was specified as 100mm thick ground bearing concrete surface bed, with reference 193 mesh wire. These floating independent slabs would be cast on inert imported granular material (sabunga) compacted in 150mm layers, on dense subgrade material.

7.0 First Floor Slab Design

The first floor slab was designed as a 170mm thick reinforced concrete slab detailed as two-way spanning slab. This method is structurally efficient, as loads are resisted it two directions as opposed to only one.

8.0 Construction Monitoring

Construction of the building in accordance with the specification so prepared by the Engineer was carried out by the Contractor, and each stage was inspected and approved before proceeding to the next stage. The following outlines briefly what transpired during the execution of the project.

Some of the photos captured on the project are shown in Appendix D

8.1 Foundation Excavations

After removing the sand dunes with a TLB foundation trenches were excavated according to the foundation drawing. The founding material was typically stiff sandy clay with considerable bearing capacity.

8.2 Foundation Reinforcement

Reinforcement steel was procured on the basis of the steel bending schedule supplied by the Engineer and the reinforcement was wired into position as specified in the fixing drawing and this was inspected by the engineer.

8.3 Underfloor Compaction

The underfloor compaction of material was carried out in a controlled manner, targeting 150mm thick layers of material. A final layer of inert granular material (sabunga) was compacted and checked for consistency by the engineer.

8.4 *Foundation brickwork*

Loadbearing brickwork was constructed as one-brick (220mm) walls while non-loadbearing internal partition walls were constructed as half-brick (110mm) walls. These were reinforced using galvanised ladder-type brickforce installed every third course.

8.5 First Floor and Stairs

The first floor slab was constructed as contemplated by the engineer as a solid reinforced concrete slab. After the formwork was supplied and erected by a formwork supplier, the steel reinforcement was fixed by the main contractor and this was inspected by the engineer.

Ready-mix concrete was again procured by the client and supplied by Lafarge. The target concrete strength 25MPa and this was placed and vibrated satisfactorily by the main contractor.

8.6 Roof Trusses

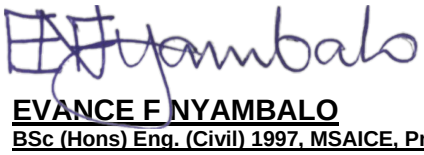
Prefabricated roof trusses were designed and supplied by a Mitek – accredited supplier (BUCO) and the main contractor erected the roof structure. Prior to loading the roof with the concrete tiles, the roof structure was inspected by the engineer and the go – ahead given to proceed.

9.0 Conclusion

As described elsewhere in this report, the main house on Erf 6520, Bonza Views, for which I provided structural engineering services, was constructed in a satisfactory manner and I do not have any adverse comments at all about its construction. The structural integrity of the building is, in my opinion, acceptable and satisfactory.

I trust that the above meets with your satisfaction and please do not hesitate to contact me should you require any further assistance or clarification.

Yours Sincerely



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ANNEXURE A : APPROVED PLAN

ANNEXURE C : STRUCTURAL ENGINEERING DRAWINGS AND SCHEDULES

ANNEXURE D : CONSTRUCTION STAGE PHOTOS