Sterling Creations Ltd. (Extension)

Beron, Earpur Union, Ashulia, Dhaka-1349
(23.937973, 90.298756)
28th December 2020

RSC RMG SUSTAINABILITY COUNCIL

Buildings Information

1. Building-2 (G+7)

Observations

Soil bearing capacity is required to be reviewed

Observation:

16.0 RECOMMENDATIONS:
On the basis of foresaid conclusions, the following recommendations are suggested for Multi Storied Factory Building at Dag No.- C. S. & S. A. 153, 154, R. S. 1372, 1373, B. S. 9655, Khatian No.- C. S. 239, S. A. 71, R. S. 338, B. S. 6586, 6587, Mouza- Diakhali, P. S.- Ashulia, Dist.- Dhaka, Bangladesh.

SHALLOW FOUNDATION as Isolated column footing:
The average bearing capacity of the Shallow Foundation as Isolated column footing may be considered in the following way:

- To be considered **1.50 Tsf** (F.S. = 2.50) at a depth of **8 ft** measured from EGL particularly at and around for BH-1, BH-2, BH-3, BH-4, BH-5, BH-6, BH-8 & BH-9 only.
- To be considered **1.40 Tsf** (F.S. = 2.50) at a depth of **8 ft** measured from EGL particularly at and around for BH-7 only.

Note:

a. 1 Tsf = 2 ksf = 95.78 kN/ m^2 = 0.976 kg/cm^2, 1 Ton = 9.81 kN = 1000 kg, 1 m = 3.28 ft, EGL = Existing Ground level & F. S. = Factor of Safety.

b. **The designer may select any other alternative type, depth as well as the bearing capacity of the foundation in the light of information provided in this report.**

c. Foundation base should be kept dry during construction period.

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01-06-15
Engr. Md. Mokhleesur Rahman
M.Sc. Engineer (Civil Engg.-Soil)
Fellow No. F-5664, The Institution of Engineers Bangladesh, Ramna, Dhaka

Agrani Soil Engineers & Geologist Panthapath Dhaka.

01-06-15
Engr. Md. Humayun Kabir
B. Sc. Engineer (Civil Engineering)
Member No. M-24512, The Institution of Engineers Bangladesh, Ramna, Dhaka.

As per recommendation of geotechnical investigation report, the allowable bearing capacity is 1.5 tsf (162 kPa) considering F.S 2.5.

4.3 ADEQUACY OF FOUNDATION

The foundation of the industrial building is on isolated column footing foundation. The thickness provided is found adequate for flexural and punching shear. The reinforcement provided is also found satisfactorily from bending moment.
The area of isolated column footings are found adequate in respect of column loads and allowable bearing capacity of soil.

The detail has been shown on the following table;

Table: Footing Calculations

Client: Sterling Creations Ltd. (Extension Part)
Footing Stability Check
fy(ksi) 72.5
f'c(psi) 3500

Point	DL(kip)	LL(kip)	DL+ LL(kip)	Name of footing	Effective depth (inch)	Shear Strength (kip)	Acting Shear (kip)	Punching	Footing Size(ft) Provided		Allowable Soil Pressure (ksf)	Ultimate Soil Pressure (ksf)	FOS	Remarks
3	298	114	412	F4	27	1064	542	OK	14.5	10	4.65	11.61	4.09	Ok
4	450	216	666	F11	33	1513	903	OK	18.75	10	4.65	11.61	3.27	Ok
5	446	215	661	F11	33	1513	895	OK	18.75	10	4.65	11.61	3.29	Ok
6	476	171	647	F11	33	1513	864	OK	18.75	10	4.65	11.61	3.37	Ok
8	531	250	780	F8	35	1718	1059	OK	14	14	4.65	11.61	2.92	Ok
9	367	71	438	F3	27	1064	567	OK	12	12	4.65	11.61	3.82	Ok
10	399	77	476	CF1	41	2144	571	OK	22.17	33	4.65	11.61	3.34	Ok
11	348	147	495	F6	33	1513	643	OK	17	11	4.65	11.61	4.39	Ok
12	367	169	536	F5	33	1513	706	OK	16	9	4.65	11.61	3.12	Ok
13	290	112	402	F1	21	727	544	OK	11	8.5	4.65	11.61	2.70	Ok
14	605	222	827	F8	35	1718	1117	OK	14	14	4.65	11.61	2.75	Ok
15	547	280	827	F7	35	1718	1134	OK	17.83	12.83	4.65	11.61	3.21	Ok
16	673	427	1100	F10	39	2228	1520	OK	19	19	4.65	11.61	3.81	Ok
17	735	466	1201	F9	41	2408	1663	OK	19.5	19.5	4.65	11.61	3.68	Ok
18	660	325	985	CF1	41	2408	1322	OK	33	22.17	4.65	11.61	3.34	Ok
19	771	499	1269	F9	41	2408	1770	OK	19.5	19.5	4.65	11.61	3.48	Ok
20	768	499	1268	F9	41	2408	1767	OK	19.5	19.5	4.65	11.61	3.48	Ok
21	759	419	1179	F10	39	2228	1629	OK	19	19	4.65	11.61	3.56	Ok
22	710	280	990	F7	35	1718	1363	OK	17.83	12.83	4.65	11.61	2.68	Ok
23	395	89	484	F2	24	966	638	OK	11	9.5	4.65	11.61	2.51	Ok
122	268	62	329	CF1	41	1913	386	OK	33	22.17	4.65	11.61	3.34	Ok
123	312	94	407	CF1	41	1913	503	OK	33	22.17	4.65	11.61	3.34	Ok
124	191	59	250	CF1	41	1913	273	OK	33	22.17	4.65	11.61	3.34	Ok
1	37	8	45	CF1	41	1979	-34	OK	33	22.17	4.65	11.61	3.34	Ok
2	40	13	53	CF1	41	1979	-22	OK	33	22.17	4.65	11.61	3.34	Ok

The ground bearing considered 4.65 ksf (2.325 tsf) (222.65 kPa) (FS 2.5) in the design report.

Building engineer is required to review the calculation of the ground bearing capacity and adequacy of footings to comply with BNBC.

Observation:

DESIGN REPORT OF
8– STORIED FACTORY BUILDING (EXTENSION PART) OF
STERLING CREATIONS LTD.
AT BARON, EARPUR UNION, ASHULIA, DHAKA

DESIGN REPORT PREPARED BY:

ADVANCE ENGINEERING
HOUSE-34/1, ROAD-6,
DHANMONDI, DHAKA.

As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2 of BNBC. At the time of inspection, only as-built drawing, load plan and geotechnical report were available, but no design report was available which is required to be prepared in compliance with section 1.9.1.1 (part-6, BNBC).

Observation:

Priority Actions

Problems Observed

1: Soil bearing capacity is required to be reviewed.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Soil bearing capacity is required to be reviewed.	Building engineer is required to review the calculation of the soil bearing capacity and adequacy of footings to comply with BNBC.	6-weeks
02	Soil bearing capacity is required to be reviewed.	Building Engineer to prepare design report as per BNBC (part-6; Article 1.9.1) by reviewing design, loads and capacity of structural members.	6-weeks
03	Soil bearing capacity is required to be reviewed.	Carryout remedial works where necessary.	6-months