

AR-TEX COMPOSITE LTD.

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(23.619108N, 90.477697E)

21 December 2021



Building Information

Building-1 (Steel Building): Two storied (G+1) prefabricated steel building

Building-2 (Ancillary Building): 5 storied (B+G+4) reinforced concrete (RC) building.

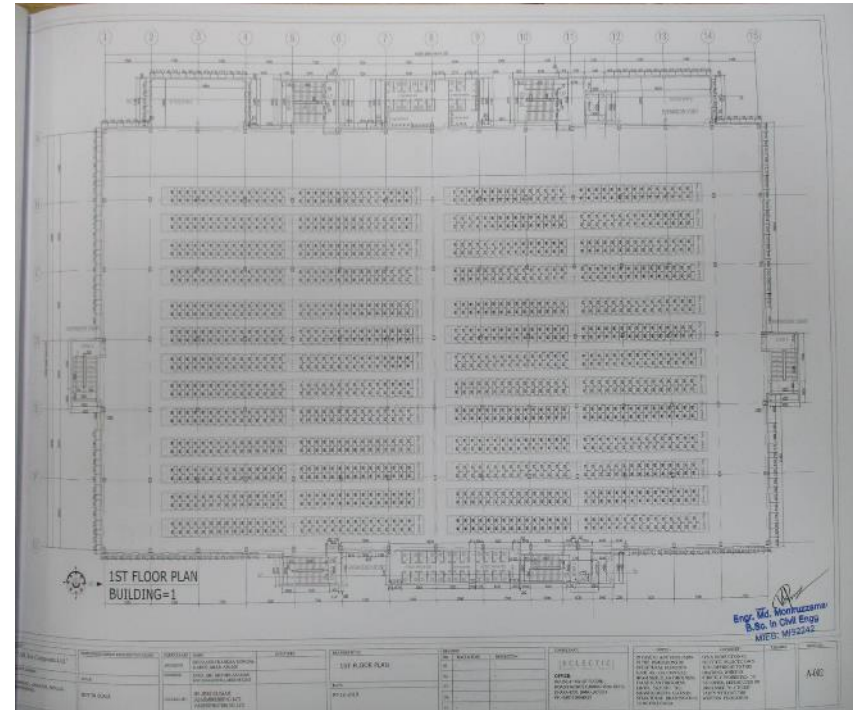
Building-3 (Boiler Shed): Single storied steel shed.

Observations

Design report to be prepared



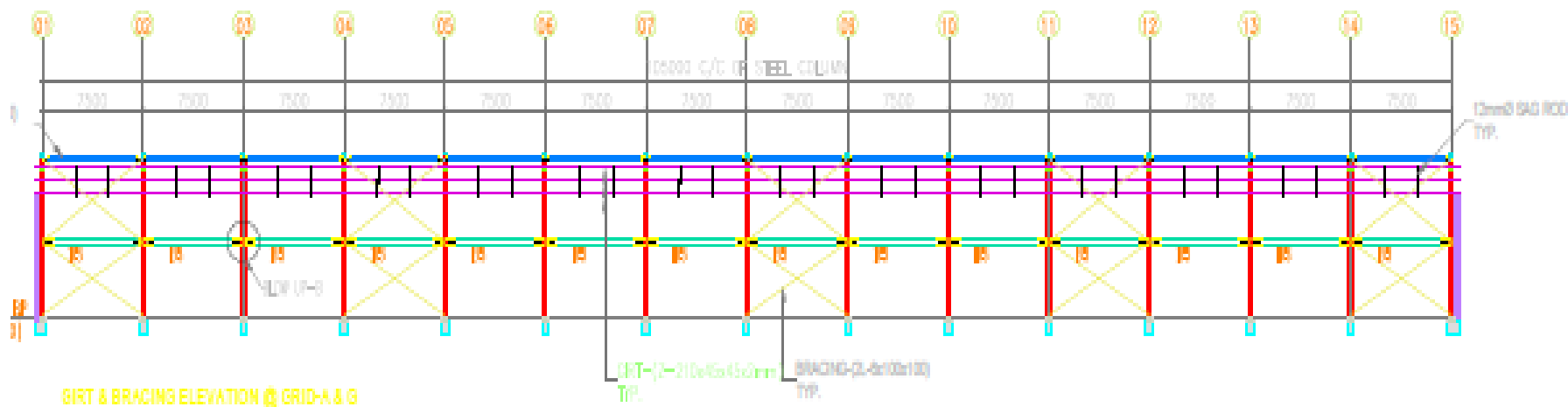
Building-1 (Steel Building)



Drawings

Only Architectural & structural drawings were available for Building-1. As per BNBC, every building 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 as per BNBC. However, the factory is required to prepare a design report in compliance of BNBC.

Absence of vertical bracings



Vertical bracing layout



No vertical bracing at wall

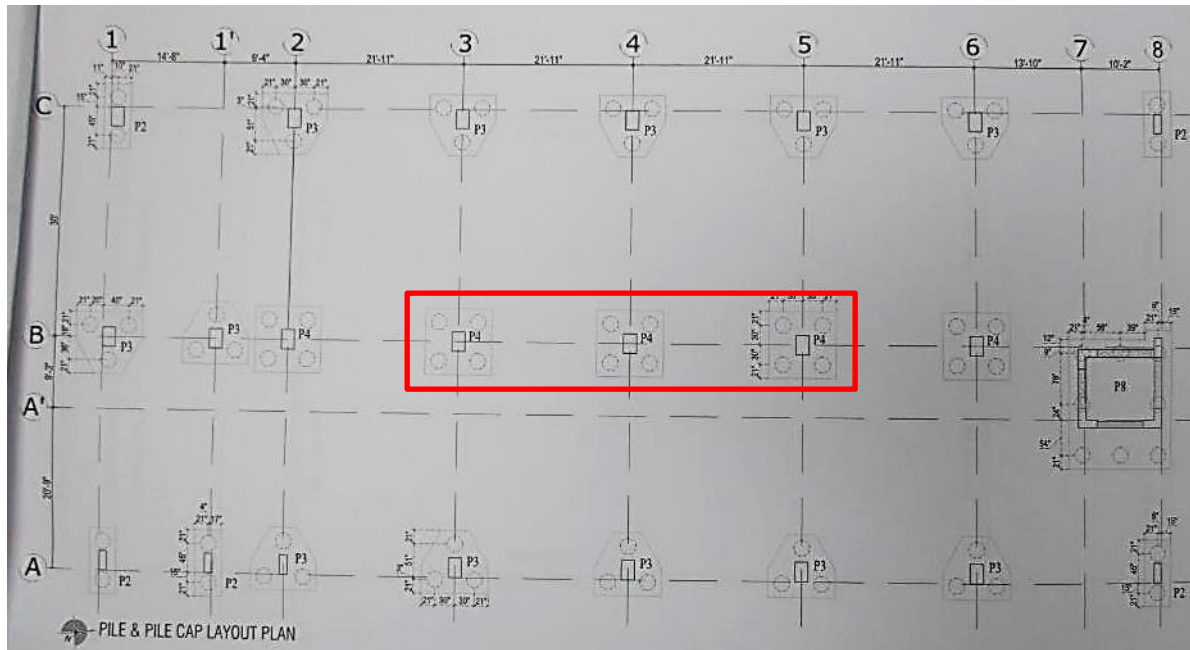


Vertical bracing layout shown in the provided drawing, but no vertical bracing observed on-site. Building engineer to check the bracing requirement and suggest remedial actions accordingly.

Foundation stress exceeds above normal design limit

Schedule of Pile :

Type	Dia of Pile	Length of Pile From E.G.L	No. of Pile in Group
P2	24"	95'-0"	02
P3	24"	95'-0"	03
P4	24"	95'-0"	04
P8	24"	95'-0"	06



Pile foundation layout and schedule

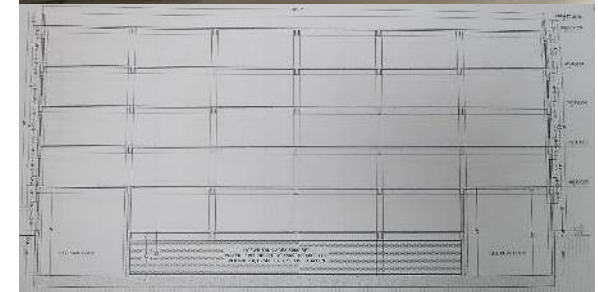
6. CONCLUSIONS

Under this soil condition piled foundation would be required for the proposed project. We prefer bored cast in situ RCC pile. Estimated allowable capacity of such a pile of dia 500mm having tip level at 28.5m below EGL is around 70 tons per pile in compression which should be confirmed by load test results.

The designer would finally select the appropriate type, size and length of pile.

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Pile capacity in soil test report



Source of loadings (UGWR)

Cursory calculation indicates that foundations are stressed above normal design limit considering typical floor live load 3 kPa, loads from UGWR approximate 18 kPa, ultimate single pile capacity from soil test report (3x70 ton= 2055 kN) and minimum concrete strength (16.3 MPa). The building engineer is required to check the design, loads, foundation stresses for the marked foundations based on in-situ material strength and suggest necessary remedial actions accordingly.

Undocumented water tank on roof



Undocumented water tank was observed on the roof. The building engineer is required to incorporate it in as-built drawings.

Lack of lateral stability system



Steel framing without bracings



No obvious lateral load transfer media

Lack of lateral stability system observed at the roof of the shed. Building engineer is required to check the lateral stability of the structure and suggest proper remedial actions accordingly.

Problems Observed

Building 1:

Item 01: Design report to be prepared.

Item 02: Absence of vertical bracings.

Building-2 :

Item 03: Foundation stress exceeds above normal design limit.

Item 04: Undocumented water tank on roof.

Building 3:

Item 05: Lack of lateral stability system.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Design report to be prepared. (Building-1)	The factory engineer is required to prepare the design report in compliance of BNBC 1.9.1.	6-weeks
02	Design report to be prepared. (Building-1)	Implement the remedial works where required.	6-months
03	Absence of vertical bracing. (Building-1)	The factory engineer is required to check the stability requirements and suggest the remedial actions.	6-weeks
04	Absence of vertical bracing. (Building-1)	Carry out remedial works if necessary.	6-months
05	Foundation stress exceeds above normal design limit. (Building-2)	As part of DEA, building engineer is required to check the design, loads, foundation stresses for the foundations based on in-situ material strength.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
06	Foundation stress exceeds above normal design limit. (Building-2)	Produce and actively manage floor loading plan in compliance with BNBC.	6-weeks
07	Foundation stress exceeds above normal design limit. (Building-2)	Carry out remedial works where required.	6-months
08	Foundation stress exceeds above normal design limit. (Building-2)	Implement final loading plan.	6-months
09	Undocumented water tank on roof. (Building-2)	Building engineer is required to survey the structure incorporate water tank location in as-built drawings.	6-months
10	Lack of lateral stability system. (Building-3)	Building engineer is required to check the lateral stability of the structure and suggest proper remedial actions accordingly.	6-weeks
11	Lack of lateral stability system. (Building-3)	Carry out remedial works suggested by the engineer.	6-months