

Section Seven Limited (9216)

Plot #21-24 (Part), Sector-3, Road-4, South Haliashahar, CEPZ, Chittagong
(+ 22.287786N, 91.775024E)

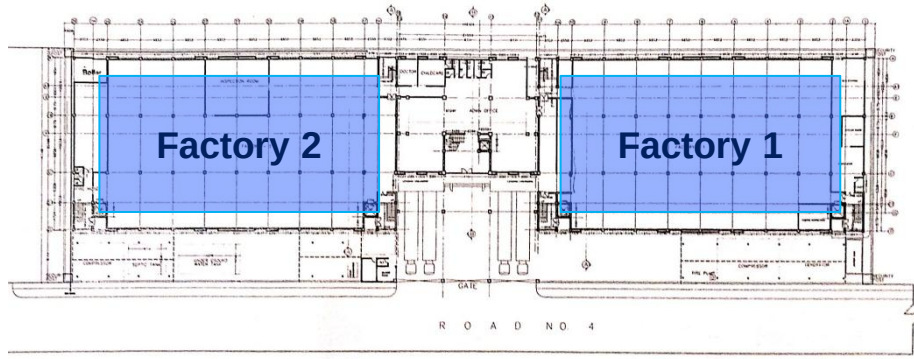
19.MAY.2014



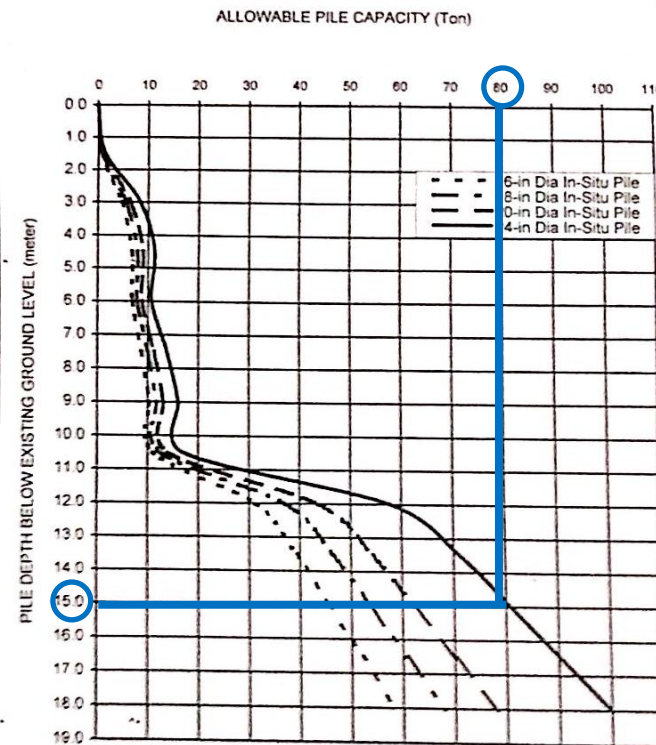
Identified Priority 1 Concerns

- Capacity check for piled foundation of Factory 1 and Factory 2.

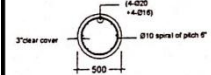
From the drawings, it was appeared to be one pile of each column, where the size equals to 600 mm in diameter and 15 m long, supporting the interior column in area between grid line 1A-10A/A1-C1 of Factory 1 and the area between grid line 16A-25A/A1-C1 of Factory 2. The tributary area is 10.03 m x 5.85 m of 4 storeys with an exclusion of ground floor which is informed to be slab on ground).



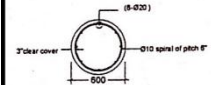
From the calculation, the factor of safety (FoS) appears to be **1.38** (Allowable pile capacity 784.8 kN; received from SI report x 2.50 divided by unfactored column load 1426 kN).



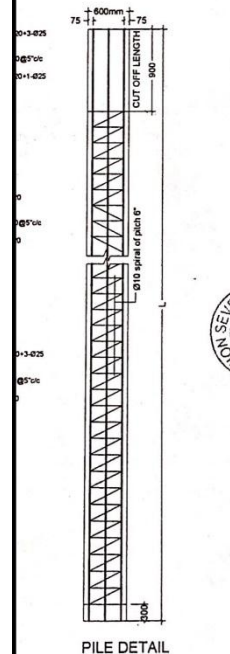
Allowable Pile Capacity (Ton) from Pile Design Chart shown in soil report



PILE SECTION (P1)
(L=50'-0")

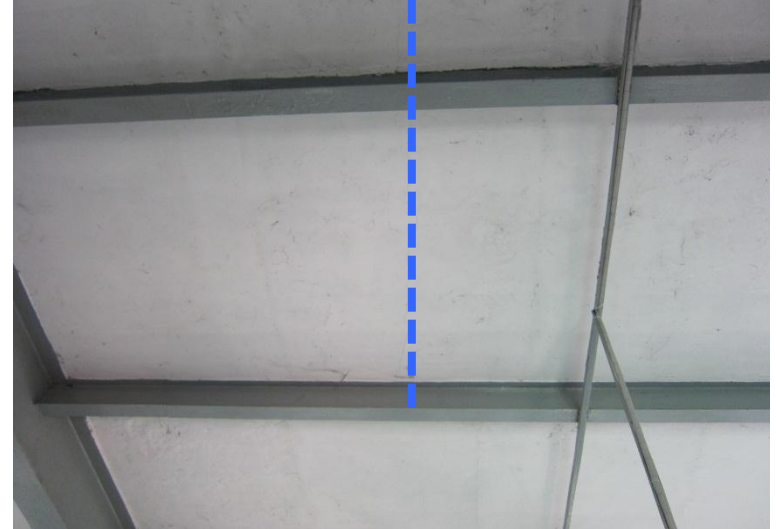
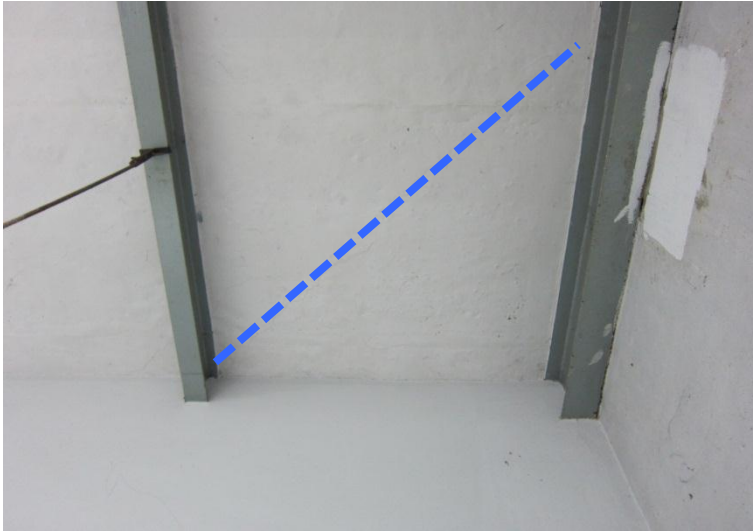


PILE SECTION (P2)
(L=50'-0")

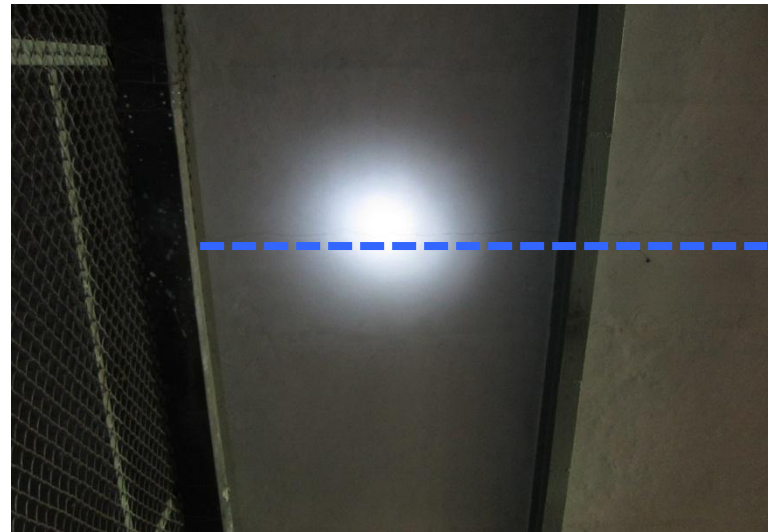


Identified Priority 2 Concerns

- Cracks appeared on floor slab
- Capacity and stability check for cantilevered grating supporting AC compressor
- No fireproofing for steel structure elements (if required)



These cracks are found underside slab's soffit. Some of them appeared to be the same cracks pattern on the top and underside of slab's soffit. It is not clear whether these cracks are structural cracks. We require that these items be investigated in a Detail Engineering Assessment.





There are concerns on the cantilevered grating supporting AC compressor. Capacity and stability check of these items and related elements should be carried out.





No fireproofing material is applied to the structural steel elements. It is unclear whether it is required by BNBC.



Identified Priority 3 Concerns

- Reinforcement left exposed at top level of office building



Reinforcement are left exposed. No rust-proof paint is applied.



Overall Stability System



Concerns on the stability system for wind loading and seismic loading. Façade brickwork walls lack of moment capacity in the connections between columns and beams. There are no bracings installed for steel portal frame to support the roof. Furthermore as seen in the photo below the building may present a Weak Storey deficiency as per BNBC.

We require that these items be investigated in a Detail Engineering Assessment.



Water Ingress



We observed distress due to water ingress on steel and RC structure elements at various locations.



Priority Actions

Problems Observed Summary

ITEM 1:	(Priority 1)	Capacity check for piled foundation of Factory 1 and Factory 2.
ITEM 2:	(Priority 2)	Cracks appeared on floor slab .
ITEM 3:	(Priority 2)	Capacity and stability check for cantilevered grating supporting AC compressor.
ITEM 4:	(Priority 2)	No fireproofing for steel structure elements (if required).
ITEM 5:	(Priority 2)	Overall stability system.
ITEM 6:	(Priority 2)	Distress due to water ingress.
ITEM 7:	(Priority 3)	Reinforcement left exposed at top level of Office.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Capacity check for piled foundation of Factory 1 and Factory 2.	Factory Engineer to review design, loads and substructure to confirm capacity and suitability for loads applied. Investigate foundation in areas above by excavation and verify pile length by parallel seismic pile testing. Geotechnical investigation in situ and in laboratory. A Detail Engineering Assessment to be commenced. Until this concern is resolved, the loads in the factory, at all floors, must not be increased past the present levels.	Immediate – Now
2	Capacity check for piled foundation of Factory 1 and Factory 2.	Produce and actively manage a loading plan for all floor plates within this area giving consideration to floor capacity and column capacity. Detail Engineering Assessment to be completed.	6-weeks
3	Capacity check for piled foundation of Factory 1 and Factory 2.	Continue to implement load plan	6-months
4	Cracks appeared on floor slab.	The Factory Engineer to investigate the cause of cracks by appropriate methods. The distress found is to be suitably rectified and then repaired.	6-weeks
5	Cracks appeared on floor slab.	Create loading plans for each floor level. Maintain standards of quality control to ensure that loading plan is correctly followed so that problems do not arise in the future. Maintain and enforce the loading plans.	6-months
6	Capacity and stability check for cantilevered grating supporting AC compressor.	Factory Engineer to review design, loads and related elements in area identified above to confirm capacity and stability for these items.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
7	No fireproofing for steel structure elements (if required).	Fireproofing material for structural steel element is recommended as suggested in BNBC Codes.	6-weeks
8	No fireproofing for steel structure elements (if required).	Maintain standard of quality control.	6-months
9	Overall stability system.	Request that the Detail Engineering Assessment of the overall building to be carried out and in particular, stability and foundation aspects should be investigated in detail.	6-weeks
10	Distress due to water ingress.	Factory Engineer to inspect water damaged structures and repair with a suitable method.	6-weeks
11	Distress due to water ingress.	For both durability and serviceability, rustproofing is recommended. Waterproofing on the roof slab is recommended. Moreover the slab drainage system should be investigated. Maintain standard of quality control.	6-months
12	Reinforcement left exposed at top level of Office.	For both durability and serviceability, rust proof paint or any appropriate methods is recommended.	6-months