

Cotton Dyeing & Finishing Mills Ltd. - Central Store shed.

Amtoli, Habirbari, Seed Store Bazar, Valuka, Mymenshingh
(24.3150,90.3840)

17th January 2022



Building information

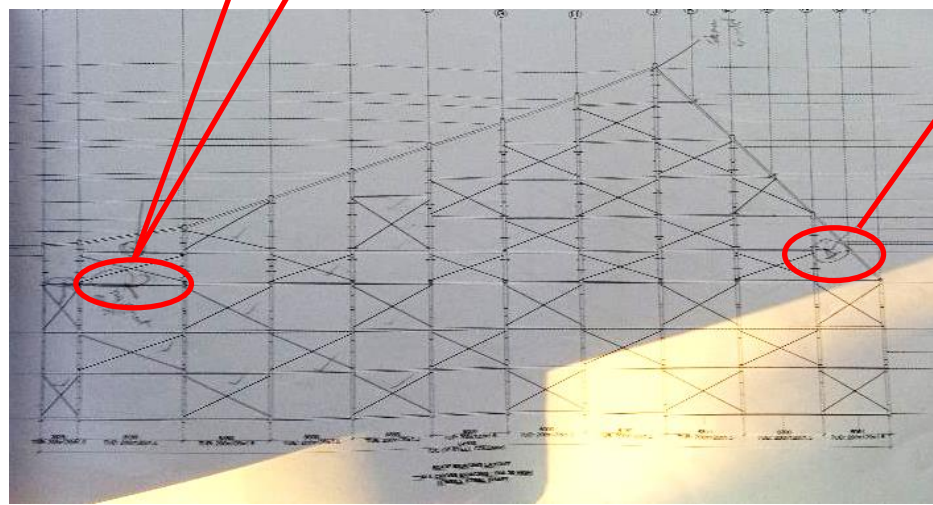
Central Store shed. (Shed-6): Single storied prefabricated steel shed.

Observations

Missing lateral load transfer media (compression strut) on roof.



Missing compression strut on roof



Existing compression strut drawing

The building engineer is required to update compression strut location in structural drawing & check the stability of the structure.

Soil bearing capacity consideration in DEA report & foundation adequacy check.

CLIENT:
COTTON GROUP

REPORT ON:
SUB-SOIL INVESTIGATION WORK FOR THE PROPOSED CONSTRUCTION OF FACTORY BUILDING AT SEED STORE, MYMENSING.

AUGUST, 2004

CONSULTANT: KHAYAL AND BARAKAT LTD. (K&B)

SUB-SOIL INVESTIGATION & REPORT PREPARED BY:

EXPERT BORING & CONSULTANTS
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DHAKA-1205, TEL. 9132957

Mr. Pradip - 0176 014072

14. **COMPUTATION FOR CONSOLIDATION SETTLEMENT**
The vertical downward movement of the base is called settlement and its effect upon the structure depends on its magnitude, its uniformity, the length of the time over which it takes place, and the nature of the clay soils. The consolidation settlement can be calculated from test results of unit weight and consolidation tests.

15. **CONCLUSIONS:**
On the basis of above analysis and discussions, the following conclusions may be drawn regarding the sub-soil condition of the project area.

- The overall soil formation of the investigated site are more or less regular at between the bore hole locations.
- The top layer of the investigated site have been encountered with compacting reddish-brown with pocket grey, clay with silt (Ref. bore logs).
- The underlying soil is of medium dense to dense, fine sand trace to little silt extending up to the final depth of borings (Ref. bore logs).
- Bearing capacities for shallow foundations including strip footings may be moderate (Ref. Table-5).

16. **RECOMMENDATIONS:**
On the basis of above conclusions, the following recommendations are suggested for Factory Building at Seed Store, Mymensing.

RAFT FOUNDATION:
The average bearing capacity of the Raft Foundation may be considered in the following way:

- To be considered 100 kN/m² (F.S. = 2.5) at a depth of 2.5 m measured from E.G.L. of each borings particularly at and around for all borings.

SHALLOW FOUNDATION:
The average bearing capacity of the shallow foundation as square column footing may be considered in the following way:

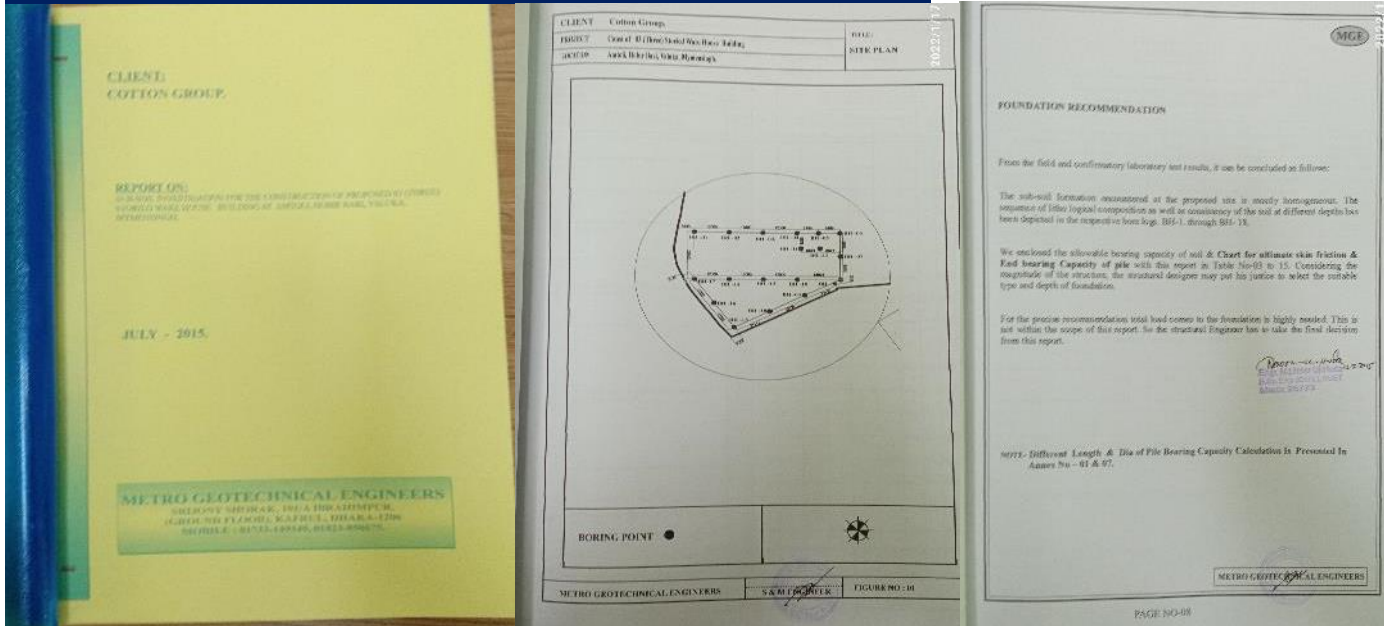
- To be considered 118 kN/m² (F.S. = 2.5) at a depth of 2.5 m measured from E.G.L. of each boring particularly at and around for BH-1, 3, 4 & 8.
- To be considered 175 kN/m² (F.S. = 2.5) at a depth of 2.5 m measured from E.G.L. of each boring particularly at and around for BH-2, 6, 7 & 8.

Note:

- $f_{all} = \frac{1}{2} \gamma_{sat} B^2 = 99.07 \text{ kN/m}^2$, $f_{all} = 1000 \text{ kg}$, E.G.L. = Existing Ground level.
- 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.
- Foundation base should be kept dry during construction period.

Geotechnical investigation report attached in the design report not matched with the available geotechnical investigation report. Consider geotechnical investigation report which was done close vicinity to the structure (Provided report during inspection), determine actual soil bearing capacity and check the foundation adequacy accordingly.

Soil test report used in DEA report



Soil test report provided during inspection

7 Observations: Central Store shed (Shed-6)

Significant gaps in connection & loose bolts.



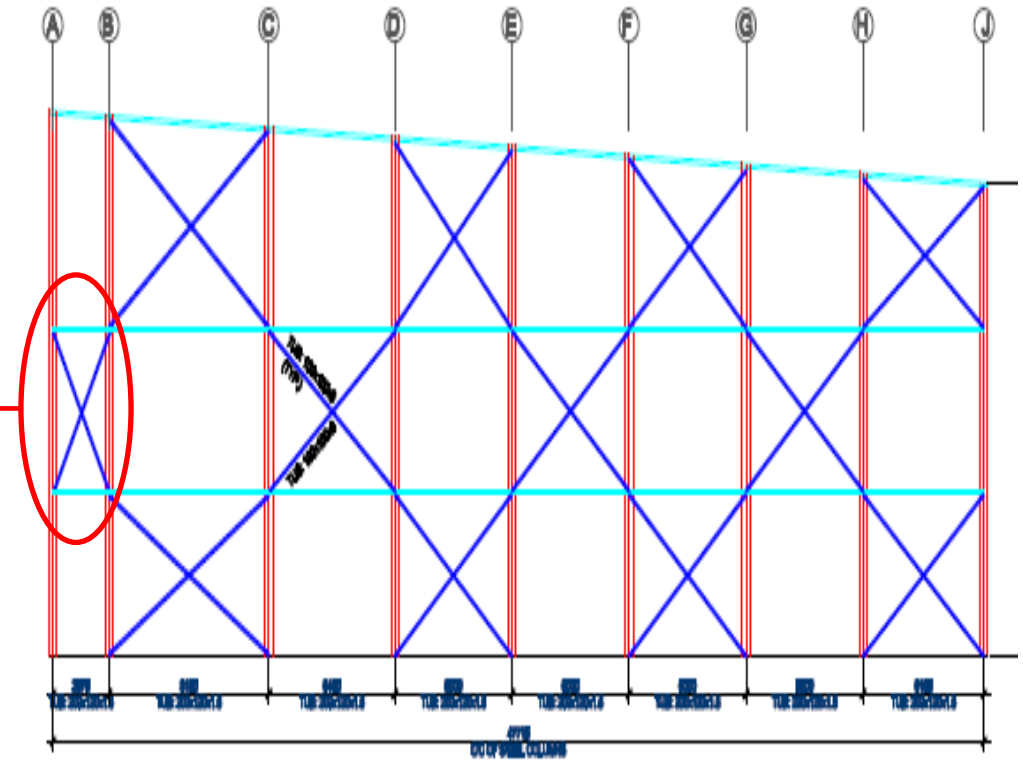
Connection gap in joints

Loose bolts

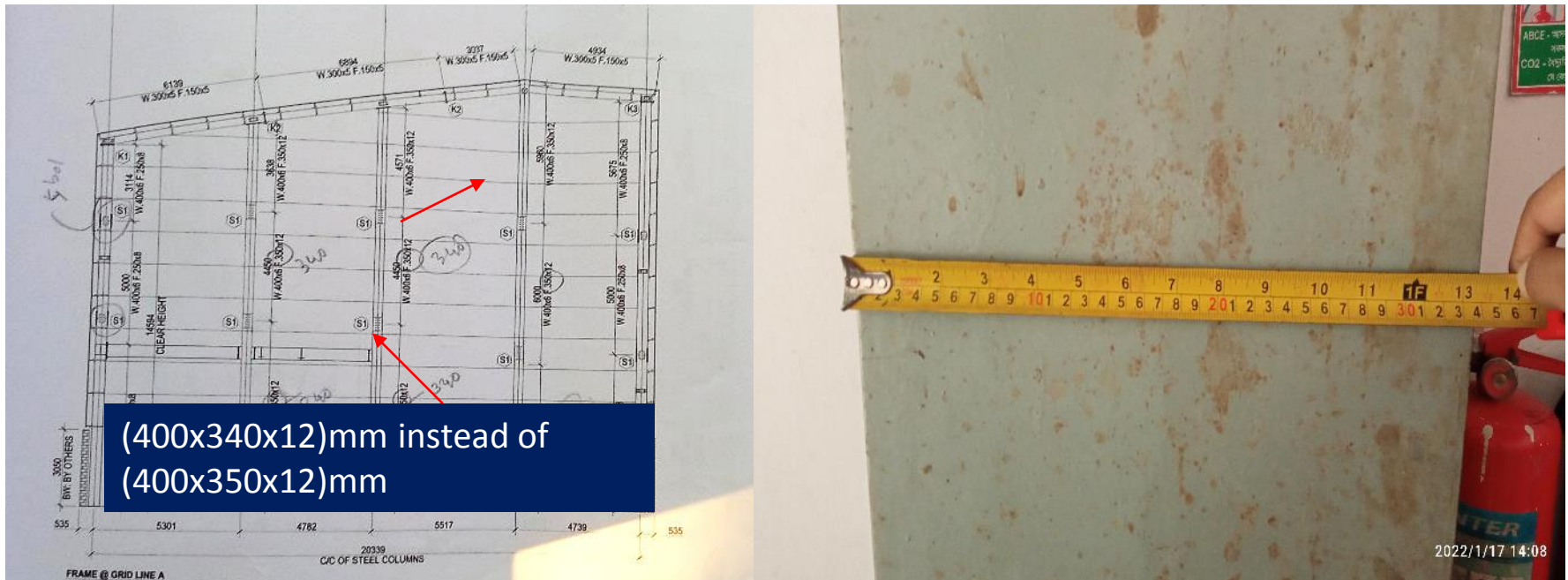
Loose bolts and connection gaps in several locations were observed. The building is required check the structure to identify the loose bolts & connection gaps and take action to tighten up the loose bolts & fill up the connection gaps properly.

9 Observations: Central Store shed (Shed-6)

Discrepancies in as-built drawings & lack of details.



Mismatch in vertical bracing



(400x340x12)mm instead of (400x350x12)mm

Mismatch in column size

Column schedule, rafter schedule, compression strut details, some vertical bracing layout (Grid : 1-I to 15-O), steel stair details & some connection details are missing in steel part drawings. Mismatches were observed between drawings & existing condition. The building engineer is required to survey the structural components and produce accurate structural drawings.

Observations: Central Store shed (Shed-6)

Sign of rust in steel members.



Sign of rust on steel members

Signage of rust observed of different steel members. Building engineer is required to provide rust proofing to these steel members.

Problems Observed

- 1: Missing lateral load transfer media (compression strut) on roof.
- 2: Soil bearing capacity consideration in DEA report & foundation adequacy check.
- 3: Significant gaps in connection & loose bolts.
- 4: Discrepancies in as-built drawings & lack of details.
- 5: Sign of rust in steel members.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Missing lateral load transfer media (compression strut) on roof.	As a part of Engineering Assessment (EA), the building engineer is required to update compression strut location in structural drawing & check the stability of the structure and suggest necessary remedial actions.	6-weeks
02	Missing lateral load transfer media (compression strut) on roof.	Carry out remedial works as the EA.	6-weeks
03	Soil bearing capacity consideration in DEA report & foundation adequacy check.	Building engineer required to consider geotechnical investigation report close vicinity of the structure, determine actual soil bearing capacity and check the foundation adequacy accordingly.	6-months
04	Soil bearing capacity consideration in DEA report & foundation adequacy check.	Implement any remedial works from the design report.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
05	Significant gaps in connection & loose bolts.	The building is required check the structure to identify the loose bolts & connection gaps and take action to tighten up the loose bolts & fill up the connection gaps properly.	6-weeks
06	Discrepancies in as-built drawings & lack of details.	Building engineer to survey the structure and prepare accurate as-built structural drawings.	6-weeks
07	Sign of rust in steel members.	Apply rust proof coating to the steel members.	6-months