

Time Sweater Limited

Kutubail, Katherpul, Fatullah, Narayanganj, Dhaka, Bangladesh

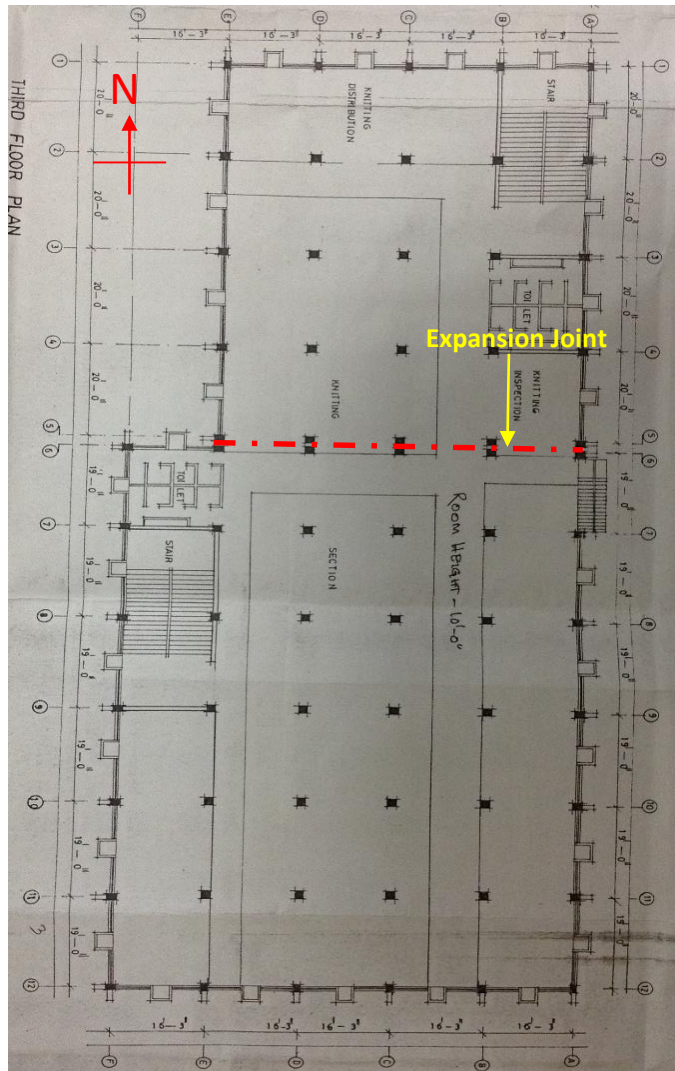
(23.644126N, 90.489626E)

Survey Date: 13th April 2015



Observations

High Column Stress



High Column Stress:

Columns at Ground and First floor levels throughout the building appear to be stressed to levels that are in excess of recommended values.

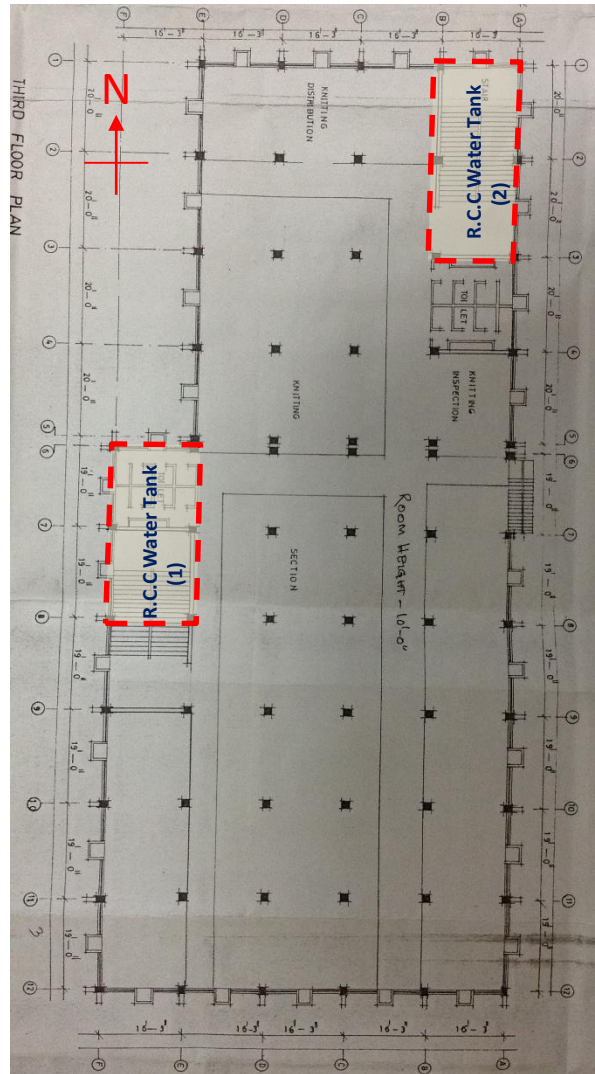
Columns in areas under water tanks and under toilets appear to be very highly stressed.

Immediate actions are required as noted in the Priority Actions section of this report to reduce the column stresses

Observation – High column stress

Water tanks at roof level

Water tanks at Roof Level



Architectural Permit Drawing



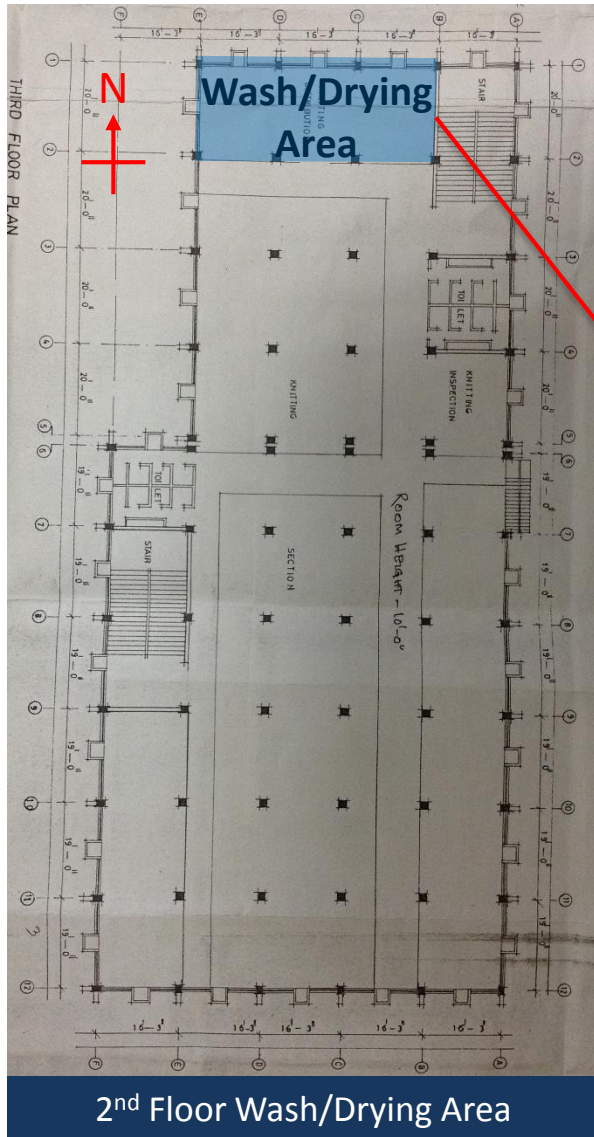
65,000 Litre R.C Water tank (1)



65,000 Litre R.C Water tank (2)

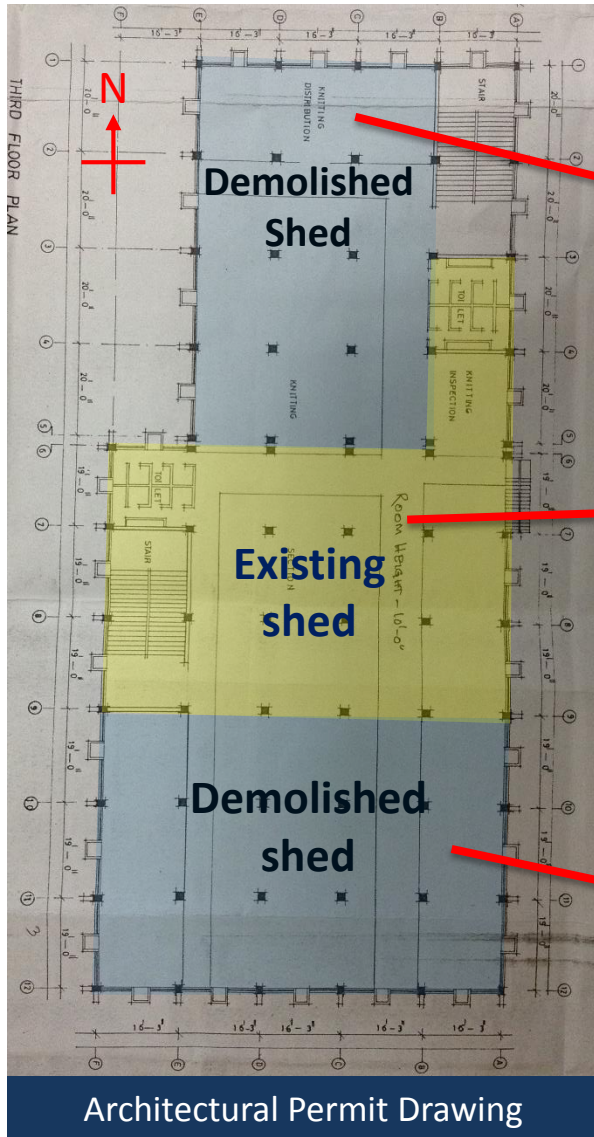
Washing and drying Area on 2nd Floor

230mm solid build-up



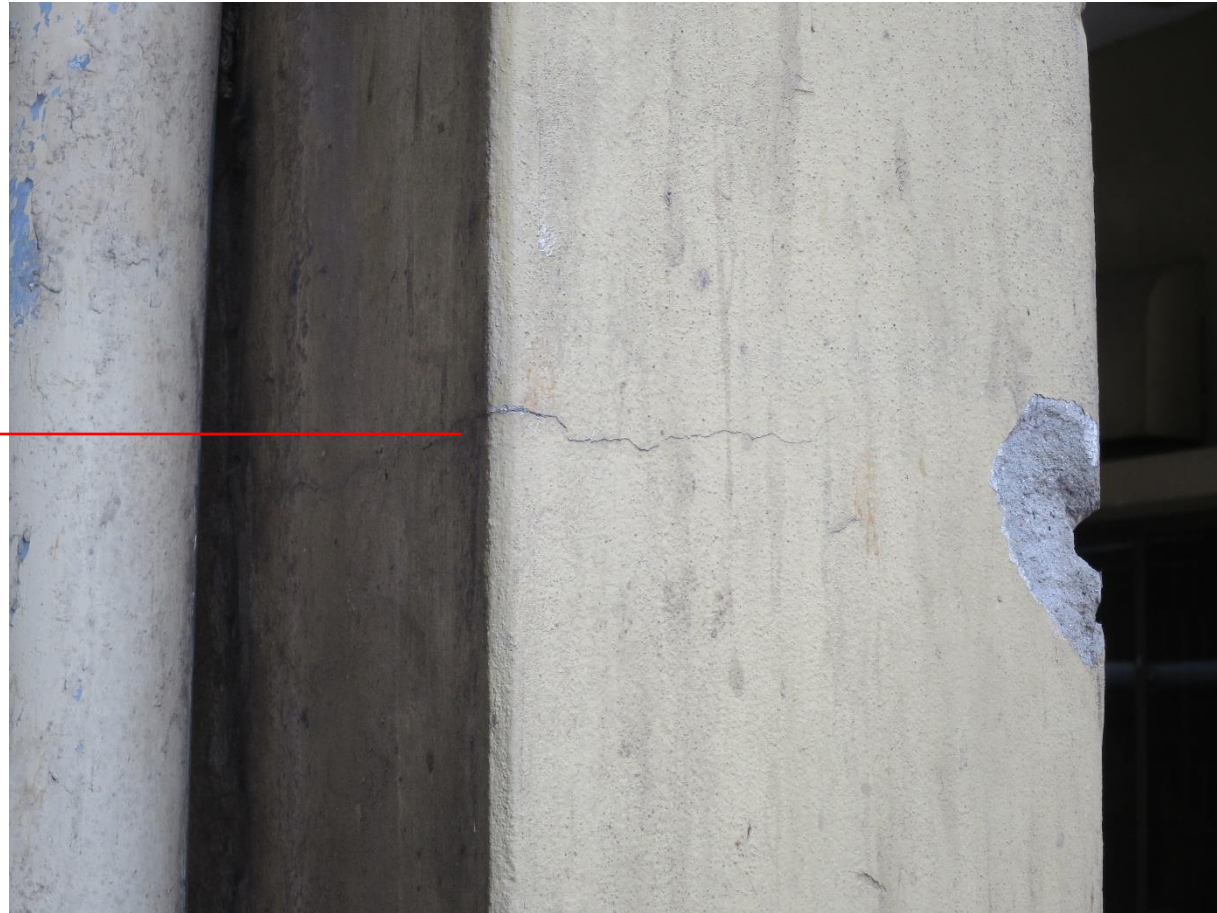
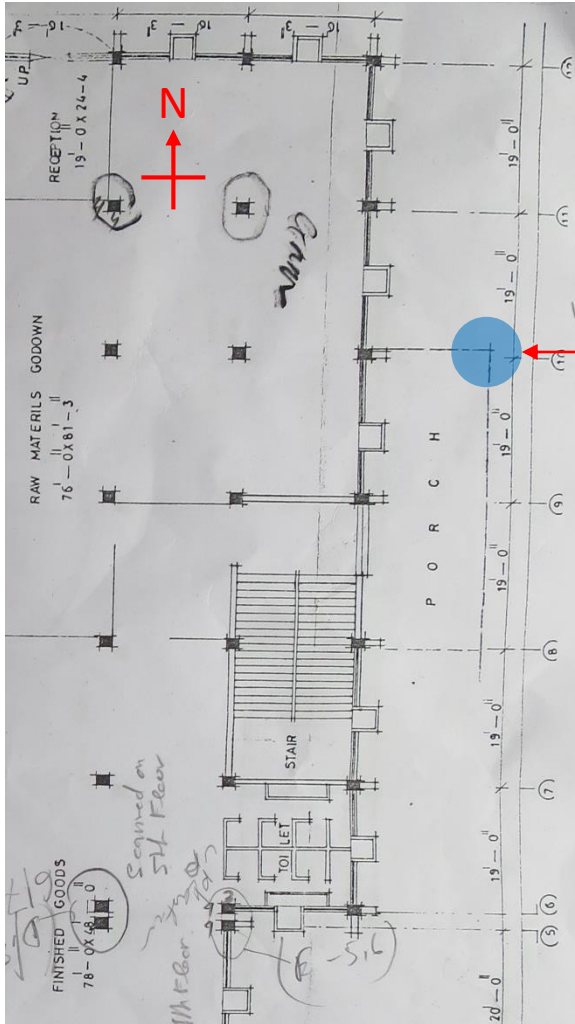
Partially Demolished construction at roof level

Shed at roof level is partially demolished



Cracking in column at porch

Cracked Column at Porch (G-10)



Apparently non engineered roof structures to Dining and Boiler House Buildings



Dining Shed

Boiler House Shed



Priority Action

Problems Observed

Building 1

ITEM 1: High Column stress

ITEM 2: Water tanks at Roof Level

ITEM 3: Raised Floor at Washing and drying Area on 2nd Floor

ITEM 4: Removal of partially demolished construction at roof level

ITEM 5: Cracked Column at Porch (G-10) on Ground Floor level

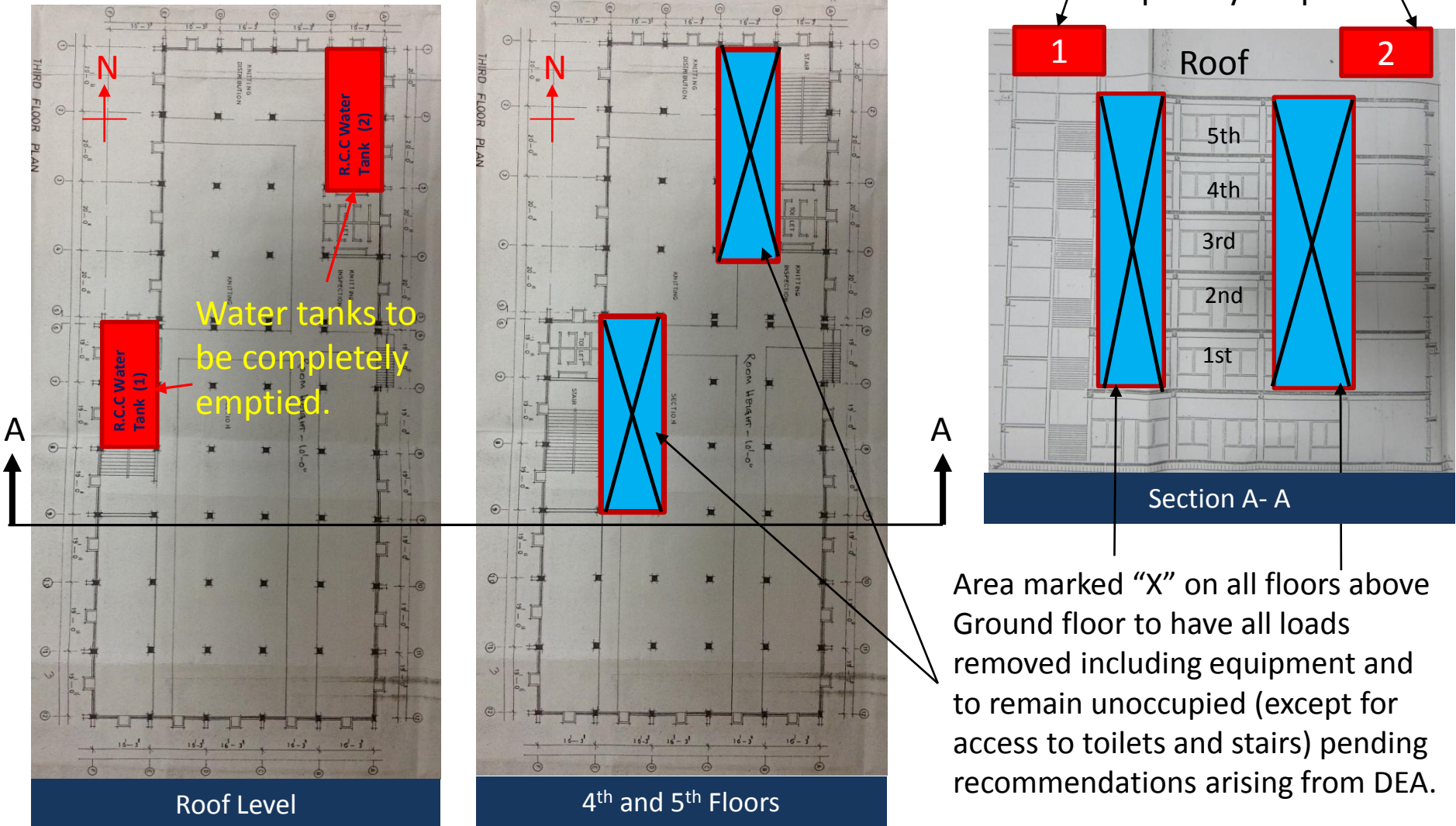
Dining and Utility Buildings

ITEM 6: Apparently Non-engineered Steel Sheds

Building 1

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	High Column stress Water tanks at Roof Level	Empty Water tanks on roof. Provide isolated small plastic water tanks distributed in the roof area as directed by the Factory Engineer.	Immediate - Now
2	High Column stress Water tanks at Roof Level	Remove dead and live loading on all floors as noted on next page.	Immediate - Now
3	High Column stress Water tanks at Roof Level	Factory Engineer to review design, loads and columns stresses in all areas.	Immediate - Now
4	High Column stress Water tanks at Roof Level	Factory Engineer to determine reinforcement in ground level columns immediately	Immediate - Now
5	High Column stress Water tanks at Roof Level	Verify insitu concrete strengths by taking a minimum of 4 no. 100mm diameter cores from columns at ground floor	Immediate - Now
6	High Column stress Water tanks at Roof Level	A Detail Engineering Assessment of Factory to be commenced, see attached Scope	Immediate - Now
7	High Column stress Water tanks at Roof Level	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.	6-weeks
8	High Column stress Water tanks at Roof Level	Detail Engineering Assessment to be completed	6-weeks

Immediate actions required



Detail Engineering Assessment

This Schedule develops a minimum level of information, Analysis and testing expected as part of a Detail Engineering Assessment.

The Building(s) have been visually assessed and it is deemed necessary that a detailed engineering assessment be carried out by a competent Engineering Team employed by the factory Owner.

This Request should be read in conjunction with the BUET developed Tripartite Guideline document for Assessment of Structural Integrity of Existing RMG Factory Buildings in Bangladesh (Tripartite Document), the latest version of this document should be referenced. This document also gives guidance on required competency of Engineering Team.

We expect that the following will be carried out:

1. Development of Full Engineering As-Built Drawings showing Structure, loading, elements, dimensions , levels, foundations and framing on Plan, Section and Elevation drawings .
2. The Engineering team are to carry out supporting calculations with a model based design check to assess the safety and serviceability of the building against loading as set out in BNBC-2006, Lower rate provisions can be applied in accordance with the Tripartite Guidelines following international engineering practice, justification for these lower rate provisions must be made.
3. A geotechnical Report describing ground conditions and commenting on foundation systems used/proposed.
4. A report on Engineering tests carried out to justify material strengths and reinforcement content in all key elements studied.
5. Detailed load plans shall be prepared for each level showing current and potential future loading with all key equipment items shown with associated loads.
6. The Engineering team will prepare an assessment report that covers the following:
 - As-Built drawings including
 - Plans at each level calling up and dimensioning all structural components
 - Cross sectional drawings showing structural beams, slabs, floor to floor heights, roof build-ups and Basic design information of the structure
 - Highlight any variation between As-built compared to the designed structure
 - Results of testing for strength and materials
 - Results of geotechnical assessment and testing/investigation
 - Details of loading, inputs and results of computer modelling
 - Commentary on adequacy/inadequacy of elements of the structure
 - Schedule of any required retrofitting required for safety or performance of Structure

Any proposals for Retrofitting to follow guidance developed in the Tripartite Document

Item No.	Observation	Recommended Action Plan	Recommended Timeline
9	Raised Floor at Washing and drying Area on 2nd Floor	As part of the Detailed Engineering assessment (see Item1) Factory Engineer to verify that the 2nd floor slab and beams can safely carry the superimposed dead load resulting from raised floor build-up (circa 230mm) along with all other dead and imposed loads.	6-weeks
10	Raised Floor at Washing and drying Area on 2nd Floor	Carry out any remedial actions as directed by the Factory Engineer.	6-weeks
11	Removal of partially demolished construction at roof level	Factory Engineer to ensure all remaining walls and steel roof construction at roof level are demolished and removed.	6-weeks
12	Cracked Column at Porch (G-10) on Ground Floor	As part of the Detailed Engineering Assessment (see Item 1) Factory Engineer to assess structural capacity of existing cracked column under Porch (G-10) and recommend replace/repair as necessary, if required.	6-weeks
13	Cracked Column at Porch (G-10) on Ground Floor	Carry out any remedial actions as directed by the Factory Engineer.	6-weeks

Dining and Utility Buildings

Item No.	Observation	Recommended Action Plan	Recommended Timeline
14	Apparently Non-Engineered Steel Sheds (Dining and Boiler House Buildings)	Factory Engineer to review design and construction of apparently non-engineered steel sheds in Dining and Boiler House buildings.	6-months
15	Apparently Non-Engineered Steel Sheds (Dining and Boiler House Buildings)	Carry out any remedial works as directed by the Factory Engineer.	6-months