

KA Design Limited

Vill: Boro Beraid, P/O: Boro Beraid, P/S-Badda, Dhaka-1212, Bangladesh
(23.795195N, 90.467832E)

3rd August 2016

Client Summary report

Observations & Actions





Observations



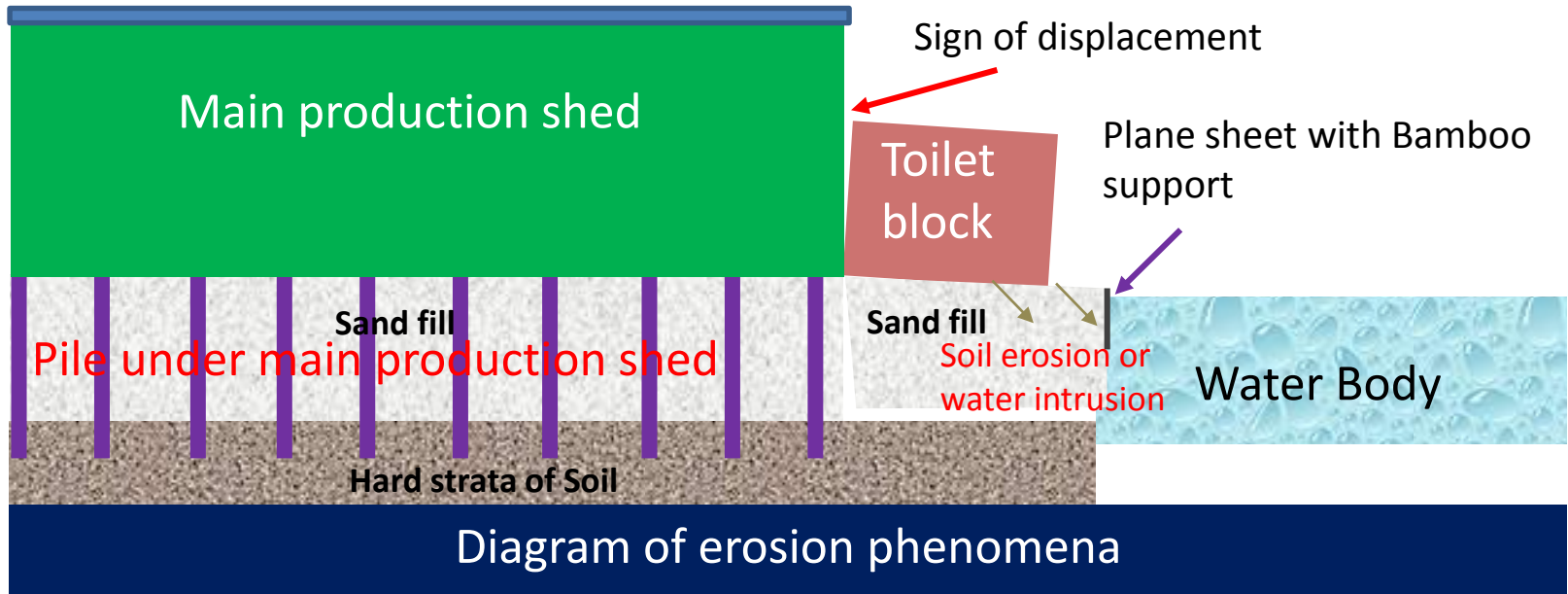
Displacement of toilet block attached with Main Production Shed at west

Observation : Main Production Shed



Toilet area settle down and displaced from its actual position

Observation : Main Production Shed



The factory was built in moorland by sand filling. The Factory buildings are surrounded by Water body. At west side it is too close, almost 6-7 feet away from toilet block shown in figure. The main production shed built with pile foundation but the toilet block has none. The protection of soil fringe is not sufficient so that soil erosion or water intrusion may occur. By this toilet block is continuously settling down and sign of displacement and continuous repair work was visible during inspection.

Observation : Main Production Shed



Poor steel joint connection at roof in toilet block

Observation : Main Production Shed



Sagged steel rafter



Purlins are not properly connected with steel rafter

Rafters are welded with steel bar which anchored in brick wall.



Joint with production shed



Heavy load found on Mezzanine floor at West

Observation : Main Production Shed



Material stacked to ceiling within storage areas at east side mezzanine floor.



3 nos of plastic water tank found at north-west corner on mezzanine floor .

Observation : Main Production Shed

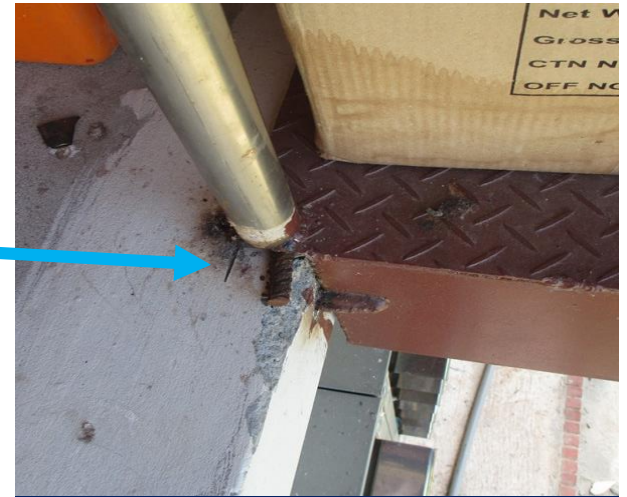


Apparently Non-engineered steel stair attached with north façade wall

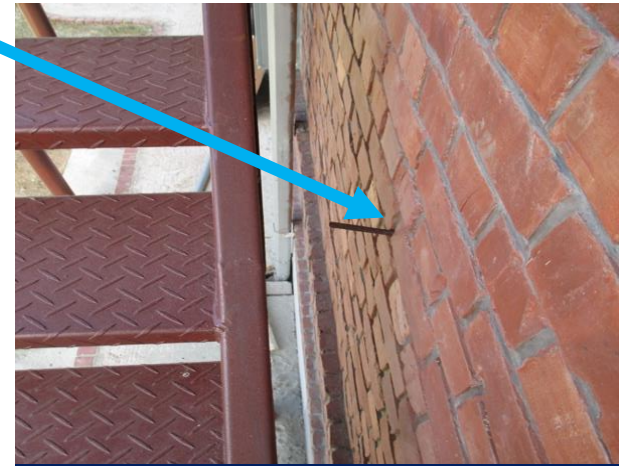
Observation : Main Production Shed



Non-engineered steel stair at north



Poorly connected with façade wall



No connected with façade wall

Observation : Main Production Shed

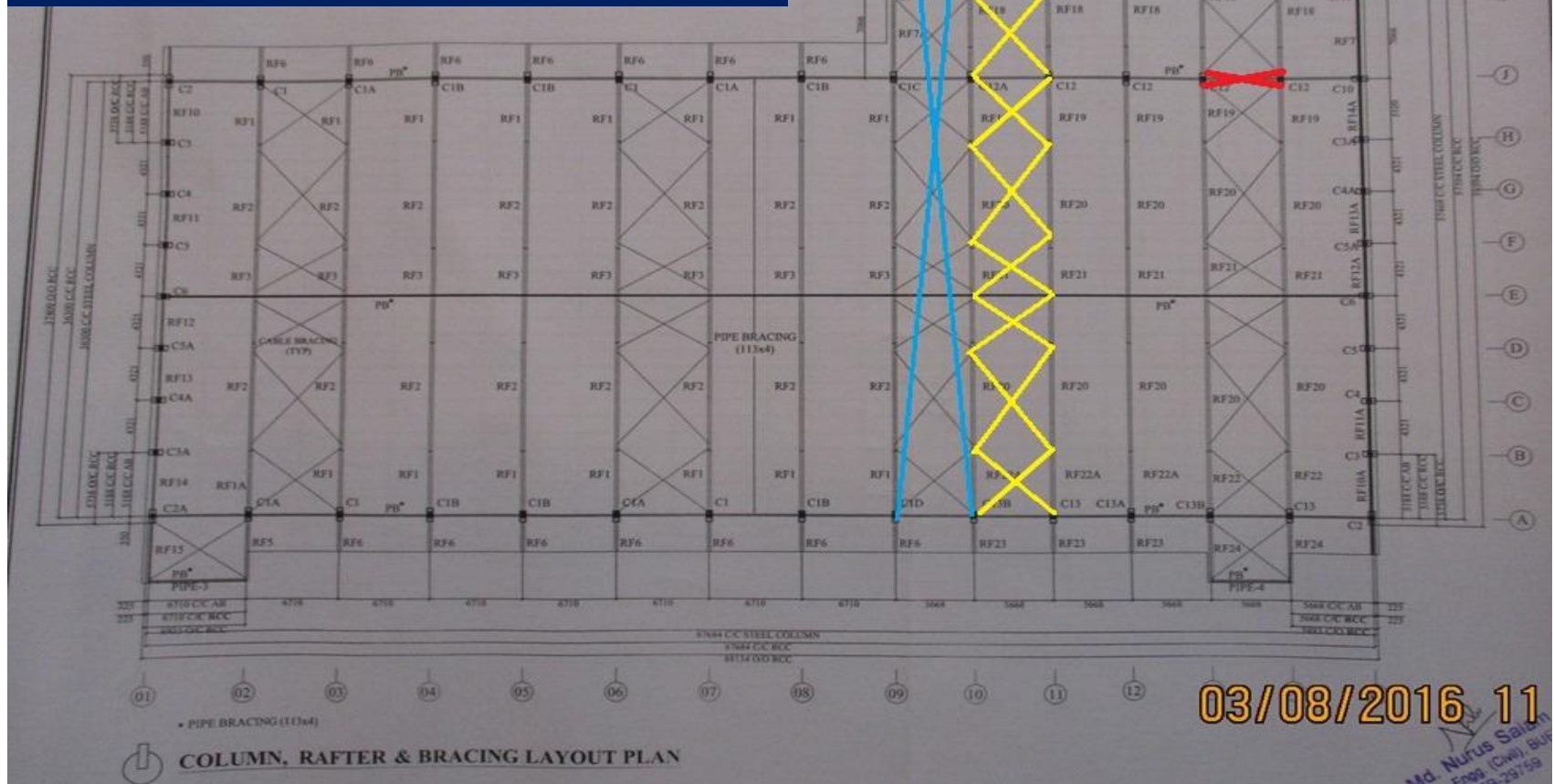


Discrepancies between Structural drawings and site observations

Observation : Main Production Shed



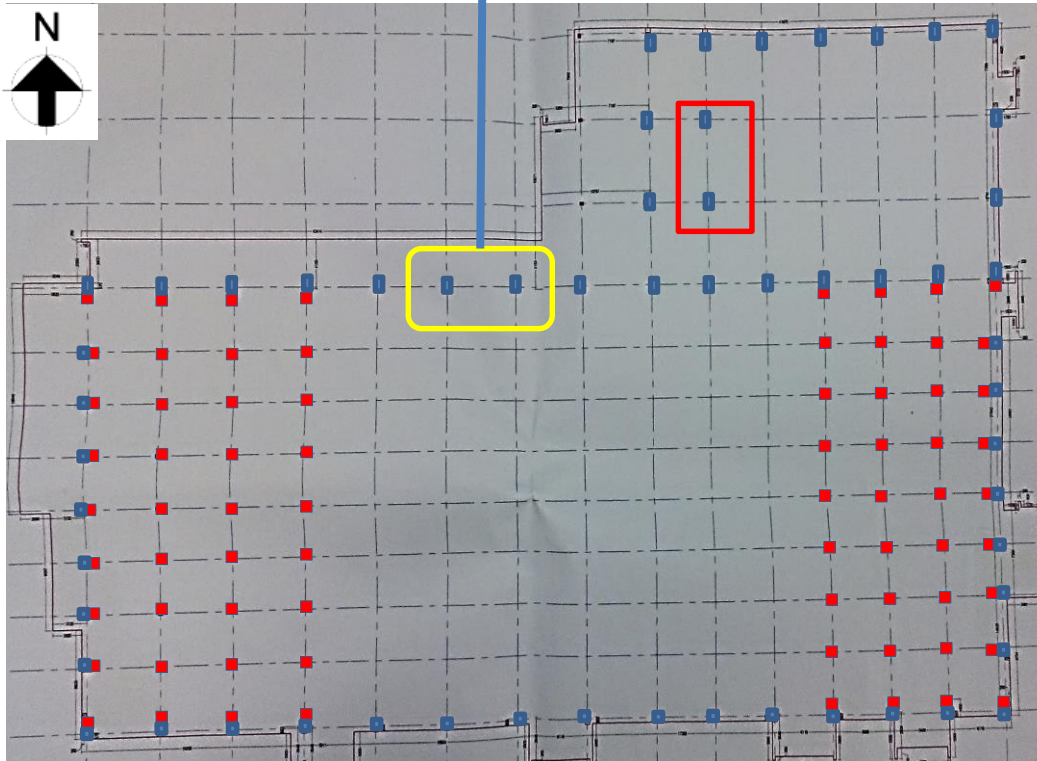
Bracings in between grid 9-10 are not installed according to drawing. Practically that bracing were found in between grid 10-11. One vertical bracing missing shown in red at drawing.

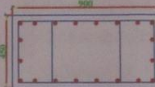
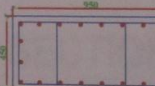
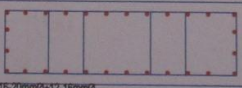
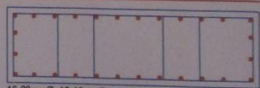


Observation : Main Production Shed

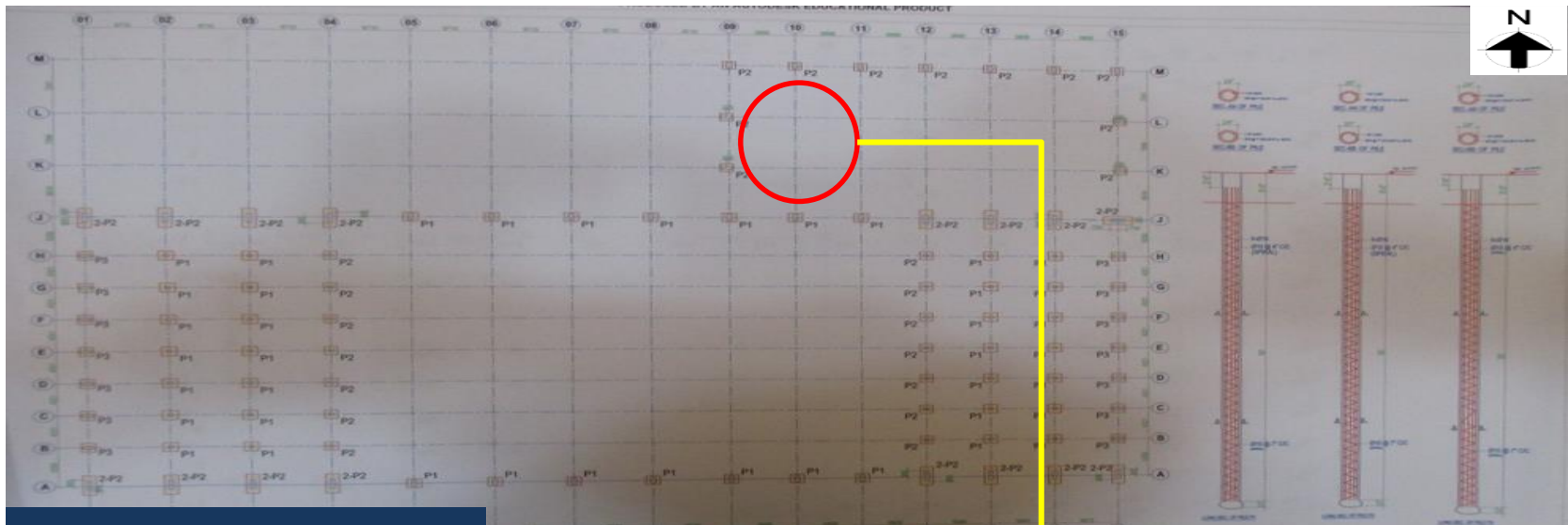


Column schedule for mezzanine floor didn't matched fully. C2, C3 & C4 columns are not exist upper Ground floor. Indicated columns in red box are not shown in column layout or foundation layout.



Column Schedule		
Column Size	Below Grade Beam	Ground floor to 1st floor
C1-300x375	 8-16mm@ 10mm@ @200 c/c	 8-16mm@ 10mm@ @200 c/c
C1A-300x450	 10-16mm@ 10mm@ @200 c/c	 10-16mm@ 10mm@ @200 c/c
C2-450x900	 20-16mm@ 10mm@ @200 c/c	 20-16mm@ 10mm@ @200 c/c
C3-450x900	 20-16mm@ 10mm@ @200 c/c	 20-16mm@ 10mm@ @200 c/c
C4-450x1500	 15-20mm@+12-16mm@ 10mm@ @200 c/c	 15-20mm@+12-16mm@ 10mm@ @200 c/c

Observation : Main Production Shed



No foundation or support system is defined or mentioned for the extra columns which found in indicated portion.

Foundation Layout plan



Column Layout plan

Observation : Main Production Shed



Corrosion on base plate and column joint

Observation : Main Production Shed



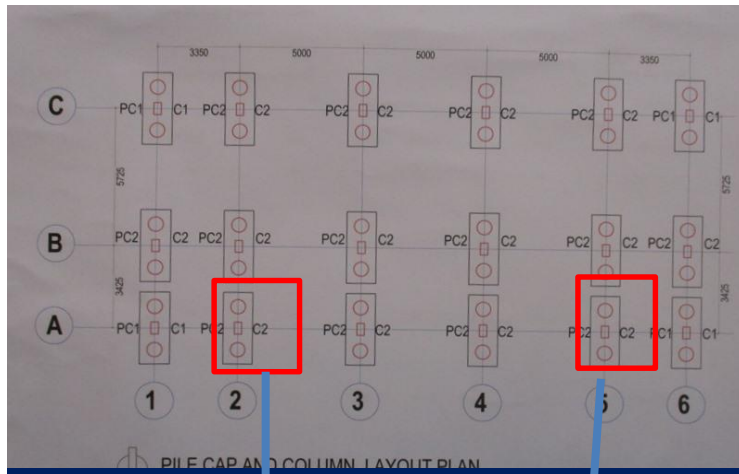
Corrosion observed on several base plate and column joint in main production shed

Observation : Main Production Shed



Inadequate information on structural drawing

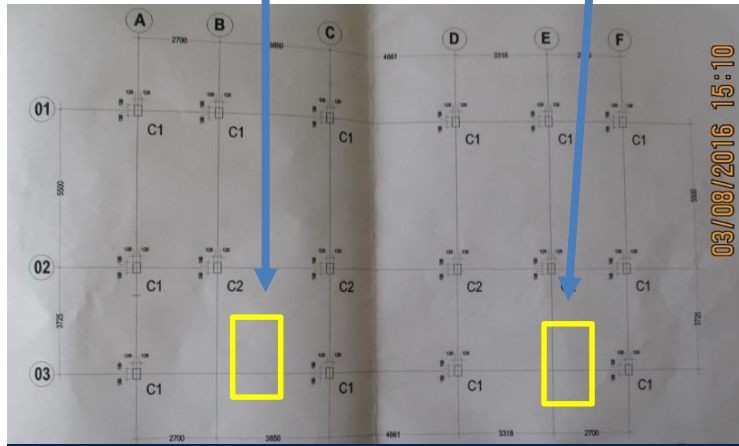
Observation : Dining Building



Structural drawing



Column size measured 425X300 & 4x3 nos of rebar found



Provided column layout (Two columns are not shown)

COLUMN SCHEDULE		
COLUMN SIZE	BELOW GB	GL TO 1 ST FLOOR
C1-10"X15"		
C2-10"X15"		

Provided column schedule

Column Schedule is missing on structural drawing. Provided column layout & schedule didn't match with as built condition. Column size & number of rebar didn't match.

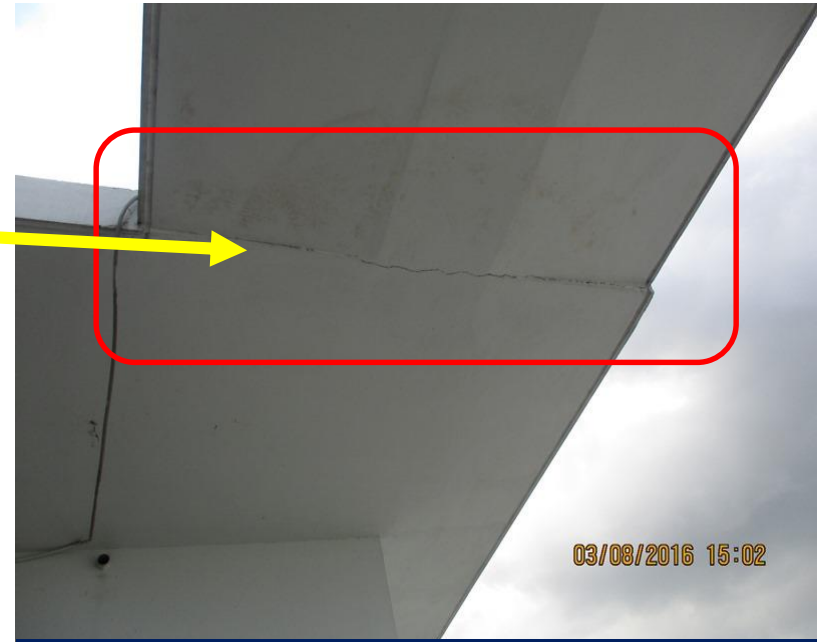
Observation : Dining Building



RC slab at roof and an expansion joint found at top of Dining Building. No detail information was found in structural drawing.



RC slab at roof



Expansion joint at roof slab

Observation : Dining Building



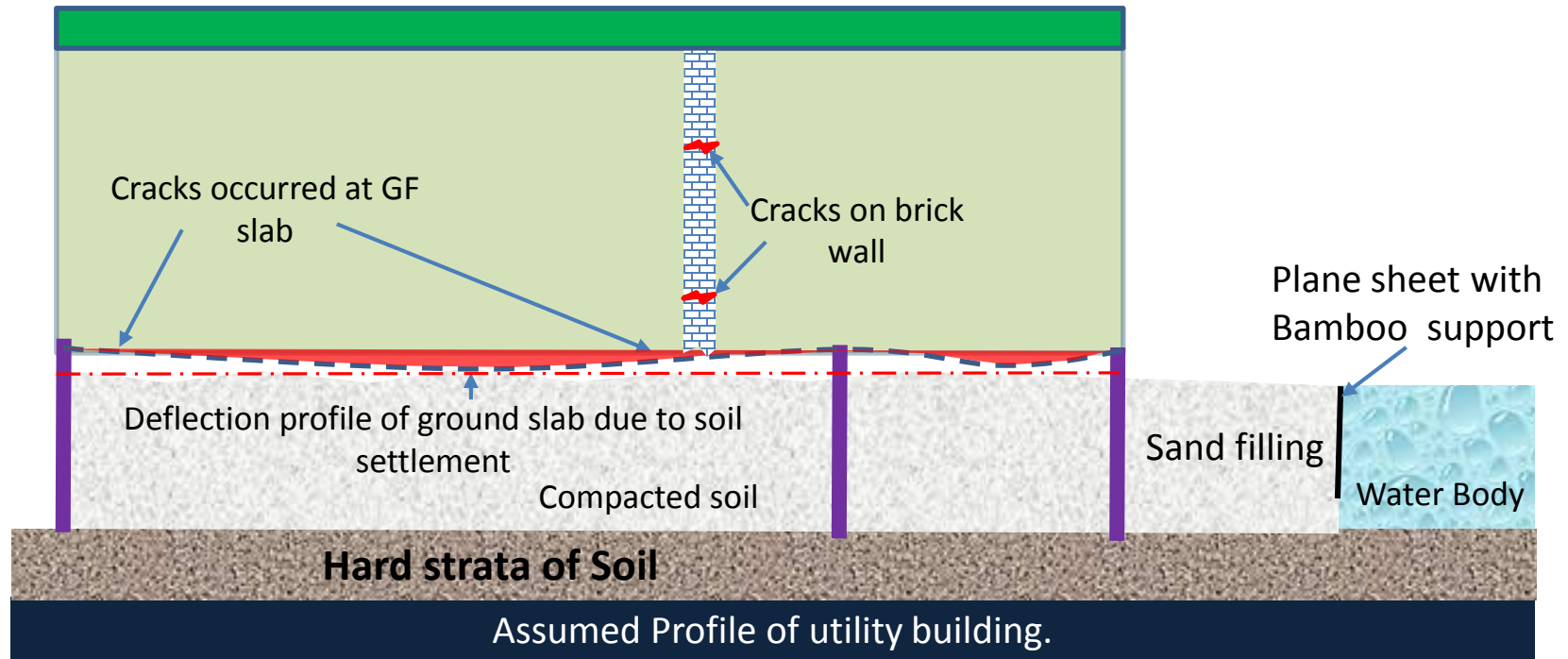
Cracks on ground floor slab and Brick walls due to soil settlement

Observation : Utility Building

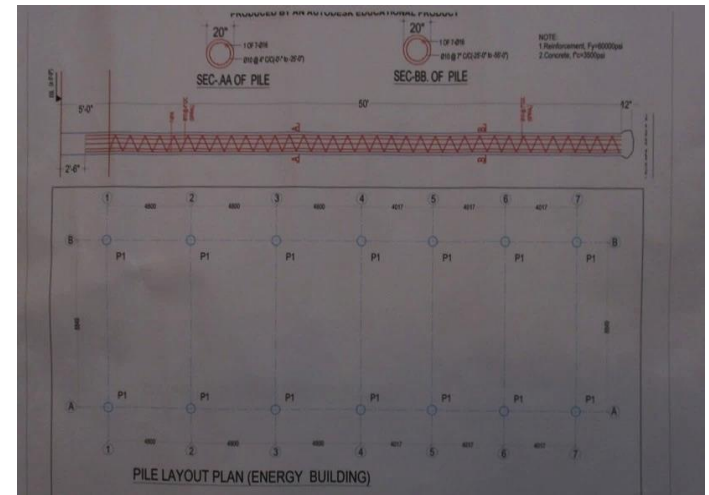


Ground floor has settled down and visible cracks observed on floor and partition wall

Observation : Utility Building



The Utility Building was built with pile foundation. The gap between two piles are almost 9m. There is no clear information about GF slab in structural drawing. GF floor may be made of brick soling. Though the building built in a moorland by sand filling and water body is very close to the building so that soil erosion or water intrusion can easily occur. By this soils are settling down and visible cracks on GF floor slab & brick wall were observed.



Observation : Utility Building



Unsupported Brick wall inside utility building

Observation : Utility Building



Unsupported 10" Brick wall observed



Loose bonding with column

Observation : Utility Building



No Lintel found at opening (Main Production Shed & Utility Building)

Observation



No lintel at the opening of east side mezzanine floor.



Brick wall found under beam without having lintel at Ground floor exit.

Observation : Main Production Shed



No lintel was found at the exit point and door opening at Utility Building

Observation : Utility Building



Problems Observed

Main Production Shed

- Item 1: Displacement of toilet block attached with Main Production Shed at west
- Item 2: Poor steel joint connection at roof in toilet block
- Item 3: Heavy load found on Mezzanine floor at West
- Item 4: Apparently Non-engineered steel stair attached with north façade wall
- Item 5: Discrepancies between Structural drawings and site observations
- Item 6: Corrosion on base plate and column joint

Dining Building

- Item 7: Inadequate information on structural drawing

Utility Building

- Item 8: Cracks on ground floor slab and Brick walls due to soil settlement
- Item 9: Unsupported Brick wall inside utility building
- Item 10: No Lintel found at opening (Main Production Shed & Utility Building)



Item No	Observation	Recommended action plan	Recommended timeline
1	Displacement of toilet block attached with Main Production Shed at west	Qualified Structural Engineer to investigate cause of settlement and displacement and suggest necessary remediation.	6 Weeks
2	Displacement of toilet block attached with Main Production Shed at west	Remedial works to be carried out.	6 Month
3	Poor steel joint connection at roof in toilet block	Qualified Structural Engineer to investigate the connection of steel joint and suggest necessary remediation.	6 Weeks
4	Poor steel joint connection at roof in toilet block	Remedial works to be carried out.	6 Month
5	Heavy load found on Mezzanine floor at West	Produce and actively manage a loading plan for all elevated floor plates for all buildings within the factory complex giving consideration to floor capacity and column capacity.	6 Month
6	Heavy load found on Mezzanine floor at West	Continue to implement load plan	6 Month



Item No	Observation	Recommended action plan	Recommended timeline
7	Apparently Non-engineered steel stair attached with façade wall at North	Factory engineer to review design and check the adequacy of connections of the lightweight fire escape stair under evacuation loading, and make any necessary alterations	6 Weeks
8	Apparently Non-engineered steel stair attached with façade wall at North	Remedial works to be carried out.	6 Month
9	Discrepancies between Structural drawings and site observations	Engage an Engineer to produce an “as constructed” drawings which reflect the actual site dimensions with complete structural information's.	6 Weeks
10	Discrepancies between Structural drawings and site observations	Factory Engineer to review design and columns stresses for as constructed condition.	6 Month
11	Discrepancies between Structural drawings and site observations	Remedial works to be carried out.	6 Month
12	Corrosion on Steel column base plate.	Building Engineer to identify areas of corrosion on the steel frame & base plate.	6 Month
13	Corrosion on Steel column base plate	Building Engineer to issue a schedule of remedial works for corrosion protection.	6 Weeks



Item No	Observation	Recommended action plan	Recommended timeline
14	Corrosion on Steel column base plate	Remedial works to be carried out.	6 Month
15	Inadequate information on structural drawing	Building Engineer to survey as constructed building and prepare a set of as-built drawings.	6 Weeks
16	Cracks on ground floor slab and Brick walls due to soil settlement	The Factory Engineer to check the stability system of the structure for the settlement.	6 Weeks
17	Cracks on ground floor slab and Brick walls due to soil settlement	Check the stability of unsupported wall	6 Weeks
18	Cracks on ground floor slab and Brick walls due to soil settlement	Remedial works to be carried out.	6 Month
19	No lintel found at opening (Main production shed & Utility Building)	Restore lintel beam or any other system that can take the loads from brick wall.	6 Weeks
20	No lintel found at opening (Main production shed & Utility Building)	Remedial works to be carried out.	6 Month