

Erosion and subsidence prevention at AS007 (BRDH) auxiliary seismic station for sustainable operation and maintenance

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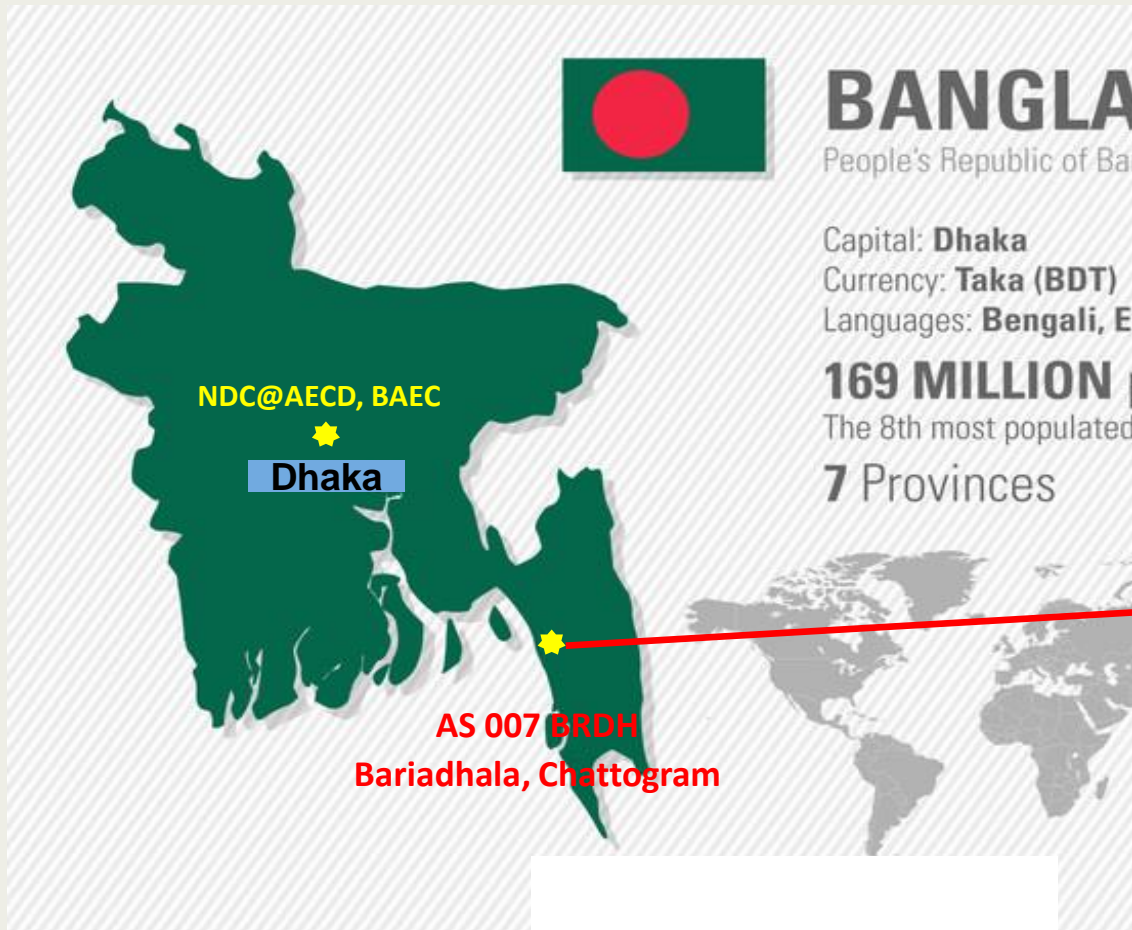
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IMS at BANGLADESH





AS007, BRDH BARIYADHALA, CHATTOGRAM



Station Details-

Station Name: **BRDH**

Technology: **Auxiliary Station (AS)**

Treaty Number: **AS007**

Location: Bariadhala, Chattogram

Country: **Bangladesh**

Latitude: **22.7 N**

Longitude: **91.6 E**

Located: **In a reserve forest**

Approx. 22m (70ft) above ground



HISTORY OF TECHNICAL COOPERATION FROM CTBTO

Year	Achievements
2004	The station site was selected at Bariadhala, Chattogram
2005	The selected land was handed over to BAEC
2007-2009	ToR preparation for site preparation and construction, installation support, initial testing and finalization of the implementation procedure of the station
2010	Site preparation, construction of the seismic station.
2011	Installation of solar panel, GCI equipment and seismic equipment and transmission of seismic data started..
3 rd Feb, 2011	Transmission of seismic data started..
8 th Dec, 2011	The station has been accredited as an internationally certified.
2017	Up-gradation with the installation of advanced GCI system.
2023	The new PrioComp system is set up.
2025	Repair works for erosion and subsidence prevention



Improvement of the seismic vault area



RCC work with epoxy cement and water proofing admixture

EROSION AND SUBSIDENCE AT AS007



- Lowering of floor Cracks first observed during 2021-22.
- Appeared from north-western corner of the building, continued at the entire west wall.
- In two years, the fracture width became more than 2 cm
- Distance of cracks from Seismometer- 7-8 feet

Inside the station building



EROSION AND SUBSIDENCE AT AS007



- Cracks under the vault platform
- Fracture width at south side of vault- 1.8 cm
- Fracture at east side of vault- 1 cm
- Distance of cracks from Seismometer- 7-8 feet

Cracks of 0.5-1mm were first seen on Aug'24 at the vault structure

Inside the station building



EROSION AND SUBSIDENCE AT AS007



Cracks of more than 3 cm formed at outside of the building, only 3 feet from the solar panel, and 10 feet from Vsat.



East side of the station building shows subsidence and cracks of nearly 2 cm have formed.



Outside of the station building



EROSION AND SUBSIDENCE AT AS007



Erosion of surrounding soils of the hillock where the station is build is very much evident. Due to the erosion, subsidence and cracks of the station building were happening.



EROSION AND SUBSIDENCE PREVENTION ACTIVITIES

- ✓ The problem was first discussed during an un-official visit to CTBTO during May 2023.
- ✓ A Problem Report (PR) of the IRS was opened (IRS-175612) on 06 June 2023.
- ✓ Upon agreement with CTBTO, BAEC prepared an estimate about the repair works to be done.
- ✓ CTBIO sent a 'REQLIEST FOR QUOTATION (RFQ)' (CTBTO Ref. No.: 2A24-0155/Maeda, Dated: 02 Sep,2024.
- ✓ The Work Order (No. CIBTO-A1/2A24-2025, Dated: 23.01.2025) given to the recommended Contractor Minimac International)
- ✓ The repair work of IMS Station AS007 started on 26th January, 2025 and completed by 1st week of July, 2025.



EROSION AND SUBSIDENCE PREVENTION ACTIVITIES



Inside floor

Dismantling the existing structure as per requirement, such as R.C.C work, Floor Tiles, Brick work, Cement Plaster etc.



EROSION AND SUBSIDENCE PREVENTION ACTIVITIES



Building base at outside location

Dismantling the existing structure as per requirement, such as R.C.C work, Floor Tiles, Brick work, Cement Plaster etc.



EROSION AND SUBSIDENCE PREVENTION ACTIVITIES



Near to the boundary wall



Outside floor



Dismantling the existing structure as per requirement, such as R.C.C work, Floor Tiles, Brick work, Cement Plaster etc.





EROSION AND SUBSIDENCE PREVENTION ACTIVITIES



Safety canopy



EROSION AND SUBSIDENCE PREVENTION ACTIVITIES



Earth work in excavation in all kinds of soil for foundation trenches



EROSION AND SUBSIDENCE PREVENTION ACTIVITIES

RCC Work for retaining wall, floor, slab, rain water discharge channel



EROSION AND SUBSIDENCE PREVENTION ACTIVITIES

RCC Work for retaining wall, floor, slab, rain water discharge channel





EROSION AND SUBSIDENCE PREVENTION ACTIVITIES

Supplying, fitting and fixing of floor tiles, wall tiles and pavement tiles



EROSION AND SUBSIDENCE PREVENTION ACTIVITIES

Brick, cement, paint works



EROSION AND SUBSIDENCE PREVENTION ACTIVITIES



Roller blind, Repairing & Cleaning Existing Aluminium Window



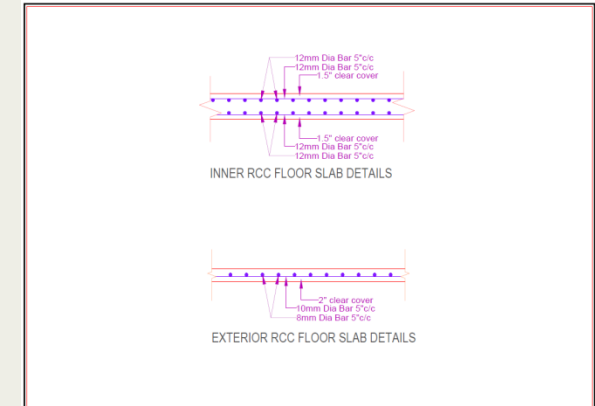
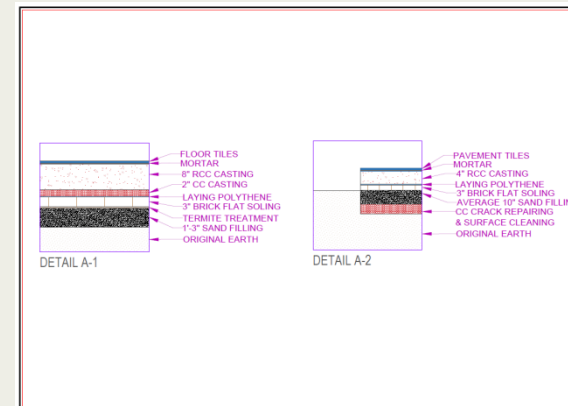
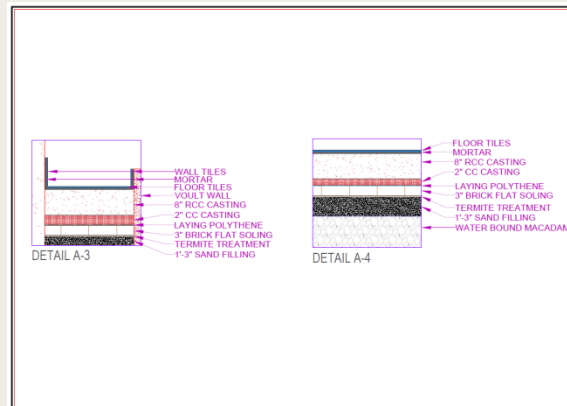
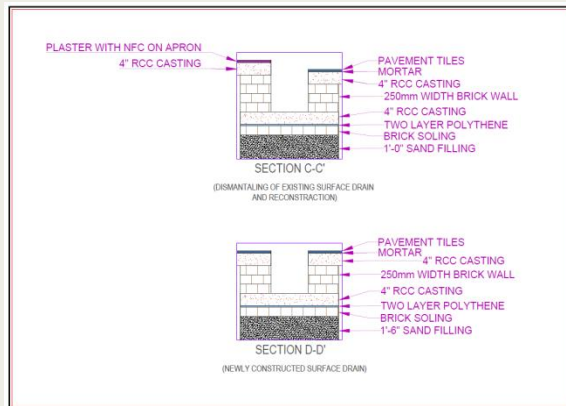
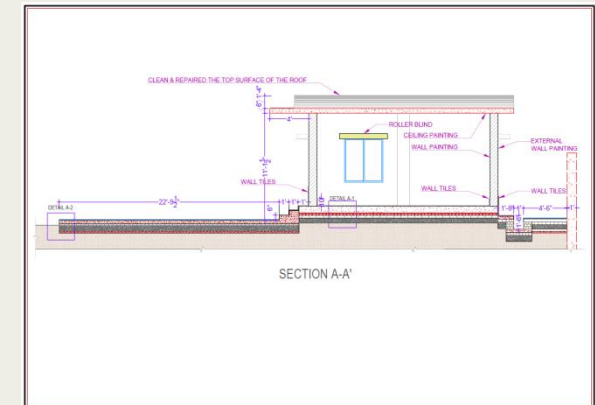
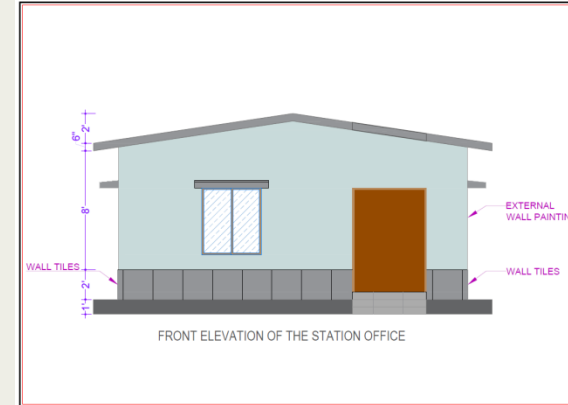
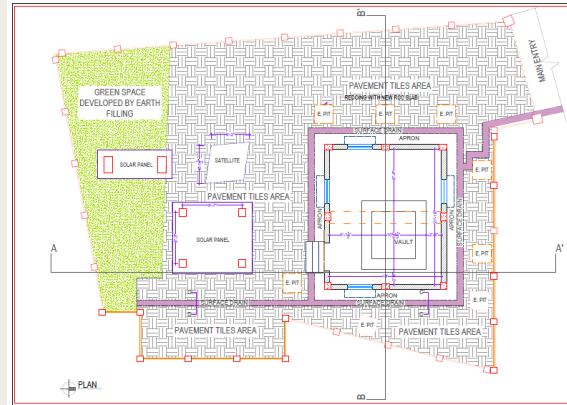
Electrical Work



AS BUILT DRAWING

AS BUILT DRAWING
for the
"Infrastructure Repair at IMS Station AS007"
at Baroiyadhala, Sitakund, Bangladesh.

Client
Comprehensive Nuclear Test-Ban Treaty Organization
under supervision of
Bangladesh Atomic Energy Commission



EROSION AND SUBSIDENCE PREVENTION ACTIVITIES



Barbed wire fencing; Broken pillars (above) for fencing were replaced by new ones (*by BAEC funding*)

Repaired and painted security fencing



EROSION AND SUBSIDENCE PREVENTION ACTIVITIES (By BAEC funding)



Plantation surrounding the hill in cooperation with the Department of Forest



AS007 BRDH: TRANSFORMATION



**We are the International Monitoring Station
Verification, Today, Tomorrow, Together**





Thank you CTBTO!
Thank you European Union!



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