

## **ABDC – ASSIUT BARRAGE DEVELOPMENT CONSULTANTS**

**LI Lahmeyer International**  
Consulting Engineers  
Germany

**Artelia**  
Eau & Environnement  
France

**RMD Consult**  
Consultants  
Germany

in Association with Arab Consulting Engineers, and Madkour Group, Egypt

Site Office  
EFNAB JV Facilities Area  
El Fath, Assiut, Egypt

Tel No.: +(20) 88 240 1070  
Fax No.: +(20) 88 240 0023  
E-mail: abdc.assiut@yahoo.com

---

### **To whom it may concern**

Between November 2012 and April 2017 Bauer Egypt ("**Bauer**"), a subsidiary of the German international specialist foundation company Bauer Spezialtiefbau GmbH, constructed inter alia the temporary sealing elements at the New Assiut Barrage and Hydro Power Plant in Egypt.

The Employers for the project were the Ministry of Water Resources & Irrigation and the Ministry of Electricity and Energy, Egypt. As the Employer's Representative for the project, Lahmeyer International GmbH ("**Lahmeyer**") as a member of the Joint Venture 'ABDC – ASSIUT BARRAGE DEVELOPMENT CONSULTANTS' supervised all construction work carried out by Bauer. Lahmeyer is one of the leading international consulting engineering companies.

The New Assiut Barrage is a damming structure across the Nile near the city of Assiut in Upper Egypt (approximately 400 km south of Cairo). The old existing barrage was constructed between 1898 and 1903 across the Nile, about 560 km downstream of the Aswan Dam. Between 2000 and 2005, the Egyptian government commissioned an extended feasibility study financed by the German government to investigate the options of either rehabilitation or replacement of the existing Assiut Barrage and rehabilitation of the associated Ibrahimeya Canal Head Regulator. The new barrage will include a low head hydropower plant. Based on the results of the feasibility study the decision was made to proceed with the project of constructing a new dam structure approximately 300-400 m downstream of the existing dam.

At the beginning of the project, Bauer successfully constructed the temporary vertical sealing element enclosing the construction pit of the New Assiut Barrage and Power Plant in the River Nile, Egypt. This construction work was executed in accordance with the design and specifications, and under the supervision of Lahmeyer.

To meet the required schedule, the foundation contractor was required to work under difficult conditions and under a tight schedule. The work carried out by Bauer, predominantly single-phase cut-off wall and other ancillary works, was fully executed and complete within the required 3 month construction schedule in accordance with the required specifications.

The staff of Bauer conducted themselves, always, in an exemplary manner – they demonstrated technical competence, flexibility and professional integrity. The equipment of Bauer proved very reliable and of high international standards. The materials used, and mix designs implemented to construct the cut-off wall all of which were provided and designed Bauer respectively were of high quality and satisfied all contractual and international standards.

## Particulars of the Work by Bauer

Scope of work: Excavation and construction of a single-phase ring cut-off wall in the River Nile with a length of 1,600m enclosing an area of 173,000 m<sup>2</sup>.  
Cut-off wall type: Single phase, cement-bentonite self-hardening slurry  
Construction method: Continuous fresh – in – fresh.  
Cut-off wall depth: 38 m  
Cut-off wall area: 58,632 m<sup>2</sup>  
Type of soil: Sands, silts and gravel  
Construction time: 22.11.2012 – 21.02.2013

Within the dry excavation pit of the temporary ring dam Bauer then constructed the additional works:

- 18,242 m<sup>2</sup> D-Wall as foundation piers, with depths up to 23 m and 0.8 m thickness as a foundation to allow construction of the barrage piers with low settlement
- 28,931 m<sup>2</sup> Double Phase Slurry Cut-off Wall with varying depths between 20 m and 30 m and a thickness of 0.8 m underneath the new barrage and the adjoining fill areas for river closure
- 6.380 I-m Bored Piles for pile walls
- Installation of 30 No.s offshore deep wells

Bauer's early involvement in the project and their cost-effective solutions provided a high degree of confidence in the Employer that Bauer's approach was appropriate and the right solution, and Contractor, for the project. Bauer delivered well above the expectations and requirements of the Employer and the Employer's Representative, Lahmeyer International as a member of a Joint Venture 'ABDC – ASSIUT BARRAGE DEVELOPMENT CONSULTANTS'.

Bauer's communication and cooperation with the Employer and the Employer's Representative in the preparation of appropriate slurry and concrete mixes throughout all stages of the work was a significant key point of the success.


Bauer reacted flexibly when faced with design changes and contributed in a professional way to further design improvements based on their extensive experience acquired in similar projects executed by Bauer internationally.

Bauer fully complied with the tight schedules and reacted proactively and flexibly on any changes. Bauer had a key role in providing a dry construction pit on schedule that remained dry and fit for purpose through all project stages. A permeability of less than  $1 \times 10^{-8}$  m/s clearly demonstrated the functionality of the wall and proved it was constructed with the highest quality of construction.


The project has fully retained its serviceability regarding maintaining the required permeability till date.

BAUER's professional approach towards Health Safety Environment (HSE) concern was also excellent and were delivered according to the high international standards required by the Contract.

Based on its experience with Bauer on this project as noted above, the 'Reservoirs and Grand Barrages Sector' (RGSB) highly recommends the company Bauer Spezialtiefbau GmbH and its' Egyptian subsidiary, Bauer Egypt as a reliable, experienced and competent foundation contractor.

  
Lutz Roemer  
CRE/PM



  
4.2.2018  
Employer Resident Engineer  
Eng. Magdy Abass Ibrahim