Axiom Water Technologies Pty Ltd
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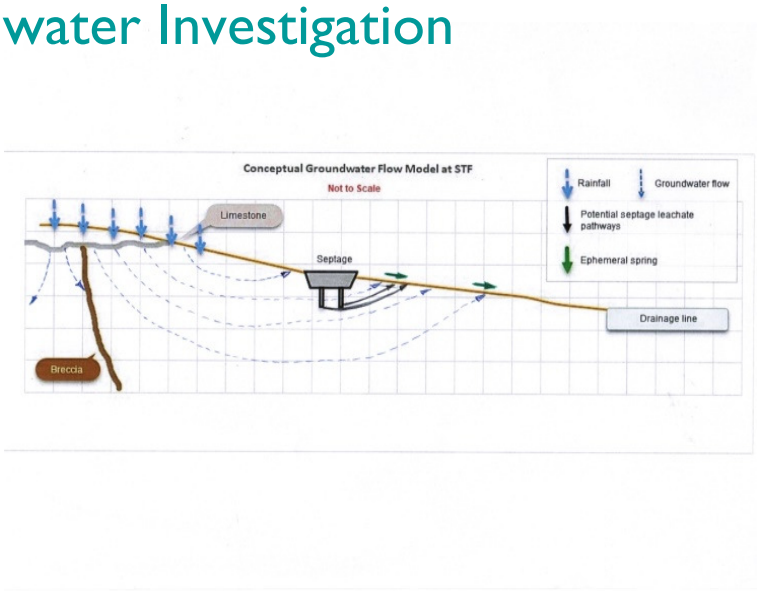
Project Sheet
Bouffa STF Groundwater Investigation



Project
Combined hydrogeological assessment and surface water quality investigation around the new Bouffa Septage Treatment Facility (STF).

Client
Asian Development Bank / Vanuatu Project Management Unit.

Location
Port Vila (Vanuatu).

Date
November to December 2018.

Background
The Asian Development Bank (ADB) and Australian Department of Foreign Affairs and Trade (DFAT) co-funded the Port Vila Urban Development Project (PVUDP). This project was delivered by the Vanuatu Project Management Unit (VPMU) as the Implementing Agency (IA).

One of the objectives of the PVUDP was to improve sanitation (septage) management for Port Vila. This led to the construction of a Septage Treatment Facility (STF) at Bouffa in 2017. The STF is designed to accept tanker loads of sewage/septage waste. It consists of two facultative lagoons each with a tanker discharge point, a lagoon decanting system and an infiltration basin. There was very little geotechnical information available for the STF site and no hydrogeological investigation had been performed prior to design and construction of the lagoons.

The aims of the Groundwater Investigation Project were to:

a) Establish a surface water quality monitoring program (WQMP) for the waters down gradient of the STF to monitor for potential impacts from infiltration to groundwater at the STF.

b) Investigate the feasibility of establishing groundwater monitoring bores for surveillance of infiltration from the STF lagoons.

c) If suitable drilling targets were identified, propose drilling locations and depths for surveillance bores for future construction.

d) Incorporate the proposed surveillance bores into the WQMP for future monitoring by the Vanuatu Department of Water Resources (DoWR) staff.

Services Provided
Staff from Axiom, our specialist hydrogeology sub-consultants undertook the work at site. Staff from Vanuatu DoWR and Department of Geology and Mines were actively consulted and encouraged to participate in the fieldwork and data evaluation.

Geophysical traverses were performed using a Geometrics G857 Magnetometer and a Frequency Domain EM System (FDEM-8) were undertaken in and around the STF site. Geological, geophysical, and local context information was used to prepare a Conceptual Groundwater Model for the STF site and surrounds.

There was no evidence found of a permanent groundwater aquifer under the STF site. There are structural features (faults) crossing the site which may

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provide a groundwater seepage pathway. Further, based on the geology at the site and the on-site assessments, the Project Team concluded that there is a significant risk of off-site movement of contaminated groundwater.

Local surface water monitoring results suggest potential contamination of a groundwater spring immediately down-gradient of the STF. Further monitoring and investigation is required to confirm this finding.

The project provided conclusions regarding the site hydrogeological characteristics, recommendations for placement and configuration of surveillance bores, proposed monitoring regime and future work at the site including a hydro-chemical tracer study. Future scope will present opportunities for increased capacity building of ni-Vanuatu geologists, engineers and scientists as part of the work program.

For more information please contact:

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