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Olifants Management Model Programme

Process Automation Infrastructure Services for Badirammogo Water User Association

REQUEST FOR INFORMATION

Process Automation Infrastructure Services & Specifications (Eastern Limb)

Closing Date: 12pm, 27 November 2026
(tenders@bwua.org.za)

Version Number: 4.0
27 October 2026



List of Abbreviations

C&I	Control and Instrumentation
BWUA	Badirammogo Water User Association
HMI	Human Machine Interface
NDA	Non-Disclosure Agreement
OEM	Original Equipment Manufacturers
OMM Programme	Olifants Management Model Programme
PAS	Process Automation System
PLC	Programmable Logic Controller
RFI	Request for Information
SCADA	Supervisory Control and Data Acquisition
SE2	Southern Extension 2
TBC	To Be Confirmed

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1. Background

The Badirammogo Water User Association (BWUA), previously known as Lebalelo Water User Association (LWUA), is a Water User Association established in terms of Section 92(1)(a) of the National Water Act in terms of a notice published in Government Gazette No. 89/23053. BWUA is acting on behalf of the Olifants Management Model (OMM) Programme, being a fully transformed entity (Purchaser) and is thus mandated to invite prospective service providers to submit all the documents requested in the Request for Information (RFI).

BWUA's bulk raw water infrastructure extends for approximately 110km through the Eastern Limb of the Bushveld Igneous Complex in the Sekhukhune District Municipality in Limpopo Province. It includes five (5) pump stations, two (2) standalone reservoirs, three (3) standalone dams and crosses through 105 communities. It's planned expansion through the Phase 2B & 2B+ project, which forms part of the greater OMM Programme, will double its pipeline in the Northern Limb, and add three (3) pump stations. The third tranche of planned expansion projects will add another 100km of pipeline and more pump stations that will triple BWUA's infrastructure and reach in the Limpopo Province

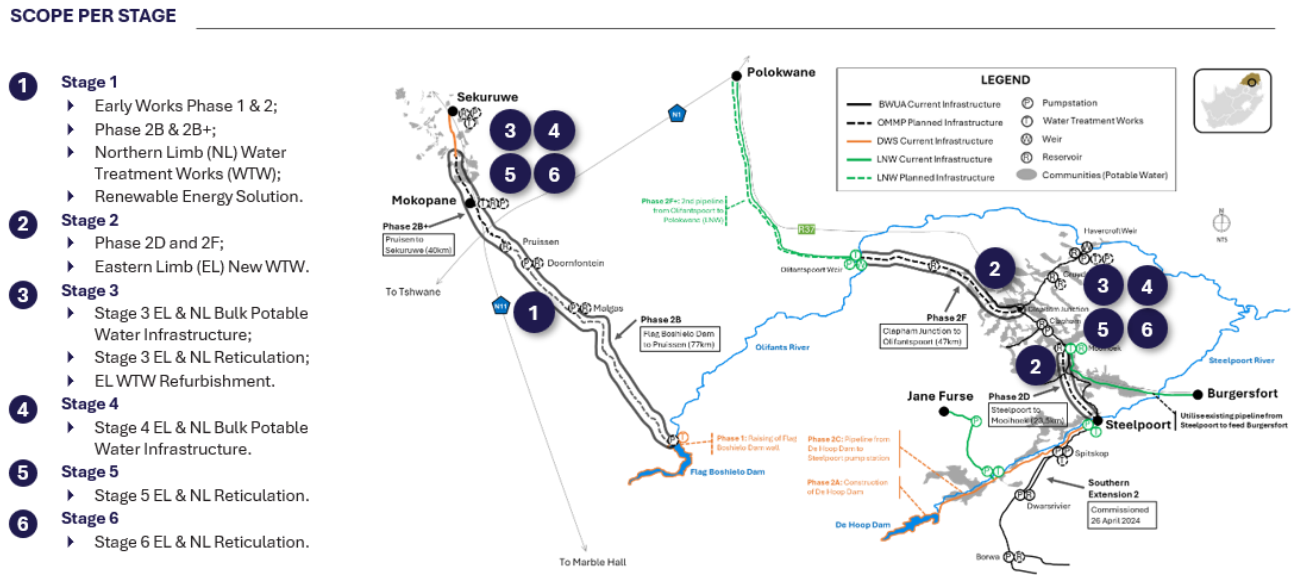
Most communities experience challenges, such as high unemployment, lack of skills and skills development opportunities, high secondary school dropout rates, high rates of HIV and AIDS, electricity supply issues, proximity of shops / food sources and sparse cell phone reception. BWUA understands that to deliver against its mandate it must prioritise the wellness of communities in its areas of operation. BWUA's plan is to leverage its significant asset base and technical expertise in the bulk raw water space to partner with Government, the commercial sector and other Water Services Authorities to help address the water needs of doorstep communities. Our goal is to catalyse the creation of game-changing businesses / initiatives to drive exponential socio-economic growth in the region.

1.1 The OMM Programme

The Olifants Management Model Programme (OMM Programme) is a R25 billion (capex) source-to-tap water infrastructure programme designed to address both social and commercial water requirements within the Middle Olifants Catchment. The programme represents an optimisation and refinement of the original Olifants River Water Resources Development Project (ORWRDP), with the objective of accelerating the delivery of reliable bulk raw and potable water infrastructure to communities, municipalities, mines, industry and other strategic users within the Sekhukhune District Municipality, Mogalakwena Local Municipality and associated regional supply areas. The programme is structured to optimise the use of existing regional water resources and infrastructure, including the De Hoop and Flag Boshielo Dams, while improving the resilience, flexibility and long-term operational sustainability of the overall supply system. The OMM Programme is mandated to complete the historic ORWRDP while expanding its scope to include the provision of potable water. The programme is being implemented through a 50:50 collaboration between Government and the private sector, founded on equitable contributions to both financing and decision-making – all key decisions are made by consensus between participating stakeholders.

The detailed scope for the OMM Programme is defined in the Full Business Case Report, which was completed in October 2024. The schematic overview showing the relative positions of the new infrastructure to be delivered under the Association's mandate, as well as key existing infrastructure pertinent to the OMM Programme, is presented in Figure 1 below.

Figure 1: OMM Programme Locality Plan



The provision of potable water to communities in the Eastern Limb will be made possible through new intermediary pump stations and new Water Treatment Works (WTW) near Havercroft, Steelpoort and Ga-Malekana, as well as through the upgrading of the Mooihoek, Steelpoort and Ga-Malekana WTWs, and reticulation up to a yard connection. A potable water connection between Steelpoort WTW (4Ml/day) and the existing Burgersfort pipeline from Mooihoek will be constructed. This approach will reduce current operating costs and make additional water available in the Mooihoek region for reticulation.

The provision of potable water to communities in the Northern Limb will be made possible through two new Water Treatment Works near Mokopane and Sekuruwe as well as reticulation up to a yard connection; the bulk raw water will be provided through Phase 2B & 2B+.

Pumping large volumes of water requires high amounts of energy. Up to 30% of the water tariff (excluding capital repayment) is made up of the electricity cost component. BWUA will be installing renewable energy solutions at all its pump stations, starting with the new ones in the Northern Limb. The bulk raw water network and associated pump stations in the Northern Limb are not close to any Eskom electricity supply network.

Providing access to the new pump stations using the Eskom electricity distribution network is costly and will not meet the required project or overall OMM Programme timelines. The Eastern Limb has access to Eskom grid connections with current pump stations operating fully on Eskom supplied electricity, however, Eskom is no longer reliable, with continuous load shedding and power failures experienced in the past couple of years. In addition, the unpredictable and high annual escalation in electricity tariffs has led BWUA to investigate and consider alternative and more reliable and predictable energy solutions.

1.2 BWUA Operations

BWUA is currently operating the following pump stations:

Table 1: Eastern Limb Pump Stations

Eastern Limb Pump Stations		Havercroft	Clapham	Spitskop (1&2)	Dwarsrivier	Borwa
Power Demand	MW	4.2	1.0	1.6	1.6	0.6
Nominal Flow Rate	L/s	1065	490	167	167	49

The Spitskop site has two pump stations within the a single site, namely Spitskop 1 and Spitskop 2. The max flow will be limited to 275 l/s for two new 355kW pumps.

As part of Phase 2B & 2B+, BWUA will be building the following new pump stations between 2026 and 2028:

Table 2: Northern Limb Pump Stations

Northern Limb Pump Station		Flag Boshielo	Malgas	Doornfontein
Pump Station load demand	MW	6.234	6.506	6.449
Nominal Flow Rate	L/s	2101	2101	2101

1.3 Oversight Programme

With the expansion of BWUA's infrastructure and operations, it is critical to ensure that all facilities can be monitored and controlled (as needed) on a consolidated display.

The BWUA infrastructure may be summarised by the following large facilities:

- Bulk raw water infrastructure including abstraction, pump stations, reservoirs and pipelines;
- Bulk potable water infrastructure (future) including reticulation and water treatment;
- 3rd party facilities (e.g. Lepelle's Steelpoort pumpstation, DWS Dams).

It is envisaged to construct a central control room that will gather data from the geographically dispersed sites and facilities and display the data in a manner that is useful to all stakeholders. To enable this consolidated control model, both the Northern and Eastern limb infrastructure must be suitably equipped - figures 2 and 3 below depict the proposed final infrastructure for the Northern and Eastern limbs under the OMMP Oversight Programme.

The Programme may be broken down into multiple phases which deal with evaluating and upgrading the various infrastructures; this document will focus on the first phase which addresses the Eastern Limb infrastructure – indicated in yellow on Figure 3.

Figure 2: Northern Limb Oversight Programme Infrastructure

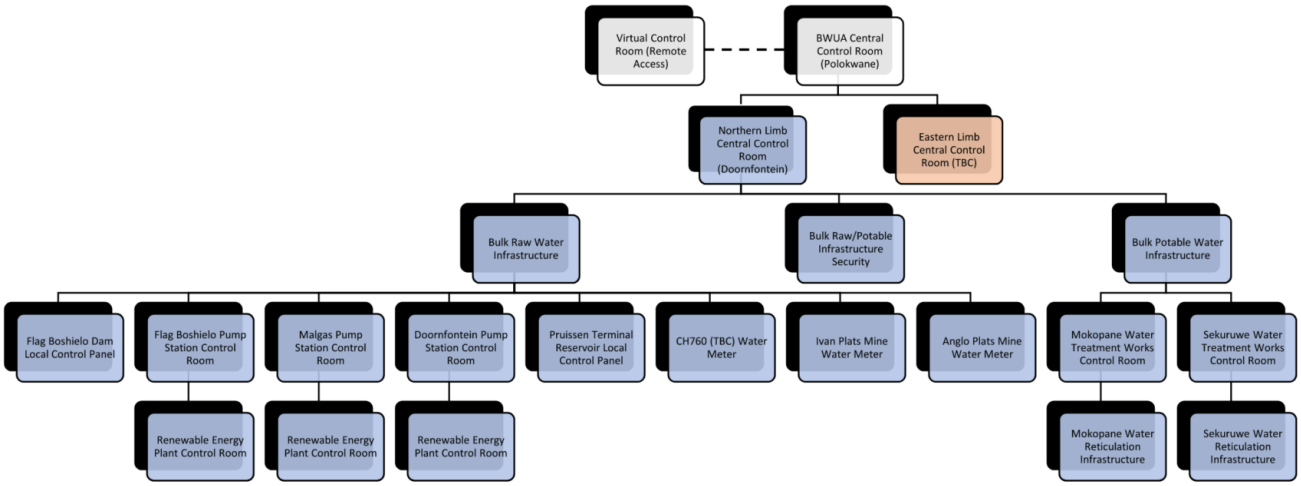
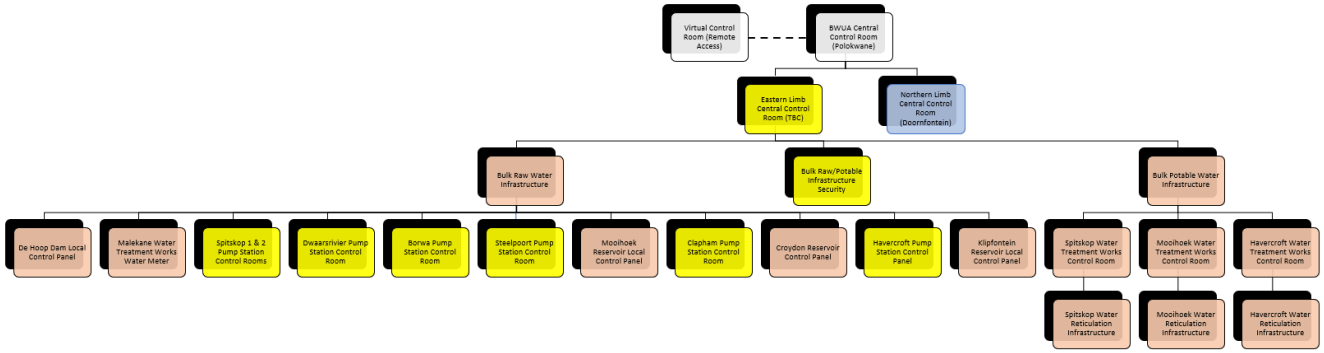


Figure 3: Eastern Limb Oversight Programme Infrastructure



2. Scope of Specialist Services

BWUA is looking for a Specialist in the Control & Instrumentation environment that can assist with evaluating and defining the needs and functionalities for SCADA systems, control systems, and control room infrastructure that will be able to monitor and control all its operations across the Eastern limb sites.

The scope of the specialist services includes, at the least, the following:

- Evaluate the existing hardware and software infrastructure at the various Eastern limb pump station sites and at the proposed eastern limb control room site (located at either Havercroft or Steelpoort pump station – TBC) which includes, but is not limited to:
  - Process automation system hardware, software, and network infrastructure both base layer i.e., PLCs and server layer i.e., engineering, historian, time, domain controller;
  - SCADA and HMI hardware, software and network infrastructure;
  - Communication and telemetry hardware, software and network infrastructure within the sites;
  - Business interface hardware, software and network infrastructure;
  - Security and access control hardware, software and network infrastructure;
  - Physical infrastructure, i.e., control room requirements, server room requirements, power requirements, etc.

- Provide an understanding of all the current limitations at the Eastern limb sites based on an infrastructure evaluation;
- Evaluate, and design fibre infrastructure required to enable communication between sites;
- Advise on the modifications and/or upgrades required to achieve fully functional, future-proofed, cyber-secure and integrated operations across all the Eastern limb sites;
- Design, with input from the relevant stakeholders, new operator interface graphics and SCADA which lend themselves to optimized, user-friendly dashboards and targeted overviews;
- Evaluate and stipulate the hardware and software requirements for the transmission and reception of data at each of the Eastern limb sites.

As a guideline for what we think is possible, we have captured references to the existing infrastructure requirements (or functionality) across the Eastern limb sites together with the potential optimization opportunities below, but we expect the service provider to perform a full evaluation and as-build in order to develop a hardware and software solution that meets our needs in a creative and intuitive manner.

3. System Functionality

Process Automation Systems (PAS) are designed to automate the control of large and complex processes. They are usually composed of a combination of digital and mechanical parts which, working together, capture, analyse, and act upon a higher volume of information faster than operations personnel could safely or effectively manage.
Monitoring and control systems are usually comprised of a combination of:

- Sensors;
- Network connections;
- Central computer systems;
- Human-machine interfaces; and
- Actuators, which are mechanical or electronic devices that take an action based on user or system feedback.

These systems are important for complying with a number of different industrial standards, such as ISO 9001. They are used across industries for a variety of functions including industrial automation, IT network security, public transit controls, patient monitoring in healthcare and physical asset management and distribution.

The central point of interaction for operations personnel with the PAS is via the SCADA and HMI contained within the control room, as such the control room and HMI should be suitably designed to equip personnel with the necessary tools to effectively manage operations across the various sites.

BWUA has identified the following core requirements for the Eastern limb PAS and Control Room:

1. Identification of deficiencies;
2. Improved reliability and a future-proof installation;
3. Optimised data representation and summary;
4. Improved standardisation across sites;
5. Improved system availability;
6. Improved cybersecurity;
7. Integration with the future Oversight Programme central control model (Figures 2 & 3);
8. Fibre communication infrastructure between sites.

3.1 Functional Needs

The PAS and control room infrastructure is critical for continuous operation and as such must be both robust and reliable. The service provider needs to consider the following when developing the proposed solution:

- Current BWUA hardware/software infrastructure;
- Network and system redundancy;
- Thorough as-build of the existing system infrastructure to accurately document the current installation;
- Power availability and redundancy (Uninterruptible Power Supply).

The selection criteria for the PAS supplier should ensure that the systems integrate across all sites tying back to both a local HMI on site and the overall SCADA within the control room. In addition to this, spares availability, local support, existing install base, and stakeholder preference should also be considered as part of the criteria.

The system should integrate with the currently installed loops in order to eliminate the need for re-wiring; I/O types and voltages of existing loops should be considered to ensure that the proposed solution integrates seamlessly into the existing installed infrastructure.

The selection criteria for the network supplier should be based on experience with long-distance communication links and should ensure system availability as the primary objective. Alignment is required between the network and PAS suppliers to ensure effective integration between systems. The existing site infrastructure includes microwave communications via a network of towers between the sites as well as satellite communications – the satellite connection method has proven unreliable and is therefore in the process of being phased out.

The selection criteria for the SCADA supplier should be based on experience with HMI design of water pipelines or similar processes so as to effectively and intuitively represent the operations across the Eastern limb sites. Alignment is required between the PAS, network, and SCADA suppliers to ensure integration with the PAS hardware and to provide a seamless experience both at the central control room and at the pump station HMIs. Input from stakeholders is critical for the development of interface graphics, therefore the supplier should be well versed in capturing and translating user requirements into a working design.

The selection criteria for the fibre infrastructure supplier should be based on experience with buried fibre installations including assessing terrain to determine the best possible route, managing the relevant legalities to enable the work, and demonstrating the necessary resources and tools to ensure successful completion of the work. Alignment is required between the PAS, network, and SCADA suppliers to ensure integration with the network nodes at each site.

Documentation across the various Eastern limb sites is scarce and the accuracy of said documentation is at times unreliable. A thorough investigation into the existing hardware, software, network, and loop infrastructure is necessary to form a reliable baseline upon which to develop the proposed solution. The selection criteria for as-building services should ensure that suitably qualified C&I personnel are utilised which will be able to correctly identify and accurately document the various equipment types and wiring configurations expected on site.

4. Deliverables

In reply to this RFI, we request that the Interested Party submit the following:

1. Company brochure and background documents;
2. CIDB Registration;
3. SARS Tax Clearance;
4. BBBEE Certificate;
5. Relevant experience;
6. Professional Registrations;
7. Bribery and Corruption Declaration;
8. Integrity Affidavit;
9. Financial Standing;
10. Experience: All projects in progress;
11. A Non-Disclosure Agreement (NDA) – The criteria for selecting a company is based on the company's know-how and intellectual property. We will protect the intellectual property by signing a reciprocal non-disclosure agreement with each company that is replying to the request for information. At least five examples of your experience and knowledge in respect of development and design of remote monitoring and control systems is required;
12. A list of 3rd party technologies, service providers and/or preferred OEM;
13. A typical architecture (see example of BWUA's architecture below);
14. Provide an organogram of proposed resources and qualifications (CVs).

If you are interested in submitting a response to this RFI, please return the signed NDA together with your contact details to tenders@bwua.org.za. A SharePoint site will be created to enable you to upload your response, with access limited to only your specified e-mail addresses. After the submission date, access to these SharePoint sites will be revoked.

To be considered for this RFI, please respond by no later than **12:00** on **27 November 2026**.

Figure 4: BWUA Reference Architecture

