CASTEEL/GA-JOSEFA DAM SAFETY REHABILITATION PROJECT

Proposed by: water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

BACKGROUND INFORMATION DOCUMENT (BID)
OCTOBER 2022

PURPOSE OF THE BID

Naledzi Environmental Consultants (Pty) Ltd has been appointed by the DWS SIAM (applicant), as the independent environmental assessment practitioner (EAP) to undertake the statutory Basic Assessment (BA) and public participation process for the project.

The purpose of the BID is to:

- Provide an overview of the project
- Brief any potential Interested and Affected Parties (I&APs) about the BA process that will be followed;
- Provide an opportunity to register as an I&AP;
- Allow registered I&APs the opportunity to submit comments on the project that may concern and/or interest them.
- Inform I&APs of the scheduled public meetings on 25 and 26 October 2022.

You can complete the attached registration form, write a letter, or call or email Naledzi if you wish to register for the project and submit any comments. You are also welcome to attend the scheduled public meeting.

Registrations and comments must be submitted on or before 15 November 2022.

REFER TO PAGE 8 FOR THE EAP CONTACT DETAILS

1. BACKGROUND

The Department of Water and Sanitation, Directorate: Strategic Infrastructure Asset Management (SIAM) proposes to conduct scheduled rehabilitation works at Casteel Dam, locally known as **Ga-Josefa Dam**. Casteel Dam is located on a tributary of the Tlulandziteka River North of Bushbuckridge within the jurisdiction of Bushbuckridge Local Municipality in the Ehlanzeni District of Mpumalanga Province.

The DWS, Directorate: SIAM conducts Dam Safety Evaluations (DSE) every five (5) years in terms of the Dam Safety Regulation (GN R 139, 24 February 2012) at all departmental dams. Any safety risks identified at these dams are placed on the Dam Safety Rehabilitation Programme (DSRP) for repair. The latest DSE conducted at the dam identified several safety risks and have been placed on the DSRP for scheduled rehabilitation i.e.

- The slope on the downstream embankment is unstable;
- There is an eroded gully downstream in the spillway channel;
- The outlet works are non-functional;
- The dam is freely discharging from the spillway to the river;
- The spillway capacity is inadequate and requires the dam embankment to be raised.

The DWS Chief Directorate: Construction Management proposes to undertake the necessary rehabilitation works at the original dam embankment over a twenty four (24) month construction period. No expansion of the dam or construction of a new facility is proposed.

2. PROJECT LOCALITY

Casteel/Ga-Josefa Dam is located in the Tlulandziteka River on the farm Kasteel 231-KU 15km North of Bushbuckridge Town next the R40 Bushbuckridge-Acornhoek Road between the settlements of Arthur's Seat and Casteel at GPS co-ordinates 24° 41.548' S; 31° 1.583' E. Access to the dam is immediately off the R40 via an existing gravel road routing to the dam embankment (See **Figure 1 and 2** below for the **Locality Plans**).

Figure 1: Regional locality of Casteel/Ga-Josefa Dam

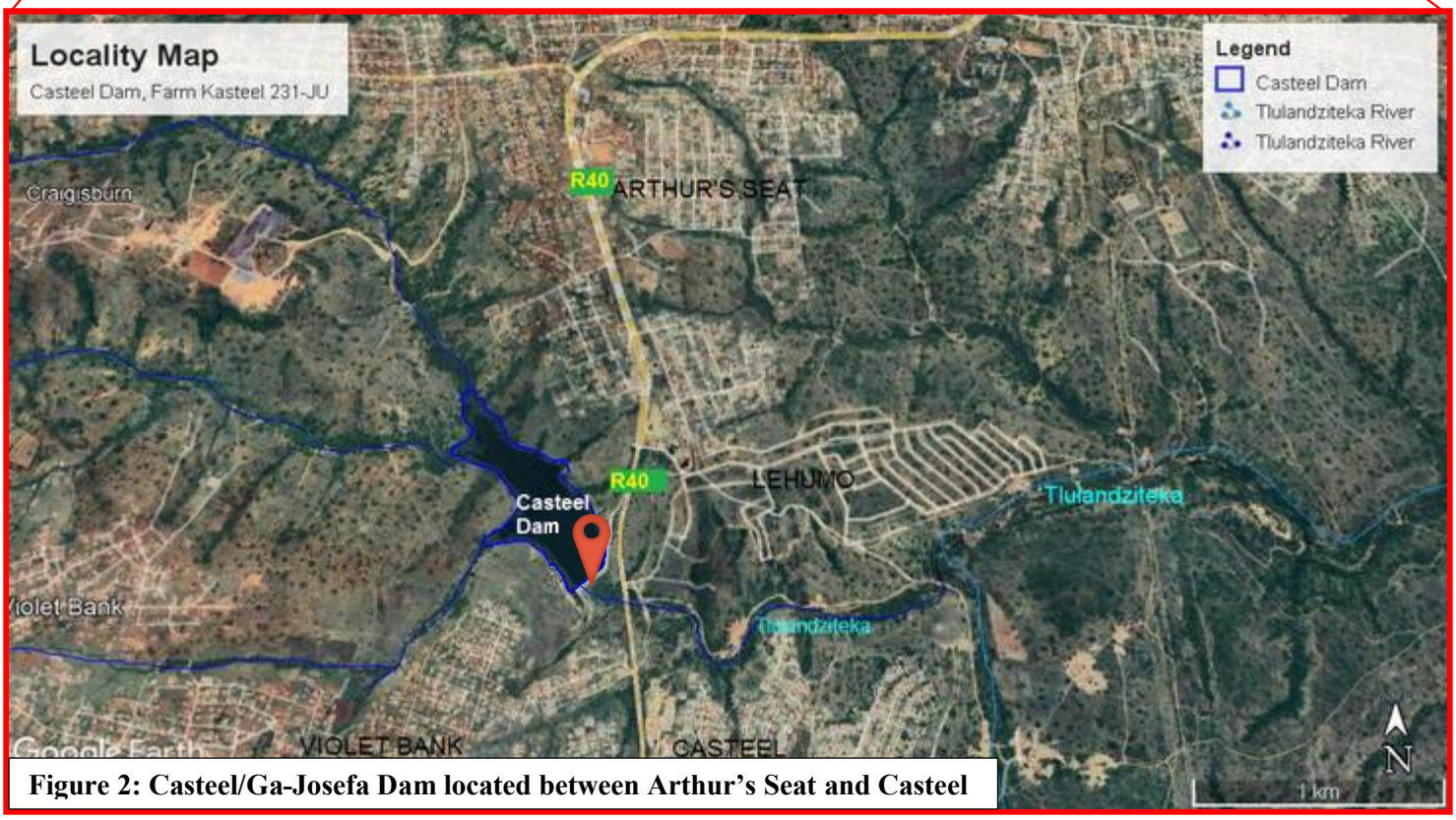

Figure 2: Casteel/Ga-Josefa Dam located between Arthur's Seat and Casteel

3. CASTEEL / GA-JOSEFA DAM SPECIFICATIONS

Casteel / Ga-Josefa Dam (**Figure 3**) was completed in 1965 and is a medium-sized earth fill-embankment dam (L-Shaped) located within the Sand River Catchment. The dam's main purpose is to supply water for domestic use and irrigation schemes for the former Lebowa government rural community. The dam specifications are detailed in **Table 1**.

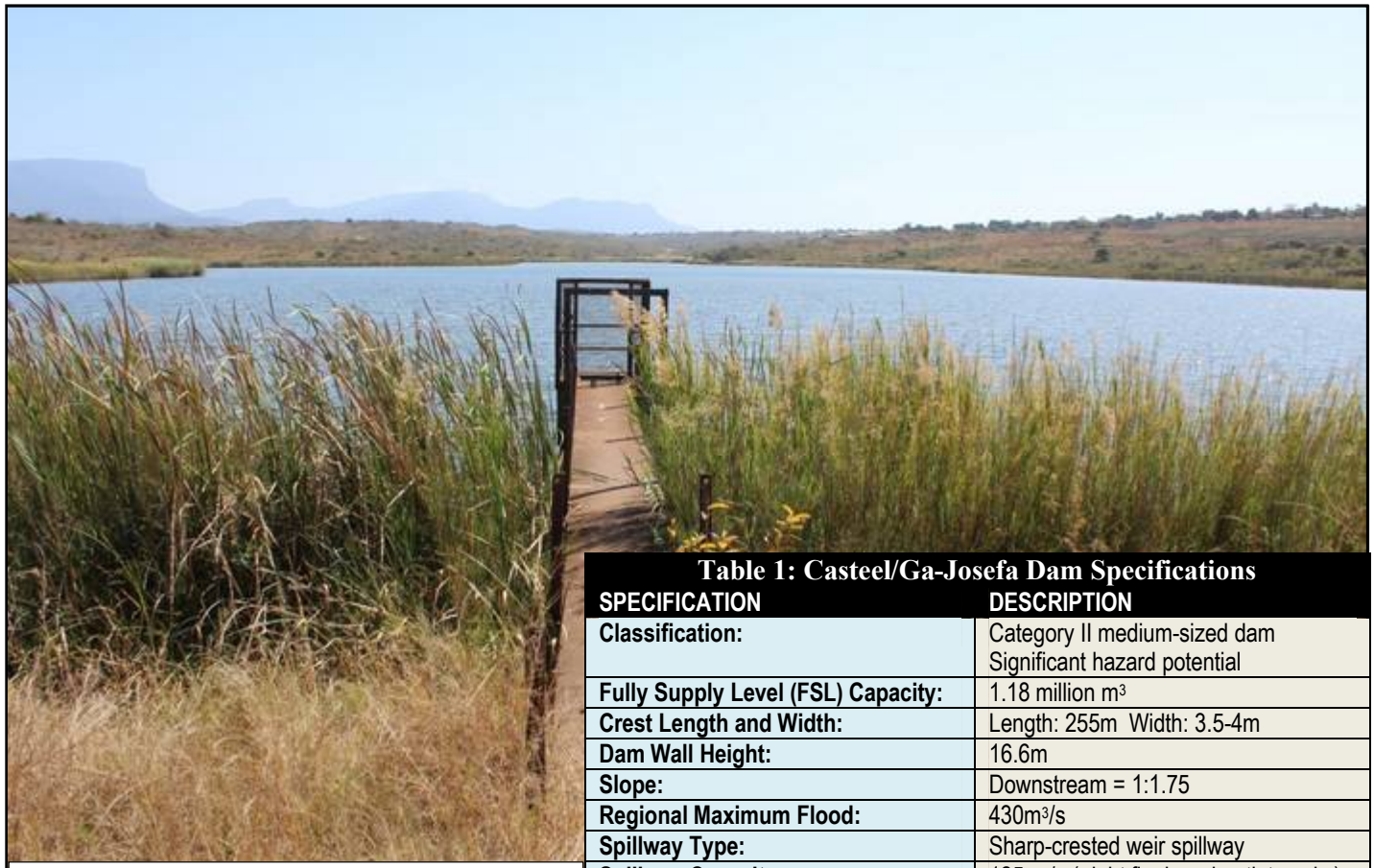

Figure 3: Casteel /Ga-Josefa Dam facing upstream (view of intake tower)

Table 1: Casteel/Ga-Josefa Dam Specifications

SPECIFICATION	DESCRIPTION
Classification:	Category II medium-sized dam Significant hazard potential
Fully Supply Level (FSL) Capacity:	1.18 million m^3
Crest Length and Width:	Length: 255m Width: 3.5-4m
Dam Wall Height:	16.6m
Slope:	Downstream = 1:1.75
Regional Maximum Flood:	430m^3/s
Spillway Type:	Sharp-crested weir spillway
Spillway Capacity:	125m^3/s (right flank and outlet works)
Dam FSL Surface Area:	Approximately 16 hectares
Catchment	Sand River Catchment (Region X32A)

4. PROPOSED REHABILITAITON WORKS

The project scope of works would include three components i.e.

1) 28 500m^2 (2.85 Ha) rehabilitation works at the main dam embankment, spillway section and outlet works.
2) 0.9 Ha Site establishment area north-east of the dam.
3) Upgrading and realignment of the existing gravel access road from the R40 to the dam embankment. An existing access road through Casteel will be used to access the spillway section during the rehabilitation works.

The DWS will remove all reeds and vegetation on the spill approach channel and upstream slope along the dam embankment as part of the rehabilitation works. It will promote the free flow of water, prevent spillway blockages and allow for the placement of slope protection material. The site establishment area comprises degraded shrubland that will also need to be cleared to accommodate the site offices.

The rehabilitation components and access roads to be used during construction are illustrated in **Figure 4** on Google Earth Satellite imagery. A complete description of the rehabilitation works is detailed in **Table 2**.

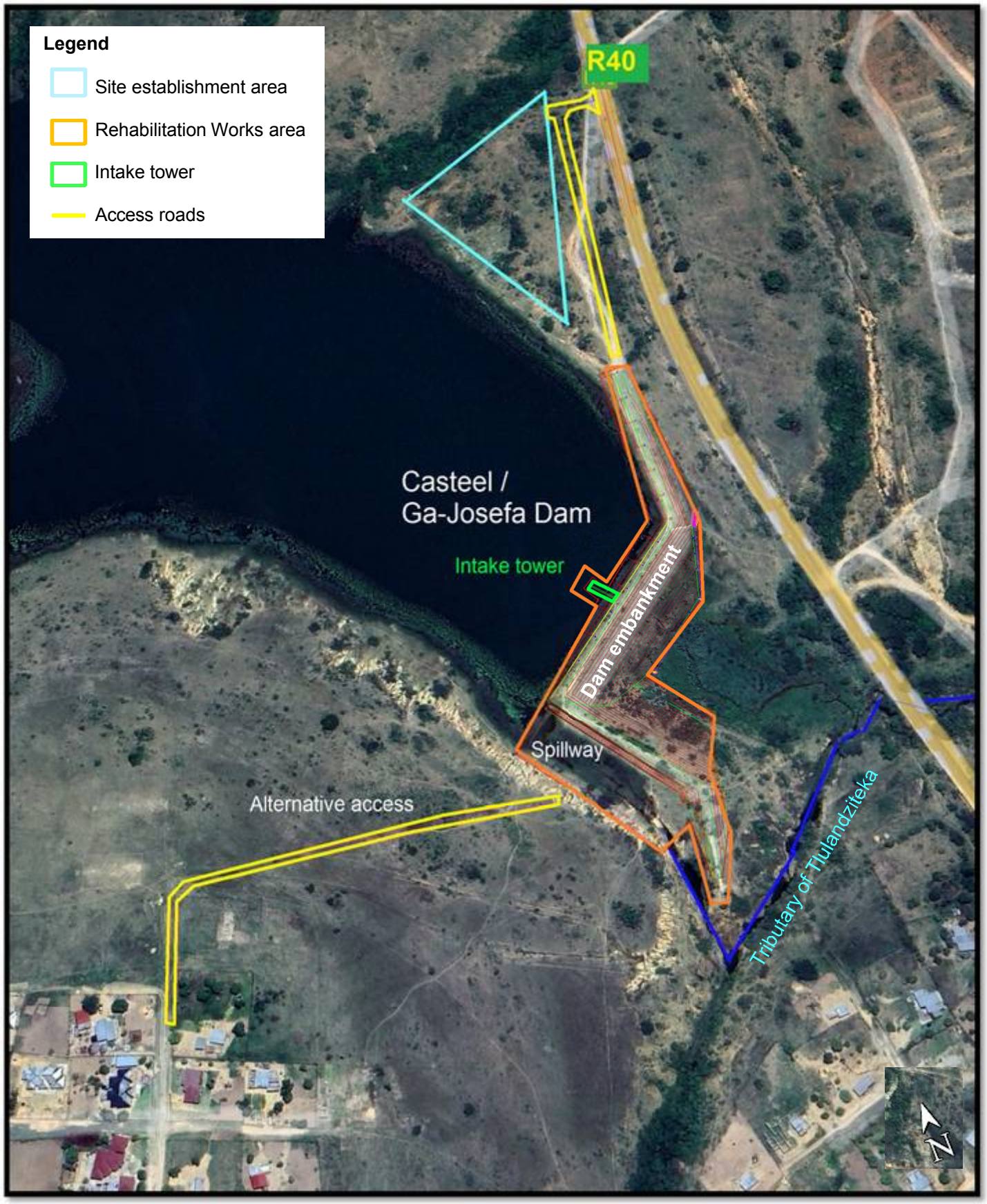

Figure 4: Proposed Casteel/Ga-Josefa Dam rehabilitation works, site establishment area and access roads superimposed on Google Earth Satellite imagery.

Table 2: Rehabilitation components

No	Component	Proposed works
The rehabilitation works at the main dam embankment will include: • 10 000m^2 works on a spillway section and embankment; • 10 000m^2 works on main embankment; • 500m^2 works on pipe trenches; • 8000m^2 access to wall.		
1	**Raising of non-overspill crest**	1) Raise the embankment crest by 2 meters (from 604 to 606 mabsl) by constructing a 2.15m high concrete parapet wall with a 1.2m wide base on NoC; **2)** Raise the existing concrete wall on the right flank (next to the spillway) to the new NoC level.
2	**Stabilisation of downstream slope**	• Flatten the slope to 1:2.5 by adding earth fill • Widen embankment crest from 4-5m by adding layers of material on the downstream side. • Protect downstream slope by adding a gravel layer
3	**Spillway channel**	• Slope channel (right and left flank) to 1:0.75; • Line both sides of spillway using Amoflex / Geocell (i.e. erosion protection) ; • Construct a new training wall raised to 605.5 mabsl (existing wall foundation to be demolished).
4	**Embankment drainage and filter system**	• Construct an inclined chimney drain and a toe drain to control dam wall seepage; • Two 160mm perforated collector pipes (embedded in 19mm stone) will discharge collected seepage; • A V-notch will be used to monitor seepage; • Existing 3 x 250mm pipes will be replaced with up to 1000mm pipes.
5	**Repair of the dam outlet works**	• Repair outlet works • Expand dimensions of concrete intake tower to 5m x 5m, currently the dimensions are 1.5m x 1.5m; • Provide a concrete intake tower bridge; • A temporary coffer dam will be constructed around the Tower to create a safe working space.
6	**Construction of a paved walkway on the dam crest.**	
7	**Upgrade and realign existing access road**	The access road will be upgraded and realigned to be 6 meters (wide) and extend from the R40 to the toe of the dam (250 meters). This is to accommodate construction vehicles during rehabilitation including operation and maintenance of the dam.
8	**Site establishment area**	A site establishment area is required for construction mobile offices and a laydown area.

Construction material:

All the materials required for the rehabilitation works will be sourced from a licensed commercial quarry/crusher.

Workforce:

The rehabilitation works will be carried out by the DWS Chief Directorate: Construction Management. Skilled labour for the project will therefore be provided by the DWS and unskilled labour will be sourced from the local communities.

IMPORTANT NOTE:

1. DWS will not stop the current water release to the downstream irrigation users.
2. During the rehabilitation of the outlet works, one out the three existing outlet pipes will always be available to release water.

5. BASIC ASSESSMENT (BA) PROCESS

The proposed project triggers listed activities under **GN R. 327** (**activities 19 and 27**) and **GN R. 324** (**activities 4, 12, 14 and 23**) in terms of the National Environmental Management Act (Act 07/1998) (NEMA) Environmental Impact Assessment (EIA) Regulations of 2014 (GNR 326, as amended on 7 April 2017) therefore requires **environmental authorisation (EA) through a Basic Assessment (BA) process** to be conducted in line with Regulation 19, 39 and 40-44 of the EIA Regulations.

The application will be submitted to the **National Department of Forestry, Fisheries and Environment (DFFE)** since the applicant (DWS) is a national department. The DFFE will be responsible to evaluate the BA process documents and to issue the environmental authorisation.

The main purpose of the BA process is to inform the DFFE and the public of the environmental consequences of the project and to recommend mitigation measures to avoid/minimise these to acceptable levels in a **Basic Assessment Report (BAR).** The recommendations from the BAR will inform the **Environmental Management Programme (EMPR)** that will prescribe the environmental specifications to be adhered to during the construction of the project. The EMPR will become a legally binding document to the environmental authorisation title holder (DWS) once the environmental authorisation is issued by the DFFE.

The BA process will gather information about the project site and any potential negative environmental impacts through site investigations, desktop analysis, Geographic Information Systems including specialist investigations. **More importantly the process will gather information from the public and relevant commenting authorities through the public participation process (i.e. notices, public meetings, and public review periods on reports).** Targeted meetings will also be held with key commenting authorities and stakeholder as required during the course of the BA process. The BAR and EMPr will be subject to a 30- day public review before it is submitted to DFFE for decision-making.

The BA process comprises the following basic steps **(See Figure 5 for a basic illustration of the process**):

Figure 5: BA process flow diagram

6. SPECIALIST STUDIES

Based on the nature of the proposed project, the following specialist investigation will be commissioned to inform the BAR and EMPr:

- Terrestrial Biodiversity Study
- Aquatic Biodiversity Impact Study
- Traffic Impact Assessment Study
- Heritage Impact Assessment Study

7. PUBLIC PARTICIPATION PROCESS (PPP) PLAN

7.1 Public Participation Plan

Public participation is a key requirement of the BA process and needs to be conducted in line with the NEMA EIA Regulations (Regulation 39-44). The PPP aims to engage I&APs and provide an opportunity for the expression of public views on the environmental impacts of the application. All public issues and views on impacts are documented, addressed and responded to in the BA process and incorporated into environmental reports for consideration by the DFFE. It is therefore important that relevant I&APs are identified and involved in the PPP from the beginning of the process to help focus the BA process plan. Naledzi's public participation plan for the project is provided in **Figure 6** below.

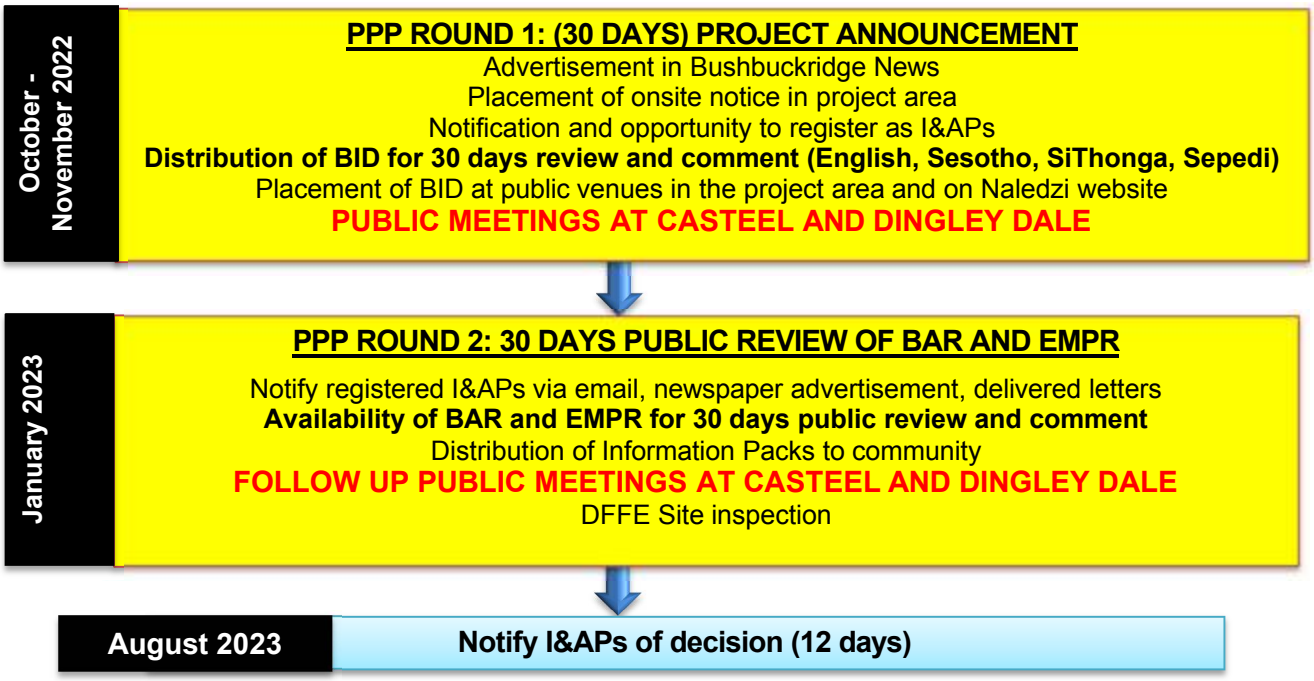

Figure 6: Overview of Public Participation Process

7.2 Scheduled Public Meetings

I&APs are hereby invited to attend the below scheduled public meetings (**Table 3**) at the Casteel and Dingley Dale. Provision will be made at the meetings for questions to be raised either in English, Sesotho, SiThonga and or Sepedi.

Table 3: Scheduled Public Meetings

Date	Venue	Time
Tuesday, 25 October 2022	**Casteel Thusong Service Centre (Tent)** Located next to R40 across from Casteel/Ga-Josefa Dam. (Intended for the community)	**11:00 – 13:00**
Wednesday, 26 October 2022	**Faith Mission Church, Dingley Dale** Located at Dingley Dale, next to old Co-op. (Intended for downstream water users, Irrigation Scheme members)	**09:00 – 11:00**

Registration and Comments forms will also be available at the meeting venue and can be completed and submitted to Naledzi after the meeting.

Targeted meetings will also be held with key commenting authorities and stakeholder as required during the course of the BA process.

7.3 How can you become involved?

You are invited to register as an Interested and Affected Party (I&AP) f**or 30 days, from 17 October to 15 November 2022.** The BID is presently available for review and submission of comments regarding the proposed application.

You can attend the schedule public meetings on 25 and or 26 October 2022 to ask questions of clarity and to obtain more project information.

I&APs are requested to please provide their comments together with their name, contact details and an indication of any direct business, financial, personal or other interest which they have in the application, to the **contact person provided below**, within the specified period.

Naledzi Environmental Consultants (Pty) Ltd
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Contact Person: Marissa Botha / Desmond Musetsho
Email: botham@naledzi.co.za / dmusetsho@naledzi.co.za
Tel: +27 84-226-5584 / +27 83-410-1477

REGISTRATION AND COMMENT SHEET

BASIC ASSESSMENT PROCESS FOR THE PROPOSED CASTEEL/GA-JOSEFA DAM SAFETY REHABILITATON PROJECT, FARM KASTEEL 231-KU, BUSHBUCKRIDGE, EHLANZENI DISTRICT, MPUMALANGA PROVINCE

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TITLE (Prof/Mr/Mrs)		**FIRST NAME**	
SURNAME			
CAPACITY (eg. Director/Secretary)			
ORGANISATION			
POSTAL ADDRESS		**POSTAL CODE**	
TEL NO:		**CELL NO:**	
FAX NO:		**EMAIL ADDRESS:**	
INTEREST IN THE MATTER:			
COMMENTS/ISSUES / CONCERNS (Please use a separate sheet, if required)			

Please add the following of my colleagues/friends/neighbours to your mailing list:

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Contact details		
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