



**JUNE 2025**

## K1, K2 and K150 TAILINGS STORAGE FACILITY (TSF)

### DETAILS OF TAILINGS STORAGE FACILITY

<b>Tailings Storage Facility (TSF) Name</b>	K1 TSF, K2 TSF and K150 TSF
<b>Operation</b>	Kroondal Operations (SSKO) - K1 and K2 Concentrators
<b>Operational Status</b>	Active
<b>Operating Segment</b>	RSA - PGM
<b>Location</b>	5 km west of the town of Rustenburg situated on the Kroondal Farm 304-JQ - please refer to Figure 1
<b>Latitude, Longitude (decimals)</b>	K1: -25.71306, 27.3296 K2: -25.71688, 27.3604 K150: -25.7164, 27.35163
<b>Ore Source</b>	Underground
<b>Type of Storage Facility</b>	Impoundment (upstream development)
<b>Deposition Methodology</b>	K1: Spigot K2: Spigot K150: Cyclone
<b>Year of Commissioning</b>	K1: 1999 K2: 2005 K150: 2001
<b>Consequence Classification (GISTM, 2020)</b>	K1: Extreme K2: Extreme K150: Extreme
<b>Operating Contractor</b>	EnviroServ Waste Management (Pty) Ltd
<b>Engineer of Record (EoR)</b>	Knight Piesold (Pty) Ltd (KP)
<b>Total Volume Already Deposited (Mm<sup>3</sup>)</b>	K1: 8,1 K2: 14,7 K150: 14.0
<b>Current Maximum Height (m)</b>	K1: 45 K2: 45 K150: 48



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### Final Maximum Height (m)

K1: 51  
K2: 46,7  
K150: 52

### Maximum Storage Capacity (tons/month)

K1: 28 000  
K2: 86 000  
K150: 86 000

### Life of TSF (year)

K1: 2030 @2m/year  
K2: 2030 @2m/year  
K150: 2028 @3m/year

## TECHNICAL ASPECTS:

### Design Criteria

GISTM and best practice guidelines including Australian National Committee on Large Dams (ANCOLD) (Guidelines on Tailings Dams, July 2019). Site specific design criteria were specified by the EoR. Details are included in the Design Basis Report (DBR).

### Stability Assessment and Mitigation Measures

A detailed stability assessment, incorporating piezocone probing and laboratory test work, was conducted in December 2023 and subsequently updated in 2024 (KP reference: SAND301-00851/21 Rev 0, 24 March 2025)

The assessment confirmed that most Factors of Safety (FoS) for drained conditions exceed the recommended minimum thresholds. While the undrained peak FoS values across some sections are below 1.0. Discussions are ongoing with the Engineers of Record (EoR) to further evaluate and address this matter

The existing buttress at K2 was extended by ~100m in May 2024 to manage the adjacent seepage. Further extension of the buttress may be required subject to the performance of the TSF

### Dam Breach Assessment

Assessment completed in 2022  
(K1 - KP reference: PR301-00851/05 Rev 0, 17 February 2023 – DHR0077), (K2 & K150 - KP Reference: PR301-00851/05 Rev 0, 17 February 2023 – DHR0081)



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## Area of Inundation

Has been identified by EoRs – please refer to Figures 2 to 5

## Summary of Human Exposure

Consequence classification has been based on Population at Risk (PAR). Communities have been identified and are being engaged through various means including Community Engagement Forums (CEF). An appointed external specialist is currently conducting vulnerability assessments for communities located within the Area of Inundation

## DOCUMENTATION:

### Site Specific OMS Manual

Version 2022 available  
Mandatory Code of Practice (MCOP) Reference No: SS-ZA-PGM's-MCOP-ENG-CON-0002 is in place (dated June 2024)

### Design Basis Report (DBR)

Version 2022 available  
(KP Reference: SAND301-00851/07 Rev 0, 27 February 2023)

### Environmental Management System

The Environmental Management System is ISO accredited (ISO 14001:2015)

The initial Environmental Management Programme (EMPr) is dated 2010. Numerous addendums have been submitted with the latest being in 2016.

### Surveillance:

#### Surveillance Frequency

Daily by the Operator and monthly reports of critical and operational controls submitted to and reviewed by the EoR

#### Surveillance Technology/System

Quartex and Groundwork Geolytics

#### Deformation Monitoring

Interferometric Synthetic Aperture Radar (InSAR)

#### Phreatic Surface Levels & Pore Pressure Measurements

Standpipe piezometers  
AquaSense Retrofit piezometers (IoT device)  
Vibrating Wire Piezometers (VWP's) currently being installed

## RISK MANAGEMENT / EMERGENCY PREPAREDNESS:

### Risk Assessment

Annual Risk Assessment (Failure Mode Effect Analysis) completed with no untoward risk identified



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## Risk Management

Site specific OMS Manual in place  
Site specific Trigger Action Response Plans (TARPs) in place  
Critical and operational controls established and implemented

## Site Specific Emergency Preparedness & Response Plans (EPRP)

Version 2024 available

Annual emergency mock drill for a catastrophic TSF failure – undertaken on 27 November 2024 with SSW employees, contractors, Disaster Management Teams and first responders.

Environmental emergency preparedness is managed on site according to ISO14001: 2015.

# CLOSURE & POST CLOSURE

## Closure Planning

In place - report prepared by Golder Associates  
(Golder Reference: 20353611-341349-2, April 2021)

## Closure Costing

Adequate financial capacity in place  
Financials prepared by Golder Associates  
(Golder Reference: 21467925-349386-1, December 2021)

## Asset Insurance Cover

In place – July 2024 to June 2025 (renewal process has commenced)

## Independent Reviews:

### Independent Tailings Review Board (ITRB)

11 July 2022 with no material concerns identified

### Future ITRB Review

Currently underway

### Performance Reviews

Annual and quarterly reports and inspections completed by EoR  
(KP ReferenceSAND301-00851/21 Rev 0, 24 March 2025)

### Dam Safety Review (DSR)

Carried out by an independent third party in 2020. All recommendations at the time have been addressed in the last 3 years.  
(KP Reference: RI301-00851/01 Ref B, August 2019)

Next review is currently underway



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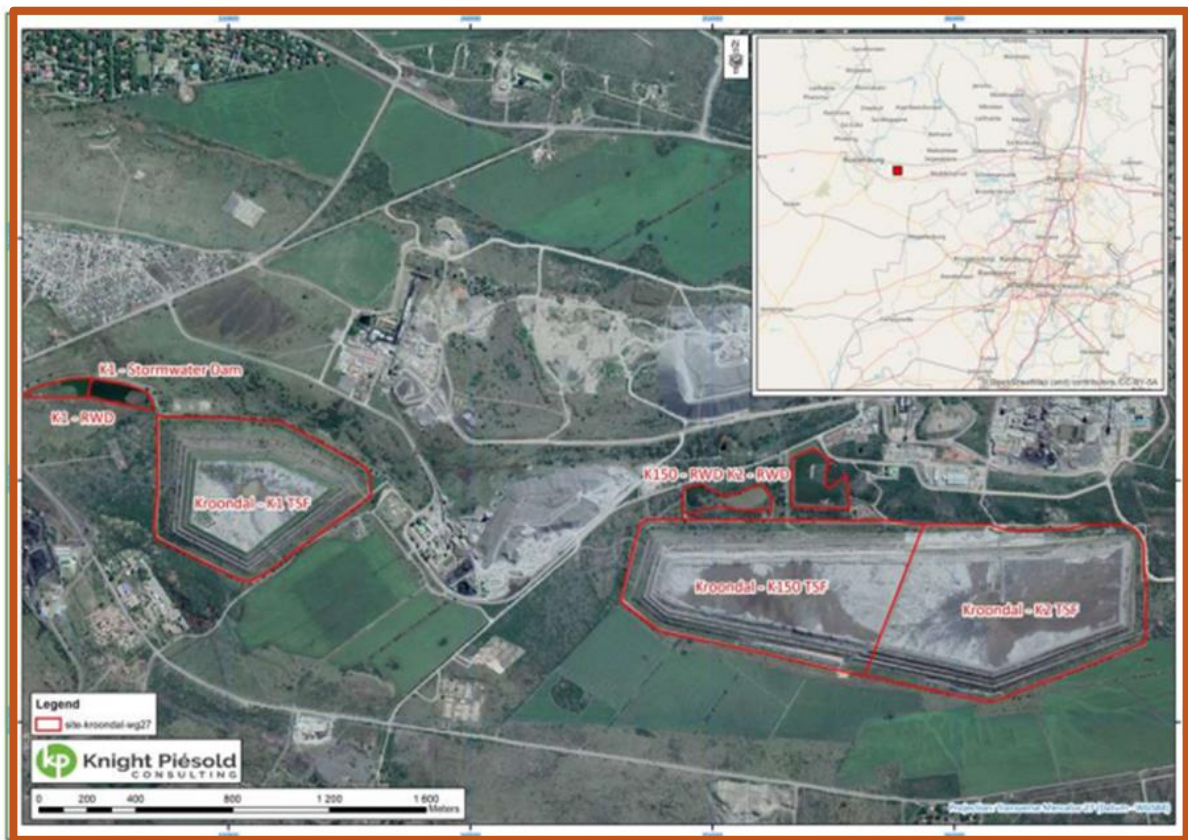
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**Figure 1:** Layout of Kroondal Tailings Dam Complex



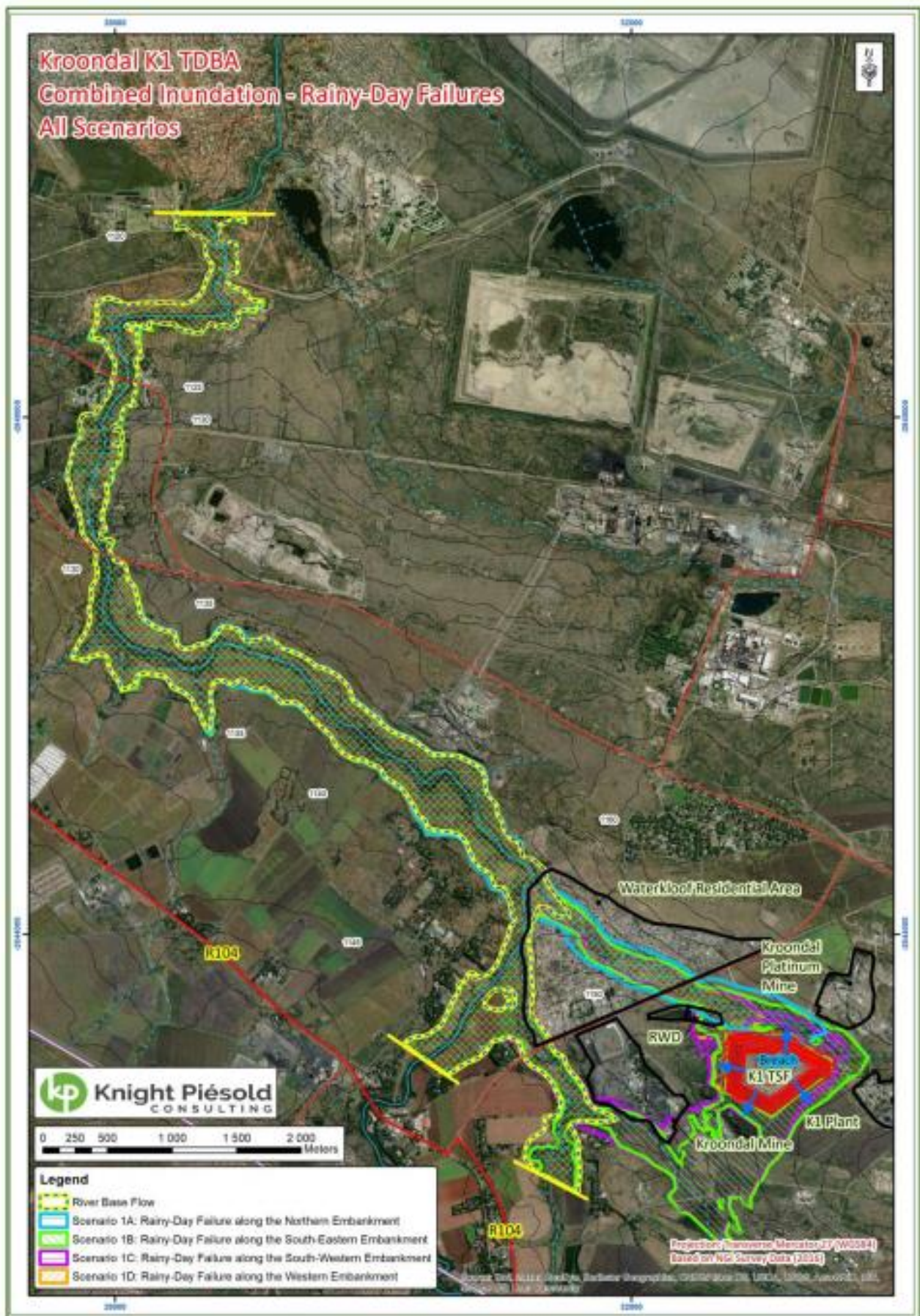


Figure 2: Consolidated view of the rainy-day failure scenario inundation boundaries (K1)



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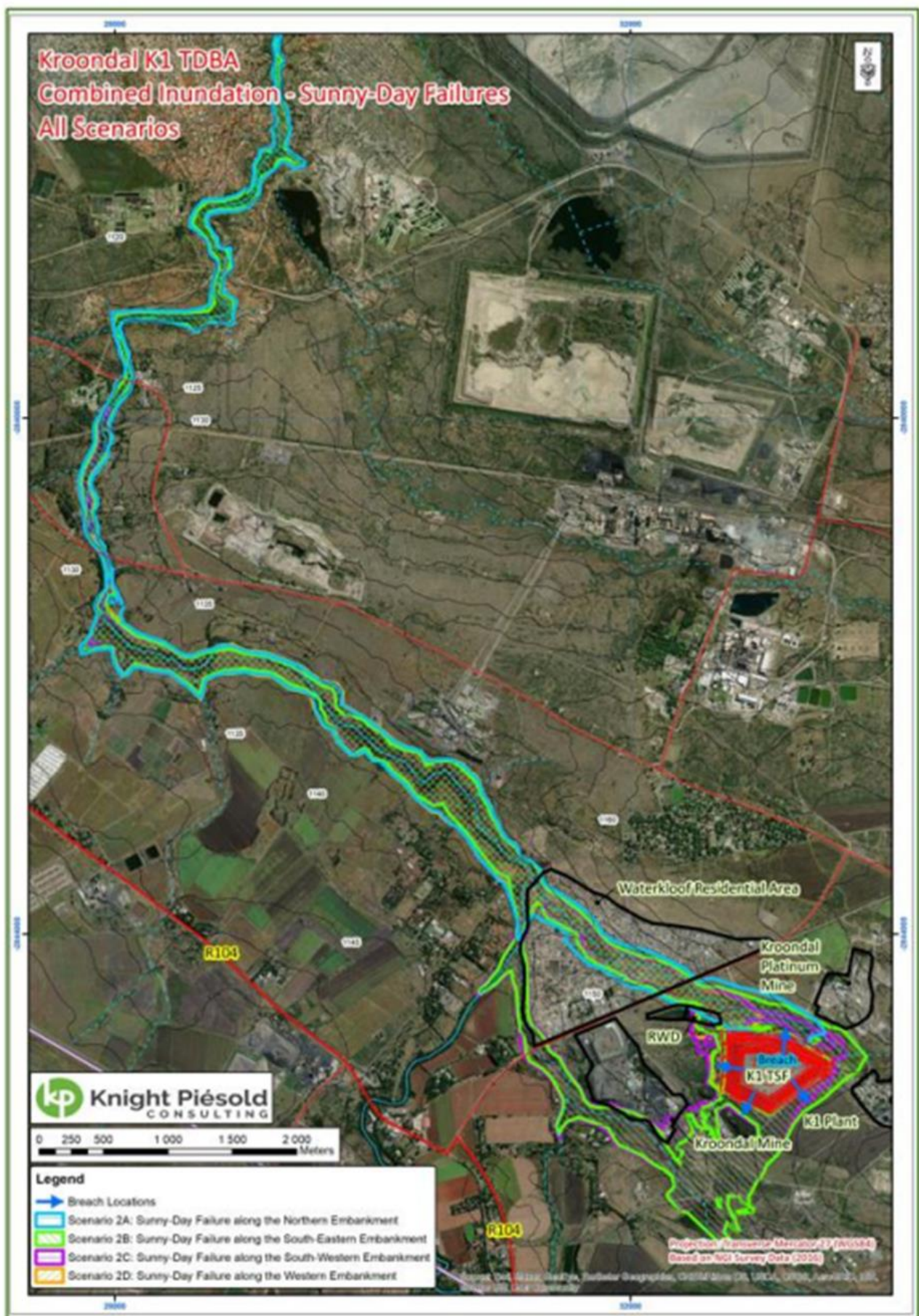


Figure 3: Consolidated view of the sunny-day failure scenario inundation boundaries (K1)



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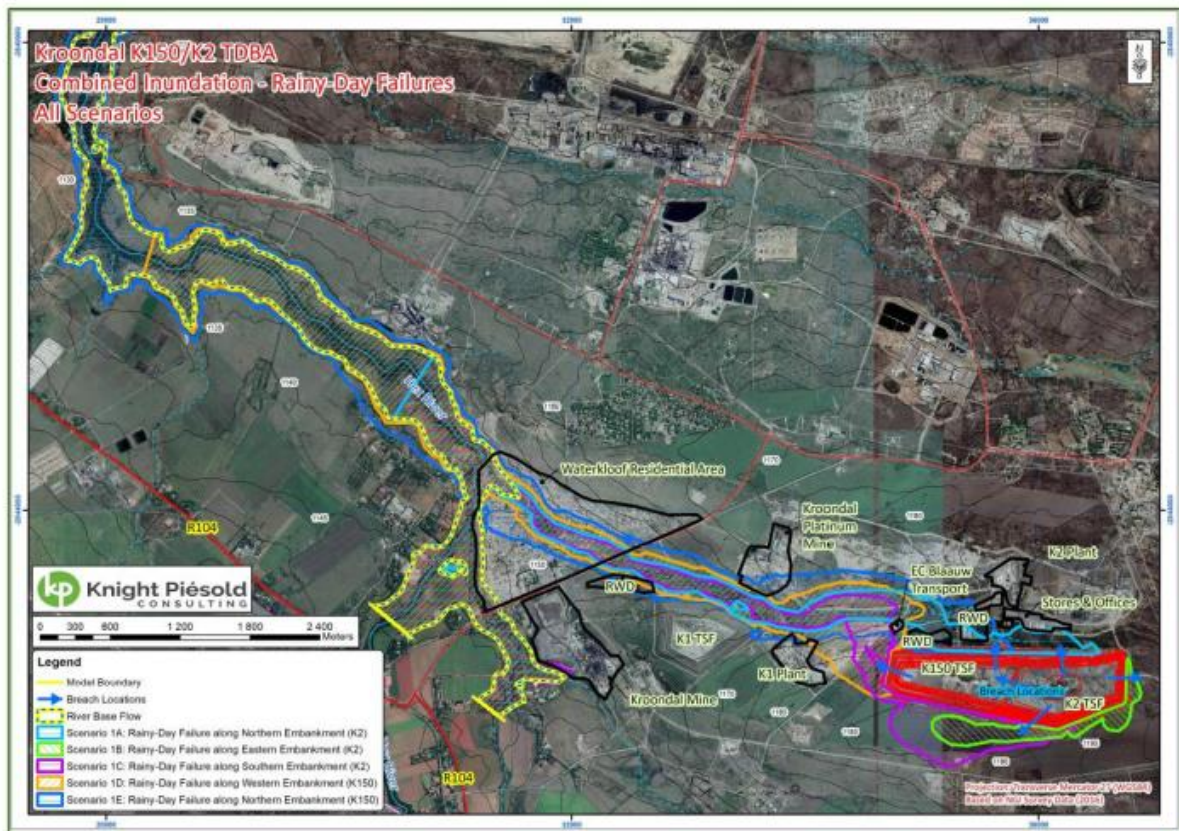


Figure 4: Consolidated view of the rainy-day failure scenario inundation boundaries (K2 and K150)

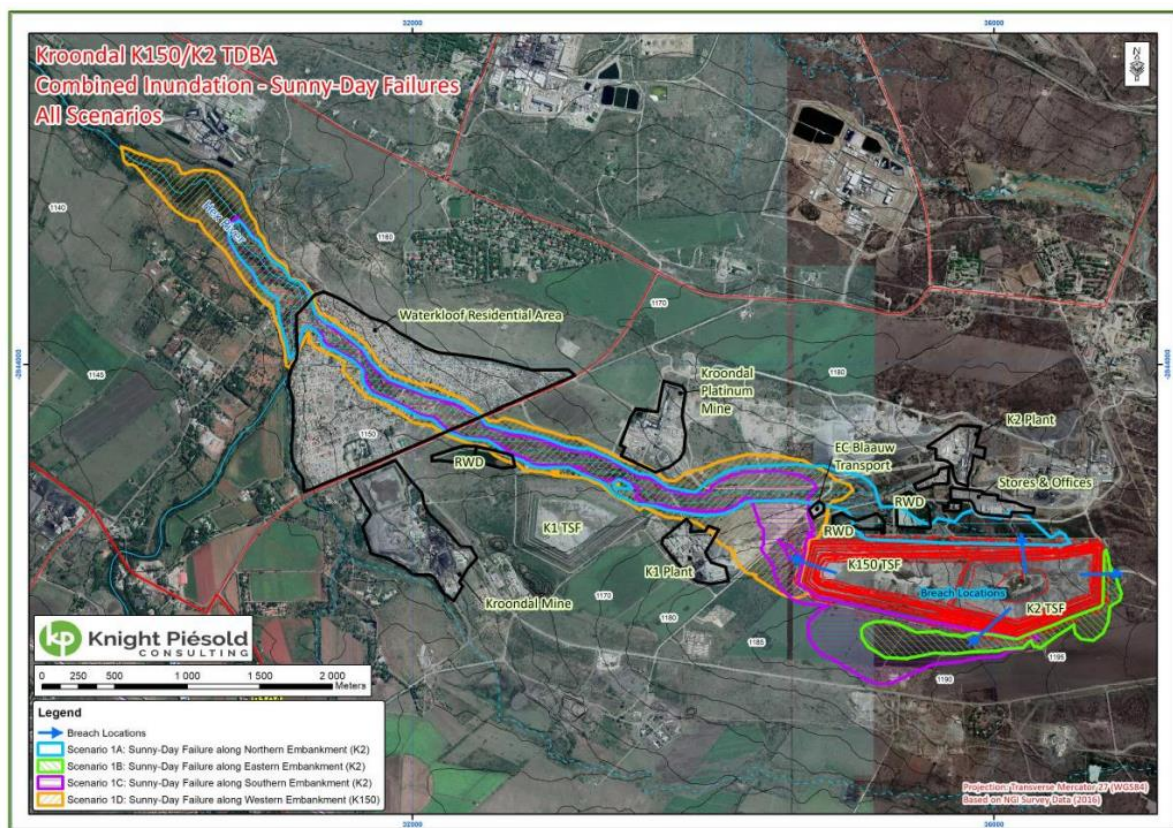


Figure 5: Consolidated view of the sunny-day failure scenario inundation boundaries (K2 and K150)