

# NORTHAM

PLATINUM LIMITED



BOOYSENDAL  
PROGRESS UPDATE

Glyn Lewis, CEO

Johannesburg  
8 October 2009



## Booysendal feasibility nearing completion

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### **NO** SURPRISES

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- Initial modular approach is confirmed
- Booysendal promises to be significant, long-life producer
- Initial focus on the UG2 reef
- Funding: combination of rights issue, retained earnings, and medium term debt
- Value engineering underway to refine design and costs
- Capex and opex amongst lowest in the industry
- Early 2010: board approval; mine construction



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### KEY FEATURES

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- Modular approach confirmed
- Tonnages:
  - Module 1 - 120 000 tonnes milled per month
  - Module 2 – 120 000 tonnes milled per month
- Production and sales volumes:
  - Module 1 - 130 000 (3PGM+Au) per annum
  - Module 2 – 115 000 (3PGM+Au) per annum
- Financing decision to follow on the completion of value engineering process
- Board approval and construction of mine expected in early 2010
- First module capex – R3 billion (2009 terms)
- Combination of steady state Zondereinde mine and significant greenfields growth at Booysendal provides compelling PGM investment opportunity

- Scheduling
  - feasibility study completed
  - construction to begin in first half of 2010
  - scheduling of the first module with subsequent module dependent on ESKOM
- Planning
  - mining method, layouts, positioning of portals, plant and slimes finalized
  - modular approach with initial 2 UG2 declines optimal
  - 130 000oz pa to potentially 245 000oz pa by 2018
  - value engineering underway to refine design and cost
- Costs and funding
  - capex and opex amongst lowest in the industry
  - funding: combination of rights issue, retained earnings, and medium term debt

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## Planning progress

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- Pre-feasibility review concluded June 2008
- Feasibility study completed September 2009
- Value engineering in progress

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## Location

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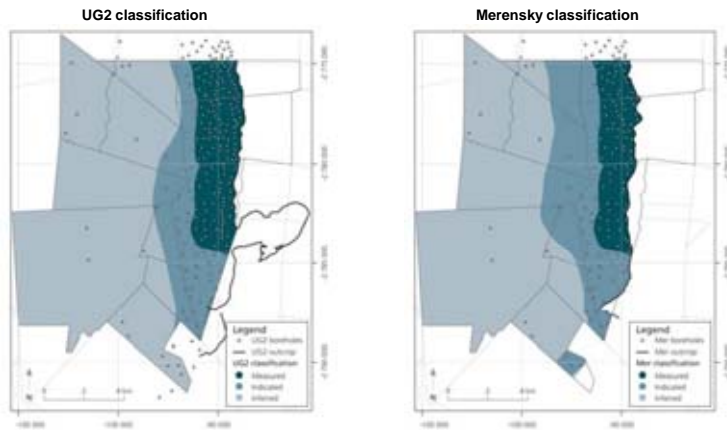
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# Booyesdal – shallow, near-term expansion

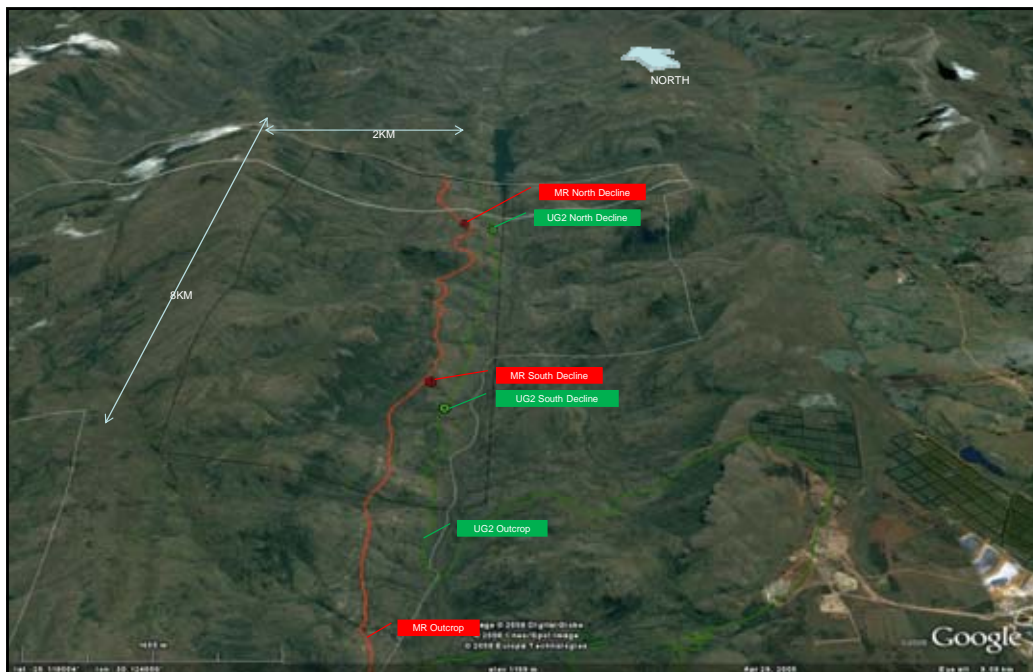
- 103Moz resource – unlocking value over time
- Flexibility in bringing production to market

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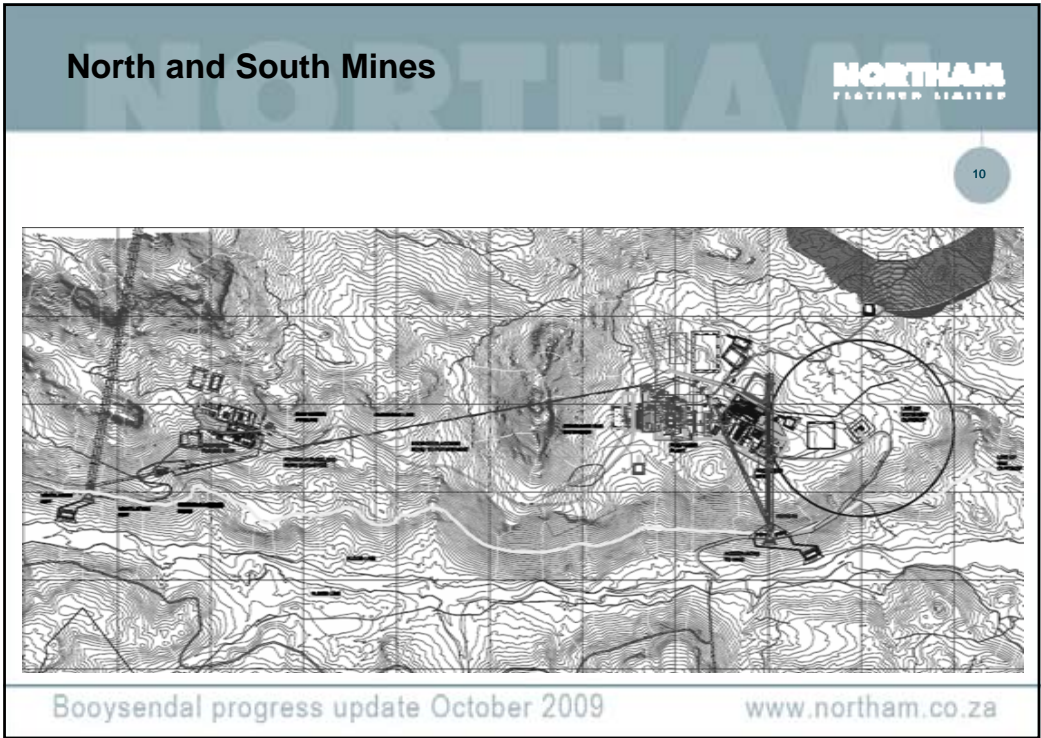
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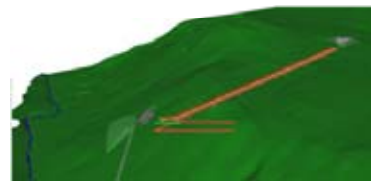
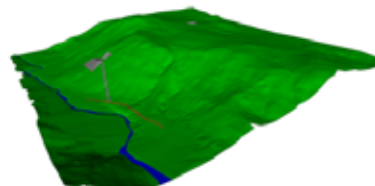
# North Mine



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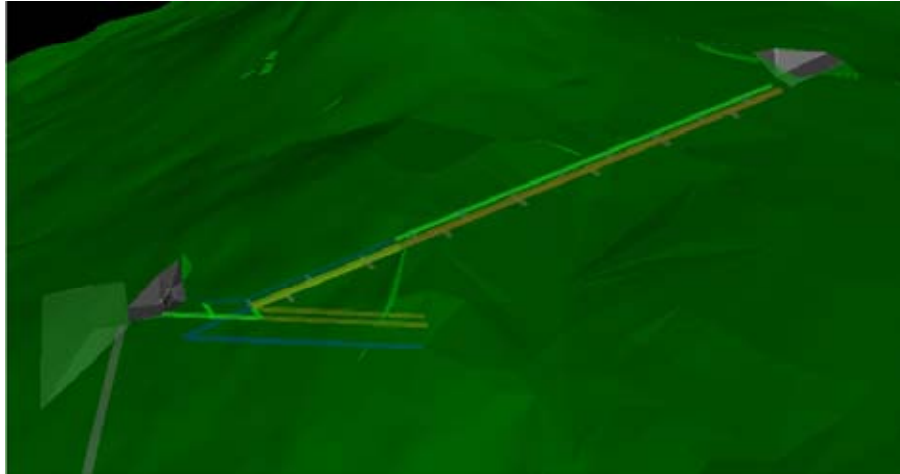
# Final design: reverse decline option 2a



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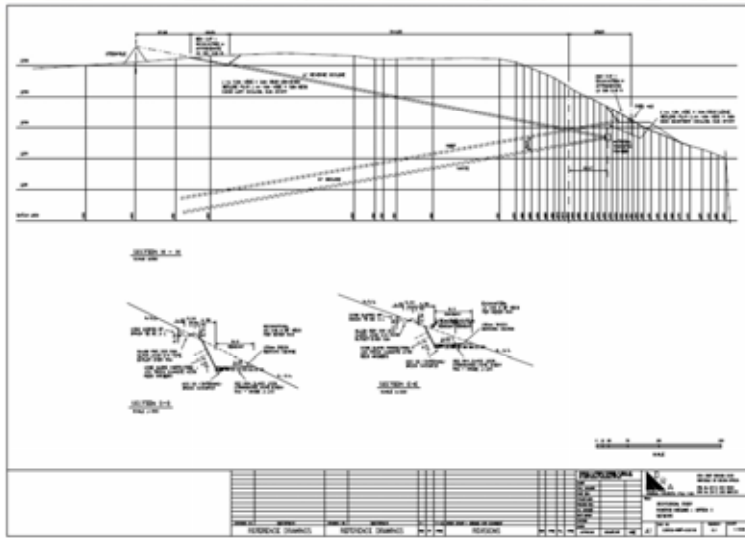
# Final design: reverse decline option 2a



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# Final design: reverse decline section

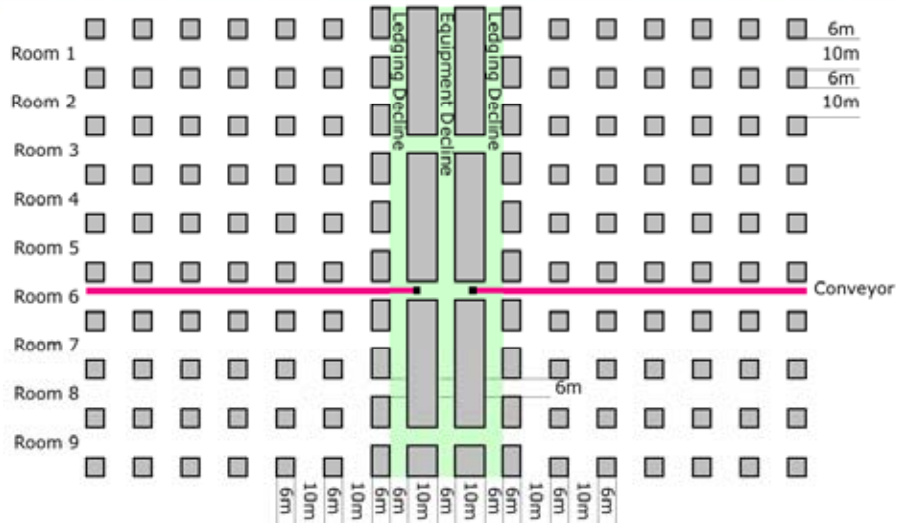


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## Room & pillar section layout

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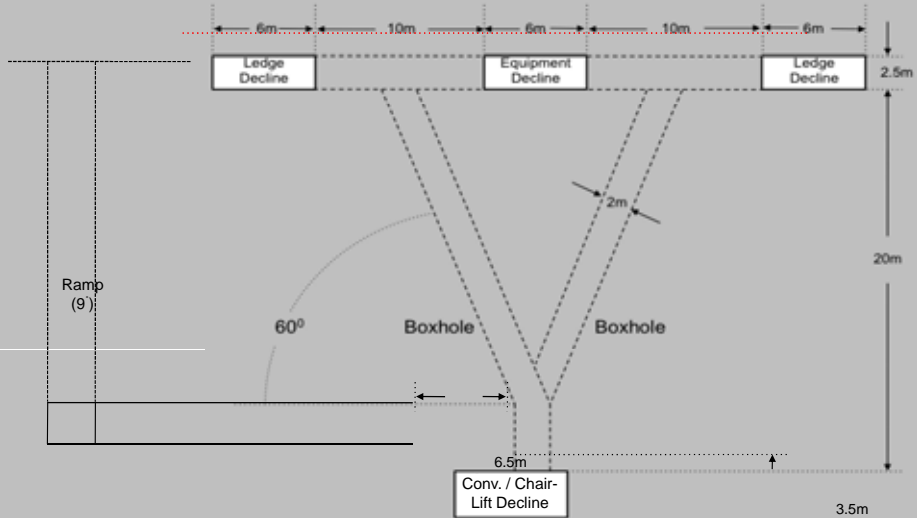


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## Decline section

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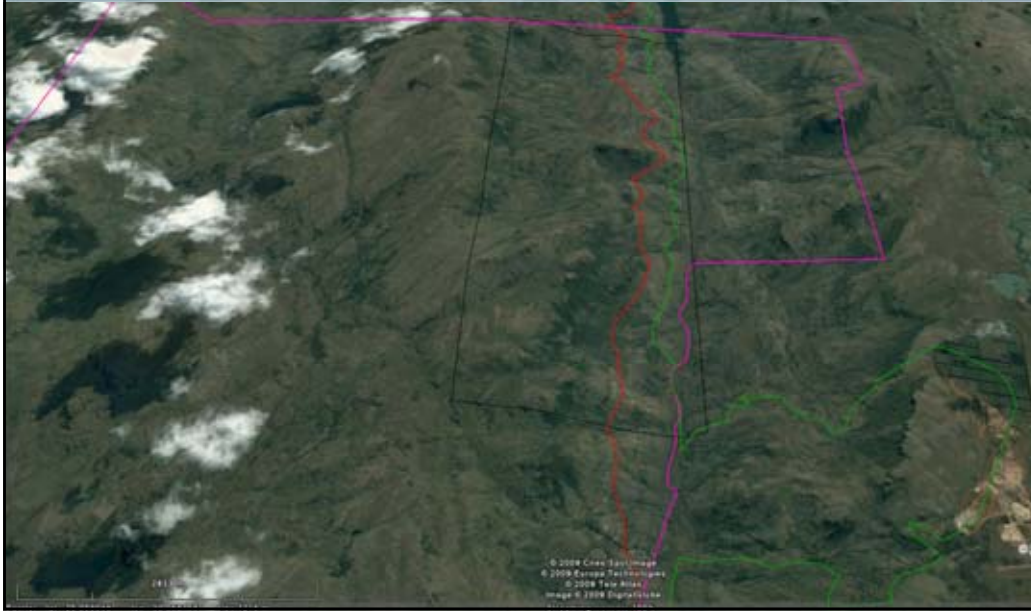
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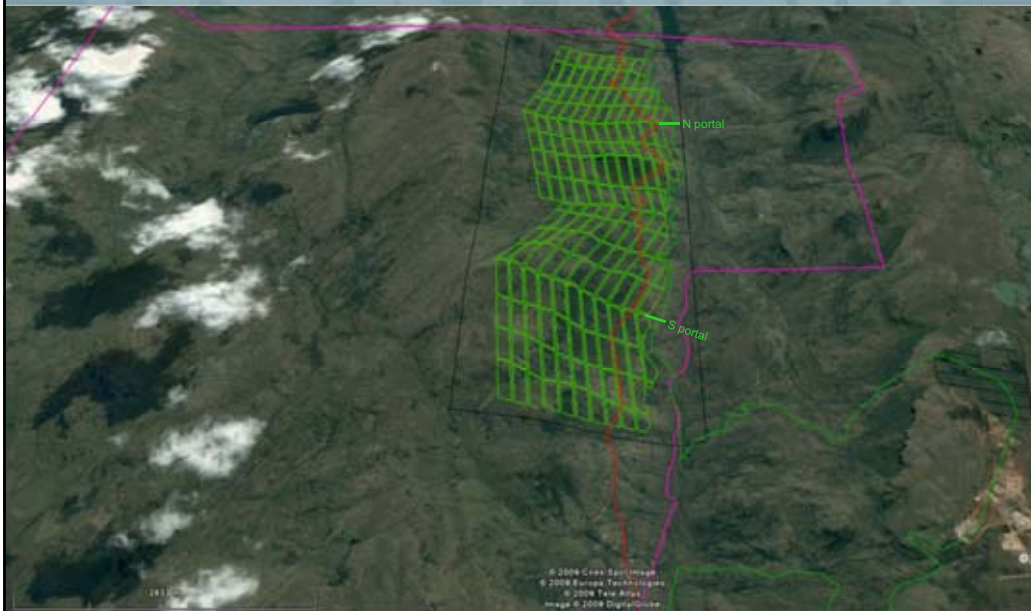
## Mining modules footprint

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## UG2 North and South footprints

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## Summary of feasibility study

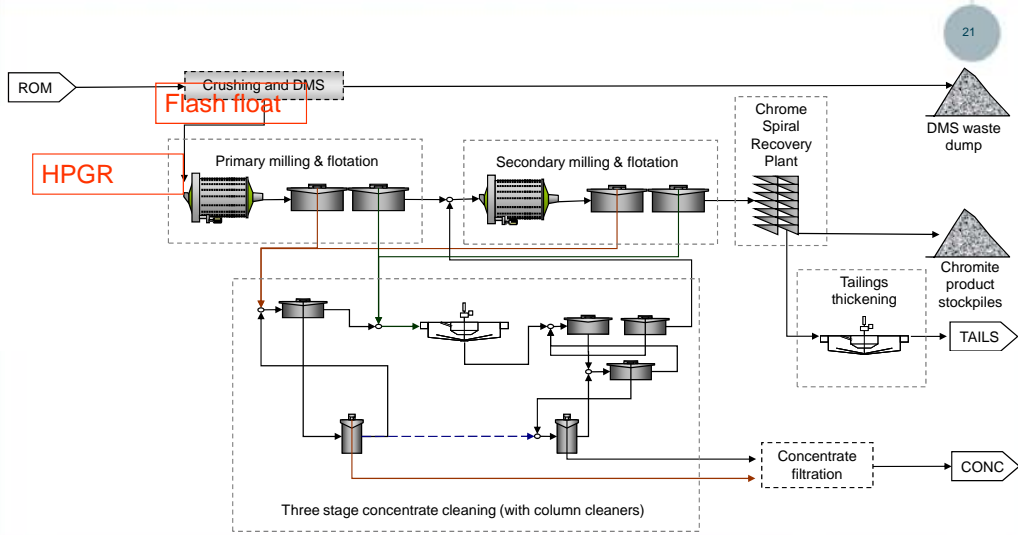
- Room and pillar design completed
- Underground geotechnical design completed
- Surface geotechnical boreholes for portals and declines completed
- Ventilation design completed
- Access design completed
- Mine design criteria completed
- Production plan – 150ktpm to ROM stockpile
- Production scheduling completed
- Metallurgical design criteria completed
- Social, housing and labour plan completed
- Water and power reticulation route finalised

## Metallurgical process - concentrator

- Design philosophy
  - 150ktpm ROM to DMS plant
  - 120ktpm to concentrator mill
  - maximise PGM recovery per unit of electricity and raw water consumed
- Design progress
  - flowsheet selection, and process flow diagrams completed
    - MF2 ball milling with DMS pre-concentration and chromite recovery spiral plant
  - design criteria and mass balance completed
  - additional metallurgical optimisation test work at Mintek completed
  - equipment sizing and selection, general arrangement and costing completed

## Concentrator flow sheet

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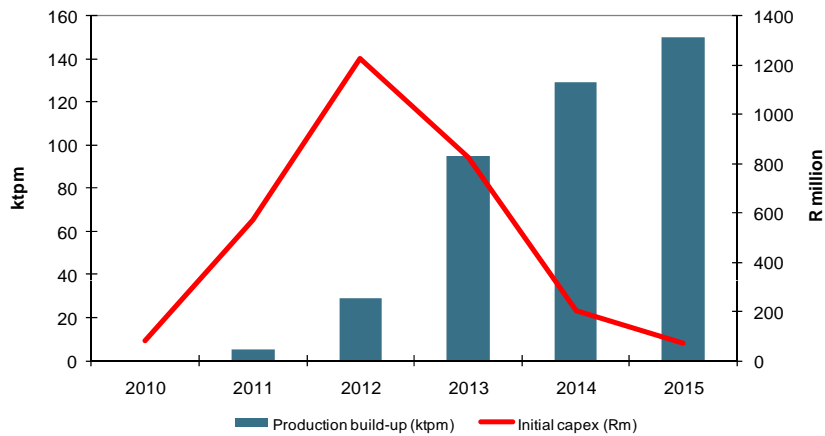


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## Capex spread and production build-up

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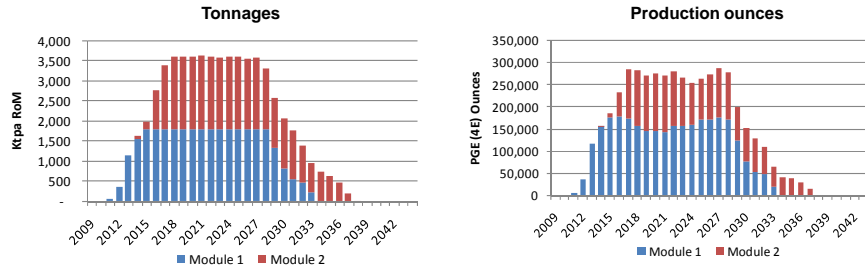
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## Booysendal – unlocking value over time

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### Estimated production ramp up



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## Key statistics

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- Tonnes
  - Module 1 - 120 000 tonnes milled per month
  - Module 2 – 120 000 tonnes milled per month
- Production and sales volumes
  - Module 1 - 130 000 (3PGM+Au) per annum
  - Module 2 – 115 000 (3PGM+Au) per annum
- Capex
  - Module 1 - approximately R3.0 billion over five years (2009 money)
  - Module 2 - approximately R3.0 billion over five years (2009 money)
- Opex
  - approximately R410 per tonne of ore mined
- Life of mine > 25 years

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