



# HIGHVELD STEEL PROSPECTUS: IRON PLANT 2

APRIL 2016



## IRON PLANT 2 – EXECUTIVE SUMMARY

Highveld Steel and Vanadium was founded in 1960 with the objective of building a unique plant with the ability of beneficiating vanadium bearing Titaniferrous ore from the Bushveld Igneous mineral complex. Highveld remains the only company in South Africa with the processing facility to beneficiate this ore reserve for the production of steel as well as vanadium slag.

Recent developments have resulted in the directors voluntarily filling for business rescue which amongst others opens the opportunity for the sale of assets as individual operating units.

The sale of Iron Plant 2 offers investors a unique opportunity to acquire a versatile, state-of-the-art smelter plant capable of profitably producing a range of products including Pig Iron, Ferro Alloys and valuable slag by-products from fines.

The smelter plant which was established in 1984 at an equivalent of R1,8bn, deploys the latest Open Slag Bath furnace technology adequately sized to produce up to 750t of Pig Iron per day. With an estimated ramp-up to full production in approximately 12 weeks, the lead time to market is significantly reduced when compared to the construction of a similar sized smelter plant.





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Investment case

Investment case: Pig Iron

Investment case: Ferro Chrome

Manning requirements

Maintenance requirements

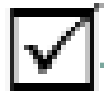
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## INTRODUCTION

- EVRAZ Highveld Steel and Vanadium (“Highveld Steel”) was, prior to its business rescue proceedings, South Africa’s second largest steel maker and the primary producer of medium and heavy structural sections.
- Highveld Steel has contributed significantly to the South African economy, supporting South Africa’s industrial and economic development.
- During April 2015, Highveld Steel filed for voluntary business rescue as a result of lack of funding in challenging market conditions and ceased operations during July 2015.
- Under the direction of the of the business rescue practitioners and management, Highveld Steel:
  - Compromised with creditors to enable suppliers to continue business with Highveld when operations restarts.
  - Performed various trials on the Open Slag Bath furnaces to verify the flexibility of units and suitability for ferroalloy production.
  - Successfully decommissioned the operations under a controlled environment and preserved assets for future start-up.
  - Commenced with care and maintenance on strategic assets.
  - Identified various assets as future strategic assets which can be sold as loose standing operational units.
  - Ring-fenced the Iron Plant 2 facility for sale and future start-up.



De-commissioned  
operations



Preserved assets  
in care and  
maintenance mode



Identified strategic  
assets for future  
sale

- **Highveld Steel has identified Iron Plant 2 as an strategic asset capable of profitably producing a range of products including Pig Iron or Ferroalloys. The location and layout of the asset allows for a stand-alone operation.**



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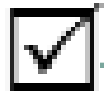
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## IRON MAKING PLANT 2: PROCESS OVERVIEW

- Iron Plant 2 comprises amongst others of:
  - Dedicated raw material receipt & storage area.
  - Three 60m co-current rotary kilns ideal for pre-reduction or pre-heating of ores.
  - Hot charge transfer system to transfer hot material discharged from kilns in to smelting furnace with minimal heat losses.
  - A state-of-the-art 38MW Open Slag Bath Furnace, capable of processing a variety of ores with sizes ranging from fines to lumpy material.
  - Support services including electricity, compressed air, oxygen, etc. to operate at a capacity of up to 700t of liquid pig iron per day.



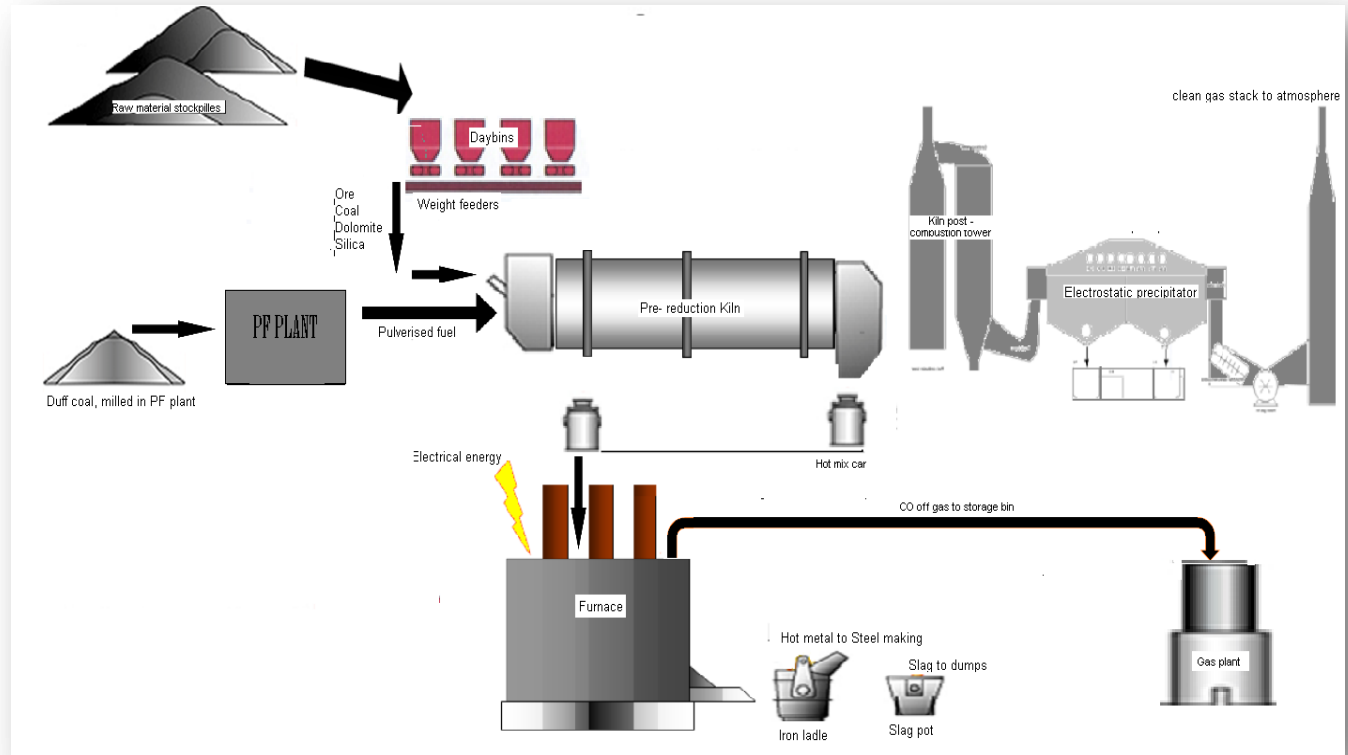
Dedicated raw material receipt & storage area



3 x 60m rotary pre-reduction kilns



38 MW recently upgraded Open Slag Bath Furnace





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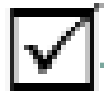
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## IRON PLANT 2: INVESTMENT CASE

- The purchase of Iron Plant 2 has the following distinct advantages:
  - **The Flexibility of equipment:** The newly upgraded Open Slag Bath has a proven track record of producing a range of products including ferroalloys.
  - **Open Slag Bath and pre-heating technology:** Inherent to the design of the plant is the ability to process large amount of fine material which are problematic in conventional Submerged Arc Furnaces. The plant furthermore boasts the ability to pre-heat feed material resulting in significant reduction in energy required.
  - **Strategic location:** The Iron Plant 2 is strategically situated close to major routes which allows easy access to various customers & distribution channels as well as key suppliers such as raw material suppliers, etc.
  - **Immediate access to market:** A project to erect a green fields plant similar to Iron Plant 2 can take up to 4 years to complete. The purchase of the existing plant allows the investor immediate access to the market at a significantly discounted rate when compared to a green fields project of similar size.
  - **Low Manning requirements:** The plant is highly automated and skills required to re-start and operate the Iron Plant 2 is readily available in the Witbank area.



Production of range of products utilising lumpy or fines



Strategically located to supply market & access to key suppliers



Access to existing infrastructure

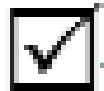






## IRON PLANT 2: INVESTMENT CASE (CONT.)

- **Established Infrastructure:** Although the sale transaction will ultimately revolve around the purchase of the smelter plant as an entire asset, the purchaser will have the option to access the following services:
  - On site laboratory services.
  - Fire and rescue teams including medical station.
  - Training facility adequate to perform both engineering and production related training.
  - Mechanical and electrical workshops to perform selected maintenance tasks.
  - Information technology systems such as communication networks, weigh bridges, etc.
  - Roaming security including access control to site.
  - Environmental monitoring services specifically related to water and waste streams.
  - Slag handling facilities.
  - Canteen and change-house facilities.



Production of range of products utilising lumpy or fines



Strategically located to supply market & access to key suppliers



Access to existing infrastructure





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## IRON PLANT 2: INVESTMENT CASE PIG IRON

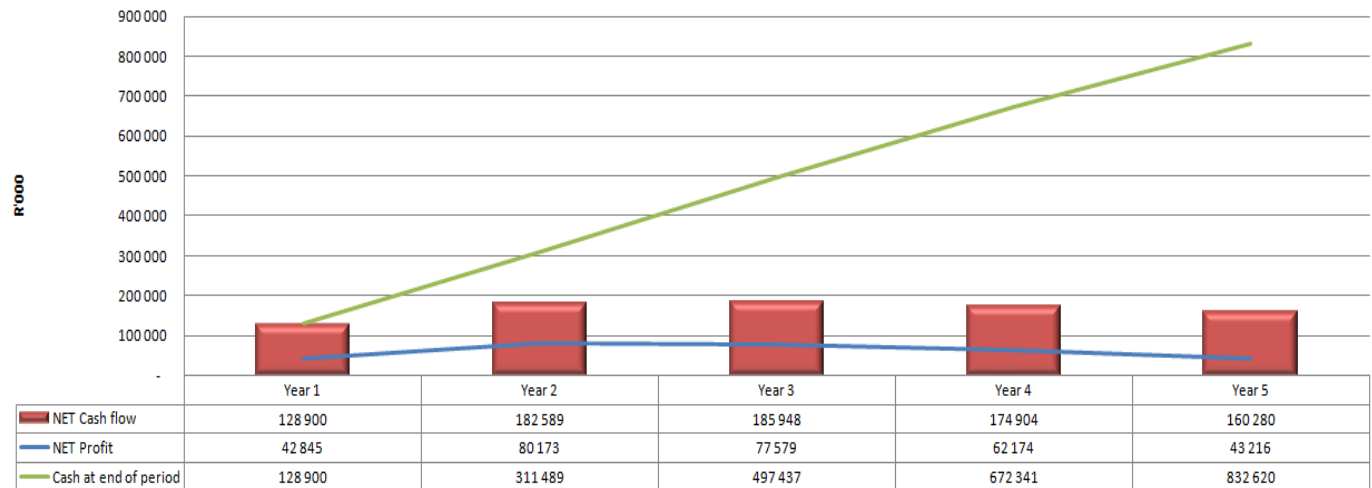
- Pig iron is a raw material in the production of steel products.
- Highveld boasts a 30MT de-vanadised ore resource which can be blended to be used as iron ore input into the process at a significantly discounted rate.
- Low capital working capital investment required to ramp-up plant which will predominantly be allocated towards raw material stocks.
- Conservative estimates indicate that production of pig iron can yield positive returns at current pig iron pricing.
- Model at a glance:
  - Product quality: Foundry grade Pig Iron.
  - Raw Material source: 75% de-vanadised ore, 25% Magnetite.
  - Production rates: 450tpd.
  - Sales price: 190 USD/t ex-works.

De-vanadised ore used as iron ore input at low cost

Installed capacity of up to 700tpd of foundry grade pig iron

Low working capital required to enter market

Financial key performance indicators Year 1 - 5





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## IRON PLANT 2: INVESTMENT CASE FERRO CHROME

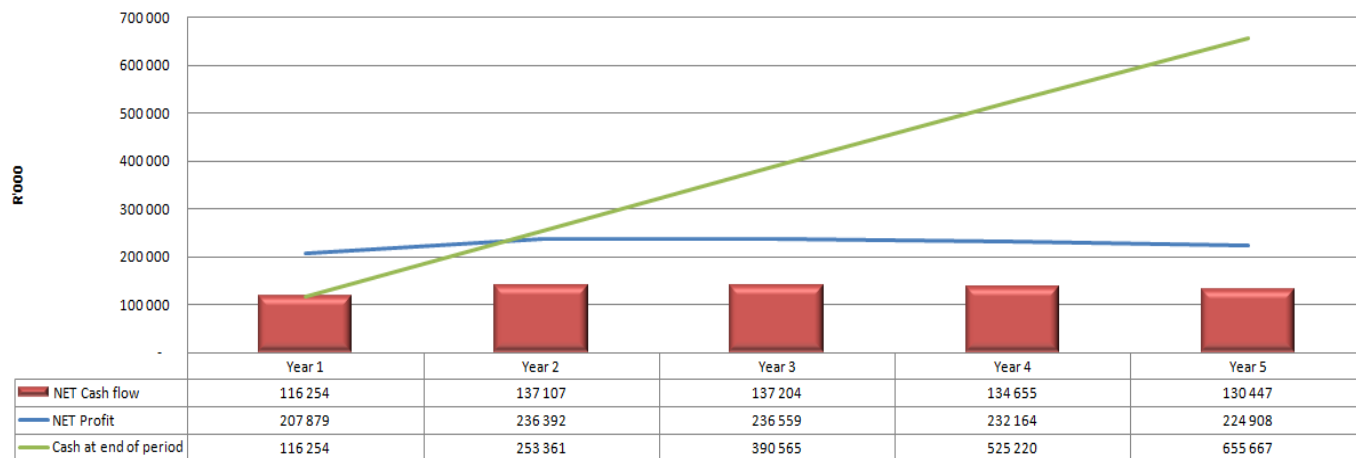
- Ferro chrome is an alloy utilised in the production of stainless steel.
- The open slag bath boasts the ability to process chromite fines generated from the mining operations which are available at discounted rates. Furthermore are the rotary kilns ideally positioned to perform preheating of ore which reduces the electricity requirement at the smelting phase.
- Environmental regulations requires licensing of ferrochrome production in line with listed activity legislation.
- Conservative estimates indicate that production of ferrochrome can yield positive returns at current market. There are furthermore positive indications that the chrome price has bottomed and positive movements in the Ferrochrome price is expected.
- Model at a glance:
  - Product quality: High Carbon Ferro Chrome.
  - Raw Material source: 46% Cr Fines.
  - Production rates: 175tpd.
  - Sales price: 0.65 \$/lb ex-works.

Chromite fines charged as input into process

Kilns ideally positioned to perform pre-heating of ore

Produce up to 180t on current installed equipment

Financial key performance indicators Year 1 - 5





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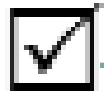
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## IRON PLANT 2: MANNING REQUIREMENTS

- A total compliment of 118 employees is required to operate the plant at full capacity broken down as follows:
  - 68 Production staff.
  - 50 Engineering Staff.
- The majority of Iron Plant 2's former employees are located in Witbank.
- Following the large scale retrenchment of workers in the broader smelter industry – particularly in Witbank and Middelburg – it is expected that the majority of ex Highveld employees will still be available to re-employment.



118 employees required to operate the plant



Majority of work force based in Witbank



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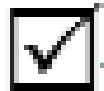
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## IRON PLANT 2: MAINTENANCE REQUIREMENTS

- Whilst planning the shut down of the operation, careful consideration was given to the restart of the operations. This included the following important aspects:
  - Melting down and draining of the Open Slag Bath furnace to reduce impact on refractory lining.
  - Emptying out of the kilns prior to switch out to avoid uneven cooling & distortion of kilns.
- Following the switch out of the plant, routine maintenance is being performed to ensure that equipment is ready for start-up.
- It is anticipated that the furnace & associated kilns can be brought back to full capacity within a period of 12 weeks.
- Approximately R19m will be allocated to start-up maintenance costs which includes:
  - Maintenance to critical raw material conveyors.
  - Various routine maintenance tasks on kilns.
  - Load testing and other statutory testing of lifting equipment such as cranes, etc.
  - Replacement of Kiln 13 ESP to ensure environmental compliance.
  - Upgrade of furnace roof refractory anchoring system.



Switch out of plant carefully planned & coordinated



Kilns & Furnace back on line in approximately 12 weeks



R19m budgeted for start-up maintenance / critical improvement costs





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## IRON PLANT 2: ENVIRONMENTAL CONSIDERATIONS

- Iron Plant 2 operates under the Atmospheric Emissions License as well as waste licence granted to Highveld Steel.
- The current licenses are applicable to the production of steel and vanadium. In the event of alternative products being produced or changes made to the raw material feed, new licences will have to be obtained from the relevant licensing authority.



Highveld Steel in possession of AEL



Iron making Plant 2 compliant apart from K13 ESP



New AEL required for different products





## CONCLUSION AND WAY FORWARD

- As illustrated in this presentation, Iron Plant 2 is well positioned to offer an investor the opportunity to produce of a wide range range of products.
- This plant offers amongst others the following opportunities to a potential investor:
  - Versatile equipment supported by a newly upgraded Open Slag Bath furnace which allows the processing of fines and pre-heating of feed material.
  - Strategically located facility situated close to major routes.
  - Access to established infrastructure including electricity supply, oxygen supply, rail links, etc.
  - Immediate access to market compared to a similar sized green fields project which could take up to 4 years to complete.
  - Direct access to required skills to re-start and operate the facility.
- Indicative financial estimates indicate that the plant is capable of producing Pig Iron as well as Ferrochrome profitably – even at current depressed market prices.
- In order to preserve the asset was placed under care and maintenance.
- Approximately R19m is allocated towards start-up and maintenance of the plant which includes improvements to:
  - The Open Slag Bath furnace roof.
  - Kiln 13 Electro Static Precipitator.
  - Critical raw material equipment.



## ENVIRONMENTAL COMPLIANCE

The prospective bidder must determine all environmental legal responsibilities, in line with the prevailing legislation as may be amended from time to time, relating to the processes and activities to be undertaken by the prospective bidder and, if successful, to ensure full environmental compliance with such identified responsibilities. All planned processes and activities including any identified environmental responsibilities in relation thereto, will be made clear to Highveld in writing, as part of the bid process, to ensure a transparent relationship and agreement on the environmental compliance requirements. The prospective bidder must lead any discussions with the relevant environmental authorities and obtain the required environmental authorisations relating to the various environmental compliance requirements. The prospective bidder will carry all costs associated with such authorisations and discussions. Any supporting information required from Highveld relating to environmental concerns and compliance requirements must be identified by the prospective bidder and, if available, will henceforth be supplied by Highveld and not be unreasonably withheld, to support the drive of the prospective bidder towards environmental compliance.



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