

04

The Proposed Development



The Tata Steel Design Commitment

Tata Steel is committed to positively impacting the communities in which it operates and respecting the environment. Tata Steel has its own internal standards for building design. As well as award-winning sustainability, Tata Steel has adopted modern and attractive design concepts and finishes. Tata Steel is committed to high-quality, sustainable design, and is committed to continuing that legacy through the proposed development.



Overview of Proposed Development

Design Evolution

The design of the EAF has been primarily driven by functional and operational requirements. This has informed the size, location and appearance of much of the design proposal, with little room for design flexibility. It is essential that the EAF is located carefully relative to existing steelmaking process equipment and buildings being retained on the steelworks and utilised as part of the future configuration in Port Talbot.

Pre-application discussions and consultation has led to several design changes to the development. The extent and nature of the approach to green infrastructure as an integral element in the design process is agreed with both NPTC and NRW. This has maximised the opportunities to include soft and hard landscaped design features as part of the Proposed Development. Ecology, drainage and landscape inputs from NPTC and NRW have added significant value to the scheme. Similarly, technical evidence on noise and air quality has informed the scope for mitigation measures to be designed into the Proposed Development from the outset of the planning process.

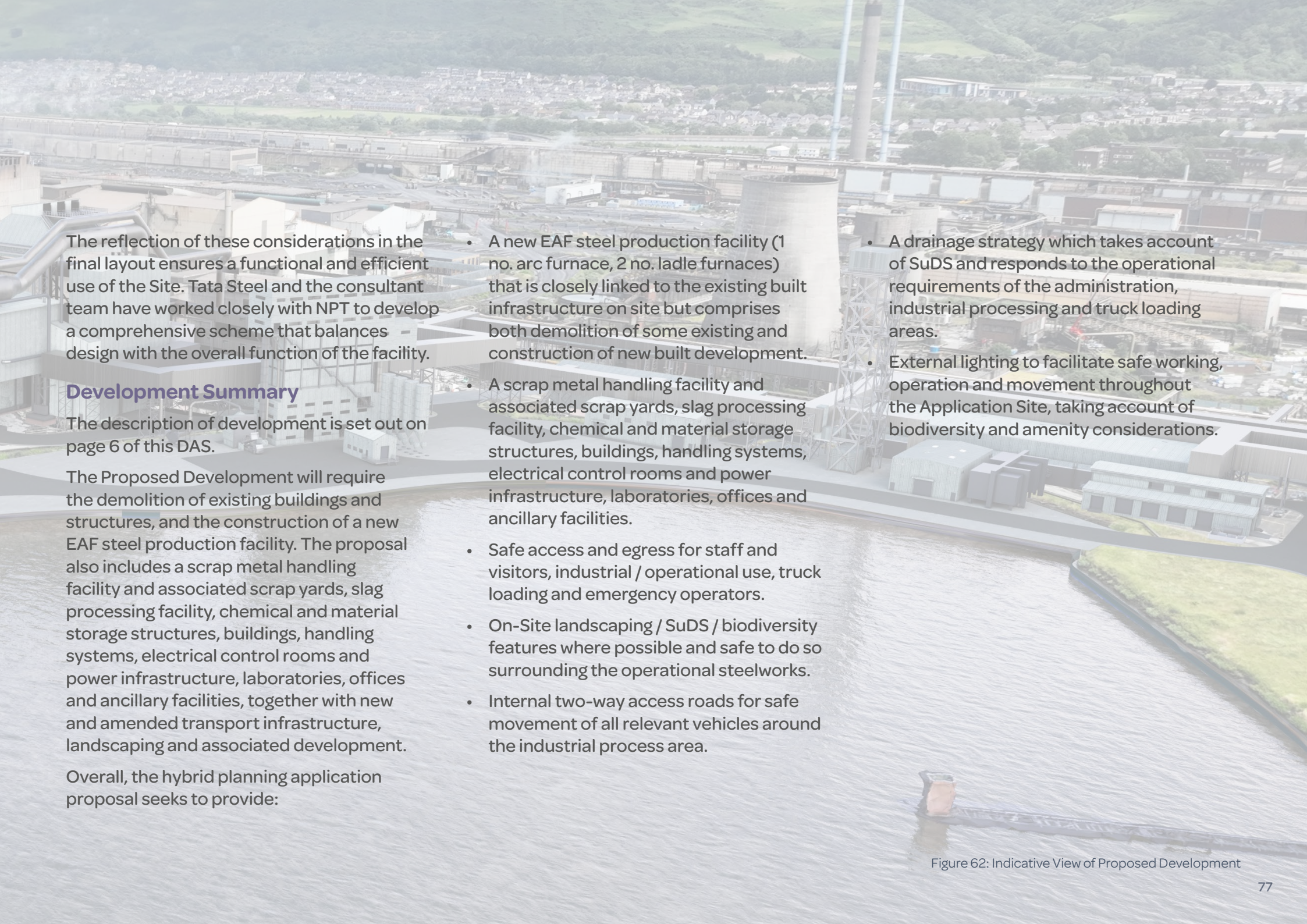
The positive influence of the pre-application discussions on the scope of the application submission and design of the Proposed Development accords with planning policy and best practice.

Design Approach

The Site layout and appearance of the EAF facility proposed in the full element of the application is reflective of the industrial nature of the Proposed Development. The proposal is informed by technical, design, planning, operational and safety requirements, including:

- Proximity and connectivity required to accommodate interacting stages of the EAF technology and process with the re-utilised and upgraded equipment on Site.
- Accessibility, including to the private road network and public highway.
- Safe movement and operation around the Site, including minimum lighting levels in all required areas of the Site.
- Promotion of community safety.

- Engineering and operational efficiencies across each of the seven stages of the EAF process, using the existing Site assets wherever possible.
- Minimal infill of the BOS Lagoon to ensure a functional lagoon remains as an important operational asset at the Site.
- Meeting all necessary health and safety requirements, including those relating to fire risk and major accidents and emergencies.
- Reducing new buildings and adaptations to existing structures to ensure heights that respond positively to the current scale of the steelworks.
- Except for the new canopy hood above the EAF in the existing BOS Plant building, new buildings, structures and plant equipment are lower in height than the established scale of built development in this area of the Site.
- The use of a typical industrial materials palette of steel cladding, muted and matt colours for all new build elements complement the approach to the size and scale of the proposed built development.



The reflection of these considerations in the final layout ensures a functional and efficient use of the Site. Tata Steel and the consultant team have worked closely with NPT to develop a comprehensive scheme that balances design with the overall function of the facility.

Development Summary

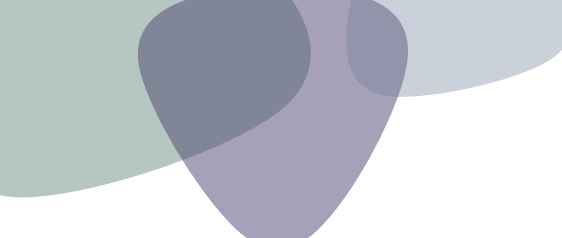
The description of development is set out on page 6 of this DAS.

The Proposed Development will require the demolition of existing buildings and structures, and the construction of a new EAF steel production facility. The proposal also includes a scrap metal handling facility and associated scrap yards, slag processing facility, chemical and material storage structures, buildings, handling systems, electrical control rooms and power infrastructure, laboratories, offices and ancillary facilities, together with new and amended transport infrastructure, landscaping and associated development.

Overall, the hybrid planning application proposal seeks to provide:

- A new EAF steel production facility (1 no. arc furnace, 2 no. ladle furnaces) that is closely linked to the existing built infrastructure on site but comprises both demolition of some existing and construction of new built development.
- A scrap metal handling facility and associated scrap yards, slag processing facility, chemical and material storage structures, buildings, handling systems, electrical control rooms and power infrastructure, laboratories, offices and ancillary facilities.
- Safe access and egress for staff and visitors, industrial / operational use, truck loading and emergency operators.
- On-Site landscaping / SuDS / biodiversity features where possible and safe to do so surrounding the operational steelworks.
- Internal two-way access roads for safe movement of all relevant vehicles around the industrial process area.
- A drainage strategy which takes account of SuDS and responds to the operational requirements of the administration, industrial processing and truck loading areas.
- External lighting to facilitate safe working, operation and movement throughout the Application Site, taking account of biodiversity and amenity considerations.

Figure 62: Indicative View of Proposed Development



Description of Process

The process diagram opposite (Figure 62) captures the essential elements of the proposed EAF steel making facility along with its wider processes and how it will operate at Port Talbot. Each of the elements include new built development required to integrate the facility into the existing infrastructure at the steelworks.

Stage 1 - Transport Infrastructure

The main raw materials for the Proposed Development are scrap metal, HBI, and pig iron. The materials will be transported on to steelworks mainly via the existing rail network. The Proposed Development includes upgraded rail line infrastructure to remove an existing pinch point in the single rail track on the Site. Dualling of the rail track will ensure two trains can service the scrap facility at any given time.

There will be some local deliveries of raw materials to the Site via the road network.

Stage 2 - Raw Materials

The Proposed Development will increase the scale of open scrap metal handling at the steelworks. The proposal includes for a replacement new scrap yard facility, including storage and processing equipment. Operation of the EAF facility requires circa 2.2mt of scrap material per annum. Approximately 70,000 tonnes of scrap steel will arrive at the steelworks every week.

The HBI and pig iron storage area is in the southern area of the proposed new scrap yard. It will comprise a new concrete pad for temporary storage of these materials directly offloaded from freight trains. HBI will be transported to a HBI bunker and pig iron to the shredded scrap yard.

The raw materials will be transported through the Site by large transport vehicles using a new, extended and upgraded internal road network. This includes a combination of:

- Works to existing roads, including widening and re-surfacing
- The creation of new roads that will facilitate the movement of super heavy vehicles from the scrap handling areas to the EAF

The scrap metal will be moved to the shredded scrap yard for temporary storage before it is 'charged' on to the proposed consteel conveyor. Scrap will be continuously fed onto this conveyor, pre-heated (to prevent cooling and evaporate any water on the scrap) and loaded into the EAF in a continuous (rather than batch charging) process. The EAF is to be located within the existing BOS building, which will be extended and repurposed to accommodate electric arc steelmaking.

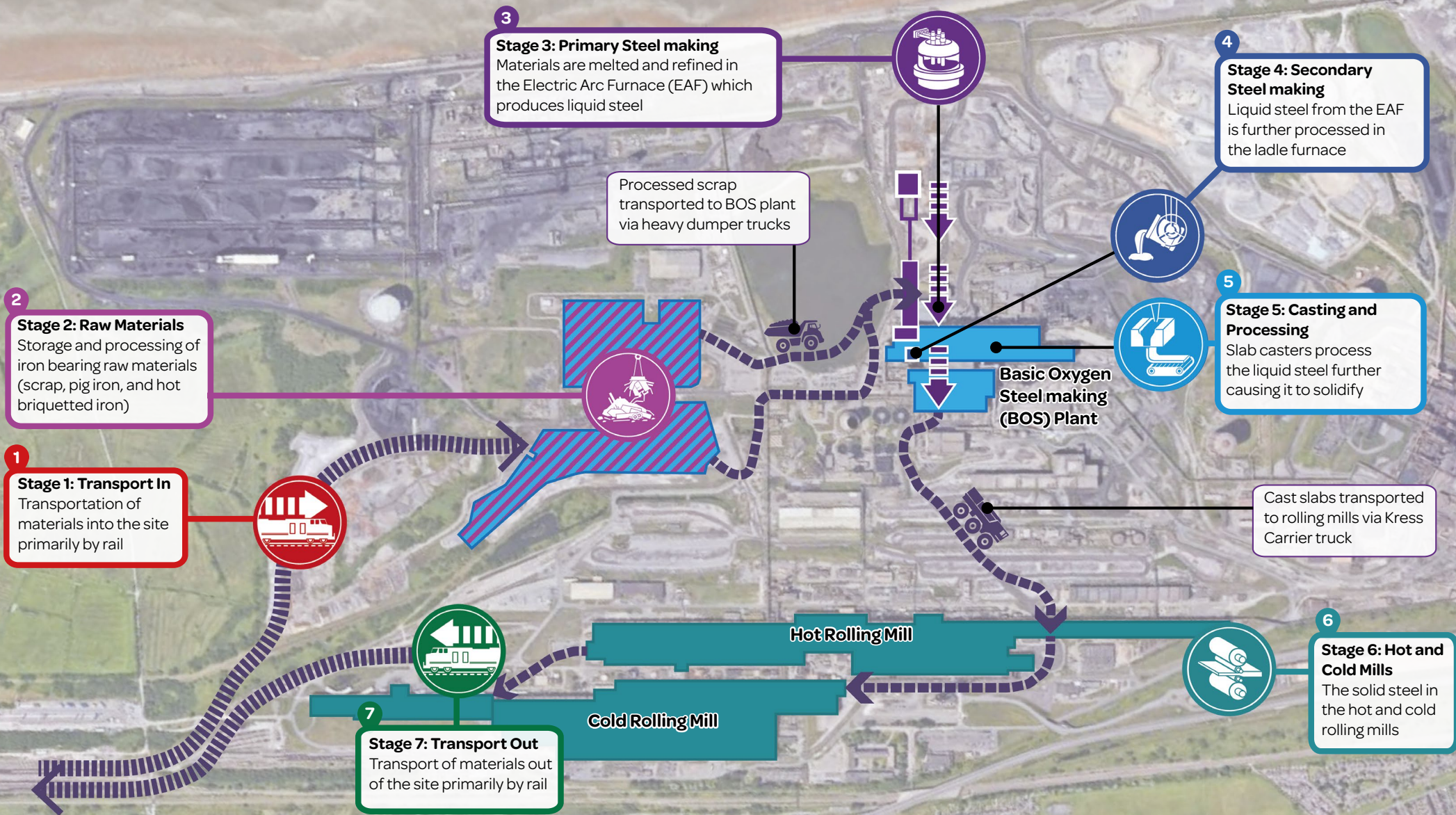
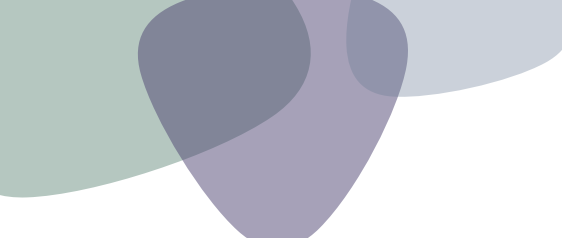


Figure 63: Process Diagram



Stage 3 – Primary Steelmaking

Carbon electrodes within the furnace will create an electrical arc, which passes through the metal causing rapid heating, eventually melting the charge scrap. With the continuous process, the scrap will be charged into the furnace with molten metal already in the vessel. The EAF will be operated from a control room located in the roof of the BOS building that collects data and allows for optimisation of the process. Lime and dolomite (stored in an external bunker) will also be added to the melt to remove impurities and to help form the slag layer.

The molten metal will be tapped from the EAF vessel at a production rate of 320 tonnes of steel every 42 minutes. This will create an annual production capacity of circa 3.2mt per annum.

Stage 4 – Secondary Steelmaking

The molten metal will be transferred into one of two new ladle furnaces (LFs). The chemistry of the steel will be refined to obtain the desired grade of steel for the customer. Ferro-alloys from the bunker will be added at this stage as appropriate for the application the steel is being produced for.

Stage 5 – Casting and Processing

Once the steel is fully refined in the LFs, it will be transported to the existing continuous casting plant (concast). Molten metal will be poured from a hopper high in the roof of the building into the cooled aperture of one of two upgraded continuous casters, which rapidly solidifies the surface of the metal and forms a thick continuous steel block. The block will be cut with plasma torches to the correct length. These are known as steel slab and will be the feedstock for the cold and hot rolling mills already on the steelworks.

Stage 6 – Hot and Cold Mills

Once sufficiently cooled, these slabs will be transferred to existing stockyards to the west of the rolling mills. They will be transformed into coils in the upgraded Hot Strip Mill, before being processed in the new pickling line located in the Cold Rolling Mill.

Stage 7 – Transport Out

The low-carbon steel coil is then ready to be transported (predominantly by rail) to Tata Steel sites across the UK for further processing or delivered directly to its customers.



Proposed Demolition Works

To accommodate the new EAF facility, demolition and deconstruction of certain existing industrial structures will be required. The buildings and structures to be demolished are shown on plan EAF-LAW-X-X-DR-A-040001_P03 (Figure 64 opposite). Images of the buildings and structures to be demolished are shown across the following pages.

KEY	
Site Boundary	
Wider Tata Ownership	
Existing Buildings & Structures to be Demolished	

Scrap Storage Shed	1A
Existing Pump House	1B
Harsco Baler Plant	1C
Weigh Bridge	1D
Harsco Frag Plant	1E
Electrical Room	1F
Mechanical/Electrical Workshop	1G
RH Penthouse	1H
RH Cooling Tower	1I
RH Pump House	1J
Slag Splashing Compound	1K
Storage Shed	1L
Coal Conveyor Superstructure	1N
Inlet Structure	1O
BF Gas Pipe Rack (Partially Removed)	1P
Existing Compressor House With MCC Room	1Q
Concrete Abutments	1R

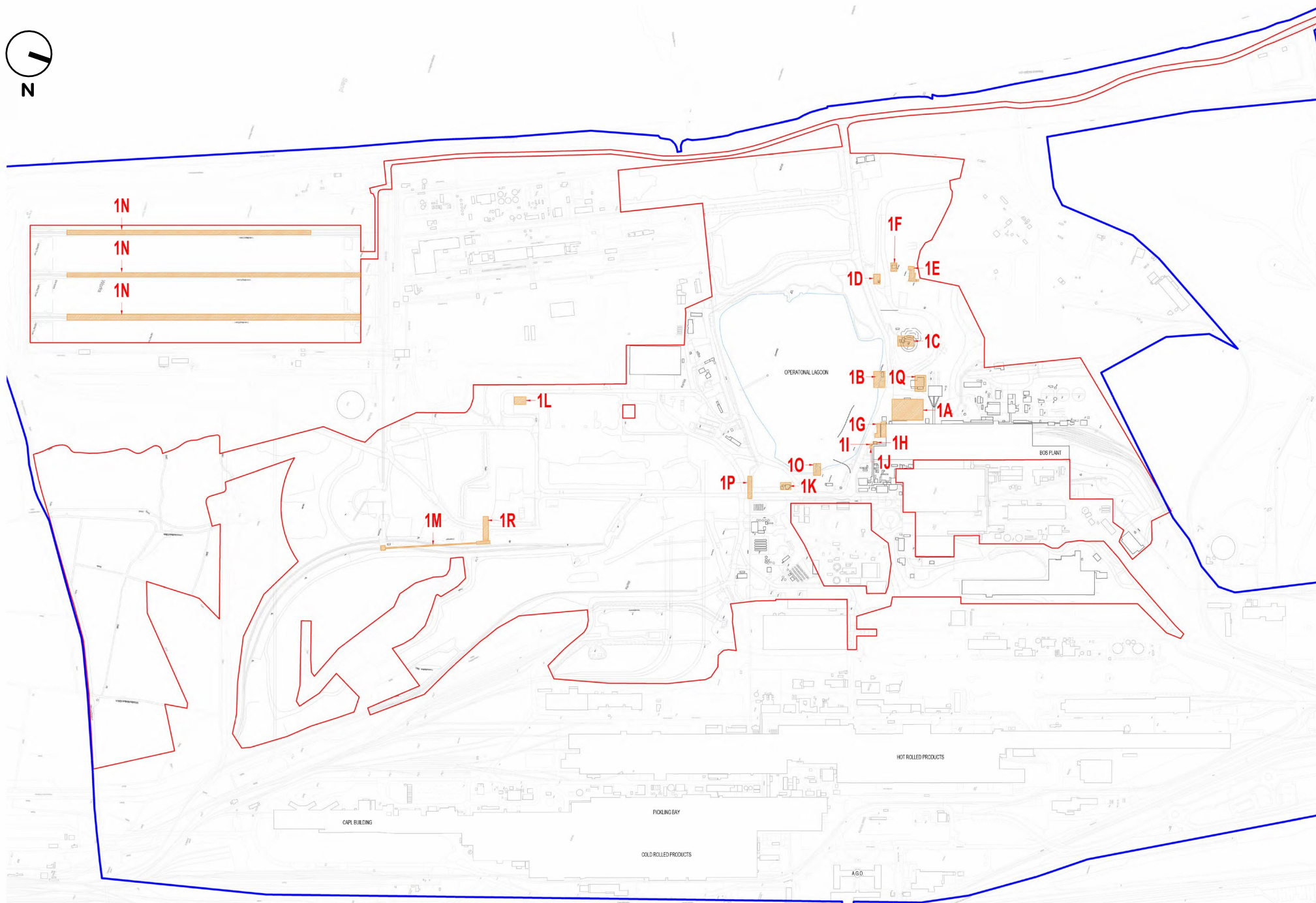




Figure 65: 1A Scrap Storage Shed



Figure 67: 1D Weigh Bridge



Figure 66: 1B Existing Pump House



Figure 68: 1E Harsco Frag Plant



Figure 69: 1C Harsco Baler Plant



Figure 70: 1F Electrical Room

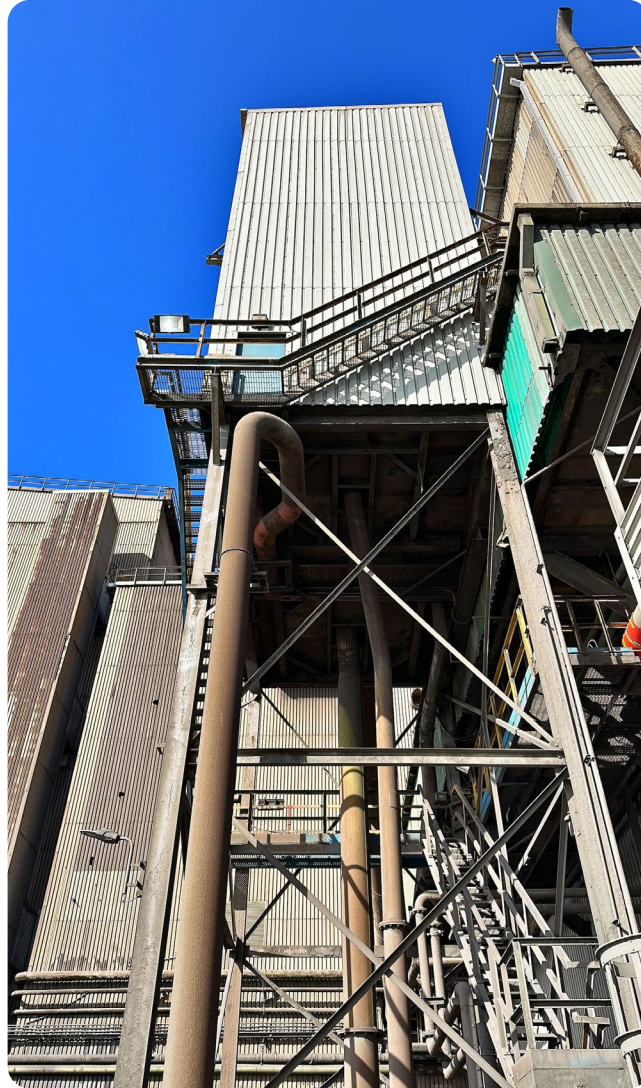


Figure 71: 1H RH Penthouse



Figure 72: 1I RH Cooling Tower



Figure 73: 1J RH Pump House



Figure 75: 1L Storage Shed



Figure 76: 1N Coal Conveyor Superstructure



Figure 74: 1K Slag Splashing Compound



Figure 77: 1P BF Gas Pipe Rack (Partially Removed)



Figure 78: 1Q Existing Compressor House With MCC Room



Figure 79: 1O Inlet Structure



Figure 80: 1Q Concrete Abutments