HANCOCK PROSPECTING PTY LTD

Alpha Coal Project Supplementary Environmental Impact Statement

H Coal Mine – IPCC Functional Description

SINCLAIR KNIGHT MERZ SKM

MineOp CONSULTING PTY LTD

IPCC Functional Description

- HC-SKM-12000-RPT-5000

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Contents

1. Introduction

1.1. Purpose

The purpose of this document is to provide an overview of the In-pit Crushing and Conveying (IPCC) systems proposed for the Alpha Coal Bankable Feasibility Study. The report describes the mining system, conveying system and dump system as well as auxiliary equipment and support systems to operate the IPCC system.

1.2. Scope

The Alpha open cut mining operation will require the removal of a considerable amount of overburden material from the operating / advancing faces ahead of coal mining. An IPCC system will be setup to remove the upper bench of the overburden; this will operate in front of a dragline operation followed by the coal removal system. Initially the IPCC system will convey this material out-of-pit to dump areas, however later in the mine life the system will convey and dump the material in-pit.

Two IPCC systems will operate in the Alpha open cut mine:

- IPCC system 1 will operate in mining pits No 2 and pit No 3 South
- IPCC system 2 will operate in mining pits No 3 North and No 4

The two IPCC systems will be identical regarding functional description and equipment description.

1.3. Glossary

The following terms are used within this document.

Term	Acronym	Definition
Bench		Horizontal step or surface along which material is mined
Cable Reel Car		Rail mounted self propelled vehicle with cable reeler used to carry electrical power supply to mining system equipment. Operates on rails mounted on conveyor modules
Face		Exposed surface of material being excavated
Mobile Hopper Car	MHC	Rail mounted self propelled vehicle with loading hopper and impact idlers used to feed excavated material onto conveyors
Mobile Sizing Rig	MSR	Track mounted machine incorporating feed hopper, apron feeder, rolls sizer and discharge conveyor used to reduce size of material excavated by shovel.

Term	Acronym	Definition
Mobile Stacking Conveyor	MSC	Track mounted self propelled machine used to transfer material from the Dump Conveyor via the tripper and discharge it to the dump via the stacking conveyor
Million tonnes per annum	Mtpa	
Rolls sizer		Machine used to reduce the size of ROM material between rotating rolls equipped with teeth
Run of Mine	ROM	Mined material as excavated prior to sizing, crushing or any other treatment
Shovel		Large track mounted self propelled electric powered machine equipped with a bucket and used to excavate ROM material from the face and to feed MSR.

Note: Throughout this document a standardised nomenclature has been adopted. Mobile refers to machines that are able to relocate under their own power. Relocatable refers to machines or equipment that can be readily moved but are unable to do so under their own power.

2. Alpha Mine Overview

2.1. General

The Alpha Coal Project will be a major new open cut coal mine and associated infrastructure in the Galilee Basin in Queensland. The Project is located on the eastern side of the Galilee Basin, approximately 70 km north of the town Alpha in Central Queensland. The project is based upon a 30 Mtpa (product), Greenfield open cut thermal coal mine.

The development of the Alpha Coal mine requires the development of six separate pits with the requirement to remove significant amounts of overburden to reach the coal seams. The main mining method for the removal of overburden will be via draglines with a truck and shovel fleet for coal and partings removal. However, in some pits the material properties of the upper levels of overburden prevent the use of draglines. This occurs in pits 2, 3 and 4. In this case an IPCC system will be used to remove the upper horizon ahead of the dragline.

The horizons are of the order of 15 – 30 m deep, generally uniform and geometrically simple. IPCC systems are bulk mining operations, and they offer the greatest opportunity when there are large tracts of material which does not require detailed excavation. When the horizons are continuous and the equipment doesn't require frequent reconfiguration or relocation, the operation cost savings can be considerable.

2.2. Mine Configuration

The configuration of the Alpha mine has 6 separate pits that run north to south in the mine. Each pit is separated by bridge and truck ramps are allocated in the centre of each pit. The IPCC systems will only operate in pits 2, 3 South, 3 North and 4.

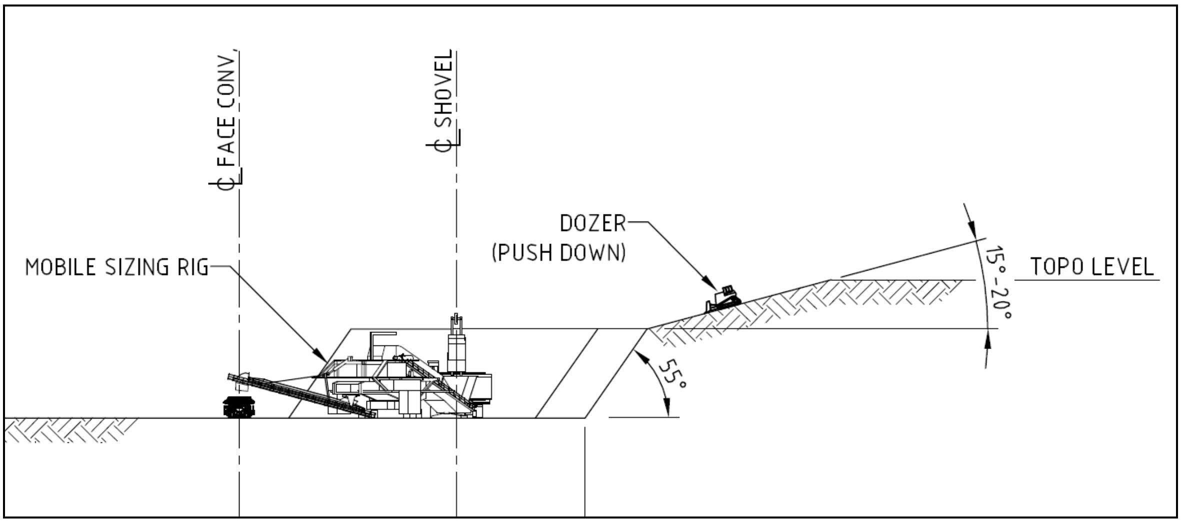
3. Face Mining Operation

The Alpha Coal Mine will utilise two IPCC systems to service pits 2, 3 and 4. System 1 will service pit 2 and 3 south and System 2 will service pit 3 north and pit 4. Each mining system is composed of the following equipment:

- Electric rope shovel
- D11 Dozer/s
- Mobile Sizer Rig (MSR) with twin rolls-sizer

The dozer and shovel will be used to mine the upper layer of overburden (tertiary material). The dozer will push material to the shovel. The electric rope shovel will feed the mobile sizing rig which will reduce the lump size of the excavated material to allow it to be conveyed. The mobile sizing rig will discharge the primary sized material onto a face conveyor as shown in Figure 3-3-1.

Given the nature of the surface topography the mining system will remove a bench from 15 to 30 m high. Nominally the shovel will remove an 18 m bench with the dozer pushing an extra 12 m of material down to the shovel. This will allow the removal of a bench up to 30 m high with the system.



- **Figure 3-3-1 Mining System**

Each pit will be setup with a face conveyor for the mining system to operate along, which means there will be two face conveyors for each mining system. The mining system will move between face conveyors as the mine advances to the north.

4. Conveying Operations

The conveyor system required for each mining system will be as follows:

- Face conveyors – to receive material from the mining systems and transfer to the edge of the pit;
- Cross-pit conveyor – to receive material from the face conveyor(s) and transfer to the dump conveyor; and
- Dump conveyor – to receive material from the cross-pit conveyor and discharge onto the mobile stacking conveyor.

Each system will have 2 face conveyors feeding a single cross-pit conveyor that will transfer material to the dump conveyor. The design capacity of each system will match the throughput of the shovel. A summary of the equipment capacities is outlined in the table below:

Table 4-1 Summary of equipment capacities.

<table>
<tr><th>Mining Pit</th><th colspan="2">Electric Rope Shovel</th><th colspan="2">Face Conveyor</th><th colspan="2">Transfer Conveyor</th><th colspan="2">Dump Conveyor</th></tr>
<tr><th></th><th>Nominal Capacity (tph)</th><th>Design Capacity (tph)</th><th>Nominal Capacity (tph)</th><th>Design Capacity (tph)</th><th>Nominal Capacity (tph)</th><th>Design Capacity (tph)</th><th>Nominal Capacity (tph)</th><th>Design Capacity (tph)</th></tr>
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<tr><td>3 South</td><td>8500</td><td>9500</td></tr>
<tr><td>3 North</td><td rowspan="2">8500</td><td rowspan="2">9500</td><td>8500</td><td>9500</td><td rowspan="2">8500</td><td rowspan="2">9500</td><td rowspan="2">8500</td><td rowspan="2">9500</td></tr>
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</table>

The conveyors will be relocatable with each conveyor comprised of four key components:

- Relocatable drive head assembly;
- Intermediate modules that carry the belt;
- Relocatable tail end assemblies; and
- Mobile hoppers for loading the conveyor (either driven or non-driven).

Other components required for the conveyors are:

- Cable reel car for distribution of HV power along the face conveyors to the mining equipment;

- Restraining blocks for drive head and tail ends;
- Trackshift head for relocating the face and dump conveyors; and
- Transport crawler for relocating conveyor drive heads and deadman restraints.

- **Table 4-4-1 Conveyor components required for each conveyor**

Conveyor No.	Pit	Type	Drive Head	Ground Module	Tail end structure	Hopper Car		Cable Reel Car	Restraining Blocks
						Non-driven	Driven		
BC101	2	Face Conveyor	1	Varies	1		1	1	3
BC201	2	Face Conveyor	1	Varies	1				3
BC701	2 & 3 South	Transfer Conveyor	1	Varies	1	1			3
BC801	2 & 3 South	Dump Conveyor	1	Varies	1	1			3
BC301	3 North	Face Conveyor	1	Varies	1		1	1	3
BC403	4	Face Conveyor	1	Varies	1				3
BC702	3 North & 4	Transfer Conveyor	1	Varies	1	1			3
BC802	3 North & 4	Dump Conveyor	1	Varies	1	1			3

Note: The driven hopper car and cable reel car will be shared between face conveyors. When the mining system is relocated between face conveyors the hopper car and cable reel car will be relocated also.

4.1. Conveyor Components

Each of the conveyors in the system comprises a number of standardised relocatable components.

The common technical details of each of the conveyors are:

- Belt width 1800 mm;
- Belt speed 5.95 m/s;
- Belt carcass ST4000, 15 mm top cover, 9 mm bottom cover;
- Installed power in multiples of 1350 kW;

- Carry belt trough angle 45 °.

Each of the conveyor components are described in the following sections.

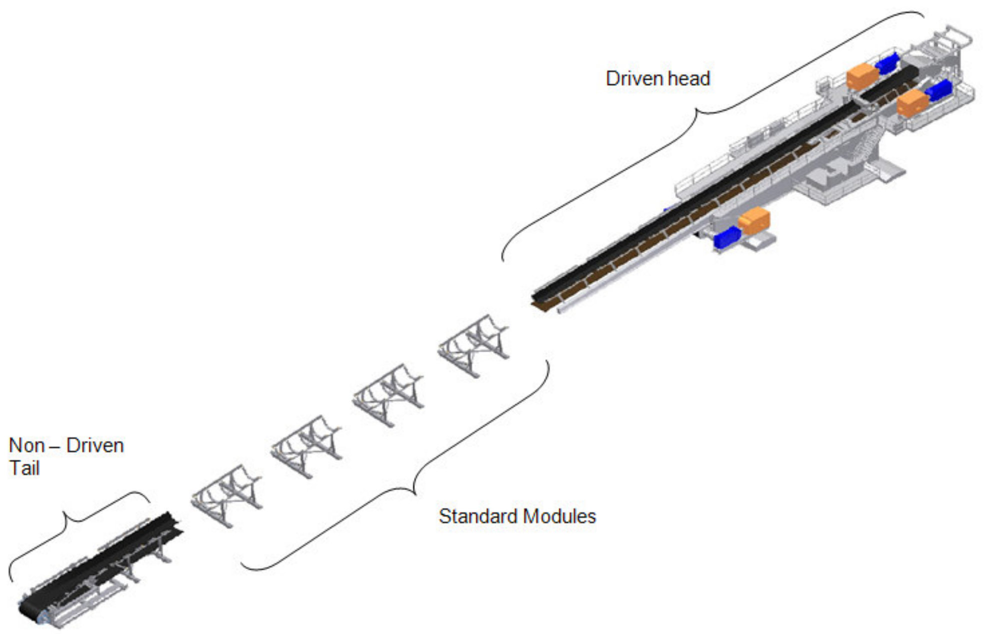


Figure 4-1 Typical conveyor components

4.1.1. Conveyor Drive Head

The drive head comprises a primary drive unit and a secondary drive unit together with a winch operated take-up, a discharge chute and associated electrical equipment all mounted on a pontoon supported structure.

The drive heads are generally standardised across each of the conveyors however there a minor variations such as the dump conveyor not requiring a head chute.

Refer to drawing HC-SKM-12300-DRG-0050 for additional details.

4.1.2. Hopper Car

Hopper Cars are configured as non-driven and driven. The driven hopper cars have wheel drives, rail clamps and associated electrical equipment to allow the continuous relocation on face conveyors and under multiple shuttle chutes.

The non driven hopper cars are towed into position using the towing lugs provided on each of the hopper support legs and anchored by chain restraints.

The impact zone of the material in the hopper during loading can be adjusted to suit the flow properties of the overburden material. Free flowing material can be deposited at the rear of the hopper to flow down the back wall and land on the conveyor at approximately the same velocity as the belt. Cohesive material, if it builds up and causes blockages, can be deposited directly over the hopper outlet. The Hopper Car position can be adjusted along the rails to achieve the required material discharged.

Refer to drawing HC-SKM-12300-DRG-0058 for additional details.

4.1.3. Cable Reel Car

The Cable Reel Car consists of two 11 kV trailing cable reelers supported by a steel frame mounted on multiple wheeled bogies, similar to the Hopper Car. The cable reel car is used to roll up and pay out trailing cable along the face conveyor as the shovel and mobile sizing rig moves along the face.

Refer to drawing HC-SKM-12300-DRG-0057 for additional details.

4.1.4. Non-Driven Tail

The Non-Driven Tail comprises a single bend pulley mounted on a concrete filled pontoon structure.

The suspended carry idlers allow for a transition from a flat belt at the tail pulley to a fully, 45 degree troughed belt before material is loaded on to the belt. The flat return idlers transition the belt for belt cleaning prior to the tail pulley.

Refer to drawing HC-SKM-12300-DRG-0055 for additional details.

4.1.5. Conveyor Ground Modules

The Conveyor Modules provide support for the conveyor belt idler sets and power and control cables. There are a number of different Conveyor Module types:

- Module type A is the general module used when the belt is at ground level. This module supports suspended trough carry idlers and suspended v-return idlers. Its height is fixed. The majority of modules on each conveyor will be of this type.
- Module type A (modified) – is the general module used on the cross-pit conveyor. This module is the same design as type A except the rail has been removed and pontoons

shortened. As the cross-pit conveyor doesn't need to trackshifted the module design can be simplified.

- Module types B, C and D have adjustable heights and are used at increasing belt heights (type B lowest to type D highest). These modules support suspended trough carry idlers and suspended v-return idlers. These modules are used at the approach to the conveyor drive heads.
- Module type E is similar to type B but has a live shaft flat return idler and the facility to install belt cleaners. This module is installed on the tail end of all conveyors.

Refer to the following drawings for additional details:

- **Table 4-2 Ground Module Drawing Numbers**

Drawing Number	Description
HC-SKM-12300-DRG-0051	Type 'A' Ground Module
HC-SKM-12300-DRG-0052	Type 'B' Ground Module
HC-SKM-12300-DRG-0053	Type 'C' Ground Module
HC-SKM-12300-DRG-0054	Type 'D' Ground Module
HC-SKM-12300-DRG-0059	Type 'A' Ground Module (modified)

4.1.6. Restraints

The mass of each conveyor component (drive head or tail end) is insufficient to react against the belt tension and prevent movement under all operating conditions.

The Restraining weight is a cast concrete structure with rails to be installed to support the cable reel car during relocation. This arrangement is designed for relocation with the MTC.

Refer to drawing HC-SKM-12300-DRG-0056 for additional details.

4.1.7. Instrumentation

Instrumentation mounted on the conveyors includes but is not limited to the following devices:

- Belt Drift switches, located at the head and tail end of each conveyor (see below);
- Break link switches, located on the hopper cars;
- Radar level sensors, located on the hopper cars;
- Proximity switches, located on the impact plate;
- Warning Sirens / lights;
- Under-speed / slip detection switches, located on the pulleys;

- Belt rip detectors, located at the drive head and hopper car of each conveyor;
- Lanyard pull-wire switches;
- Field Emergency Stop and Local Control / Isolation Stations;
- Travel limit switches, located on the take-up trolleys;
- Load cells, located on the take-up rope anchors and the driven tail.

4.2. Conveyor Trackshifting

The Face and Dump Conveyors would be required to move with the advancing face of the mine and advancement of the dump. This type of move would usually occur on the same horizon but would also be possible on inclines up to 10 %. Because these moves would occur regularly it would be impractical to disassemble the conveyor for the move. A technique called track shifting would be used. Track shifting involves the sideward shifting of a conveyor.

The relocatable type of conveyor has rails joining the pontoons of the intermediate modules. Bulldozers equipped with a special track shifting head attached to the rail would be used to traverse the conveyor steering slightly off parallel. This technique causes the rail (and conveyor) to be displaced laterally in the locality of the dozer by approximately 300-500 mm. The dozers would repeat their passes continually until the conveyor has been shifted to the desired location.

The bulldozer lifts the track shifting head by raising its blade arm prior to shifting. This raises the conveyor module pontoon from the ground, breaking any suction with wet material and minimizing interference with uneven ground. Similar trackshifting heads based on pipe layer designs instead of dozers also provide this slight lift for the same reason.

Trackshifting can occur in a parallel fashion or as a pivot operation. Under the pivot operation one end of the conveyor remains stationary with the far end being displaced the greatest distance. Parallel track shifting involves the equal movement of the entire conveyor sideward.

- **Figure 4-2 – Conveyor track shifting bulldozer in operation.**

- **Figure 4-3 – Final conveyor alignment after track shifting would be achieved using a grader.**

The conveyor head end assemblies and restraint blocks would be progressively shifted using a transport crawler. The transport crawler would be a large self propelled track mounted machine capable of lifting the heavy structures and transporting them where required (refer to Figure 4-4).

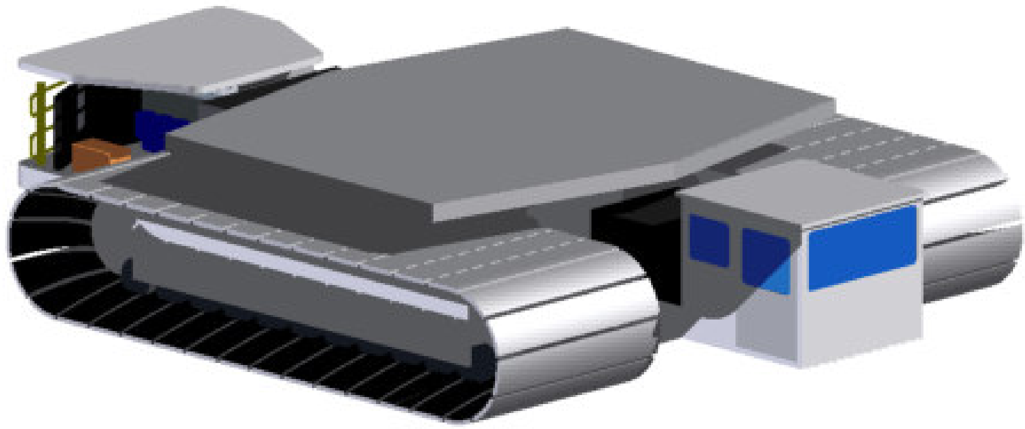


Figure 4-4 – Typical transport Crawler.

The skid mounted conveyor tail end modules would be relocated using bulldozers.

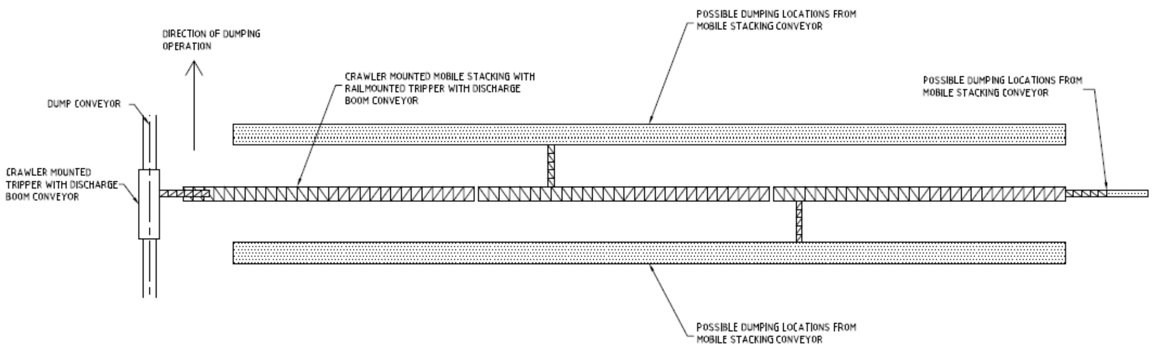
4.3. Conveyor Extension

Extension of the in-pit conveyors, especially the cross-pit conveyor, would be required from time to time as the mining operations progress. Conveyor extension would involve the installation of additional conveyor intermediate modules and belt to lengthen the conveyor. Modules would be positioned prior to the conveyor being stopped. The extension would then involve cutting the conveyor belt, relocating the tail end and restraints, installing the additional modules in the gap left by the tail end, and then installing and splicing the new belt. Extension length would usually be a minimum of half a reel of conveyor belt.

5. Dumping Operations

The dumping operations for the IPCC systems involves a period of out of pit dumping for the first 4 to 5 years and then as the coal seam advances the dump system will relocate to in-pit dumping. It is expected that this will occur in the year 2022.

The dump conveyor for each system will be about 2000m long with a mobile stacking being fed off a tripper that can operate the full length of the dump conveyor. The mobile stacking conveyor will be 210m long and has the ability to dump in front and behind the dump conveyor as well as dispose material off the end of the conveyor (refer to Figure 5-1). This flexibility will be used in the creation of the dump.

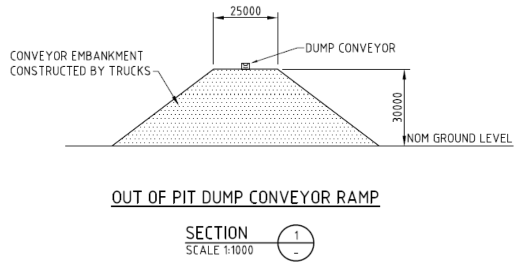


- **Figure 5-1 Mobile stacking conveyor dumping areas**

5.1. Out of Pit Dumping

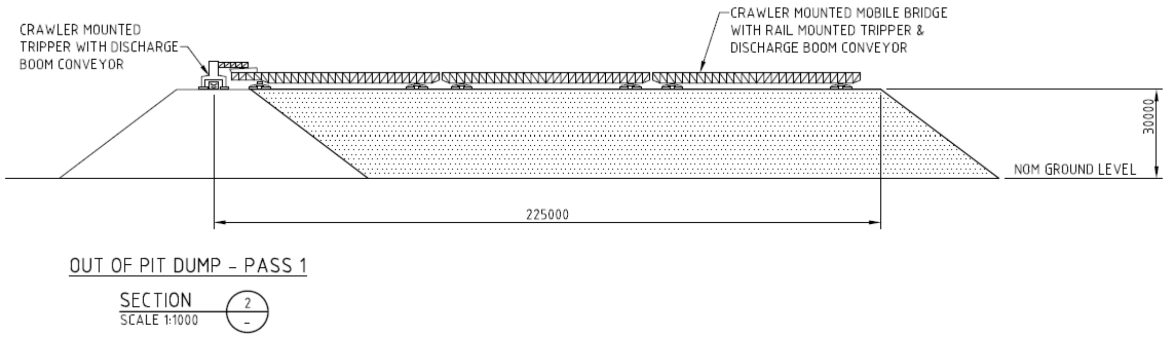
In the initial stages of the mine the waste material will transfer to an out of pit dump for each system. The dump will be constructed as follows:

Conveyor embankment will be constructed by truck and excavator operation. This embankment may be constructed on existing truck dump area or the existing truck dump can be utilised as the initial embankment.



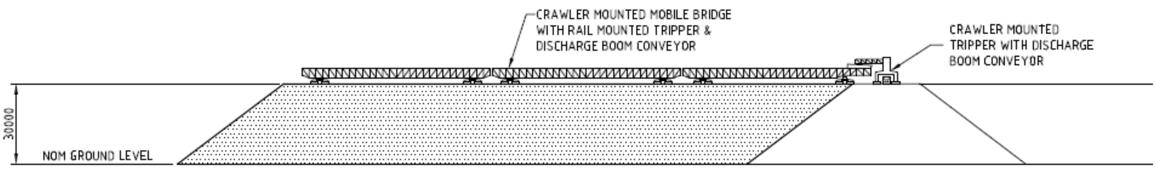
- **Figure 5-2 Conveyor embankment construction.**

The mobile stacking conveyor will commence operation at the tail of the dump conveyor on nominal ground level on the western side of the conveyor. It will dump with a nominal 5 % cross and 5 % inline grade increasing the dump height as it progress.



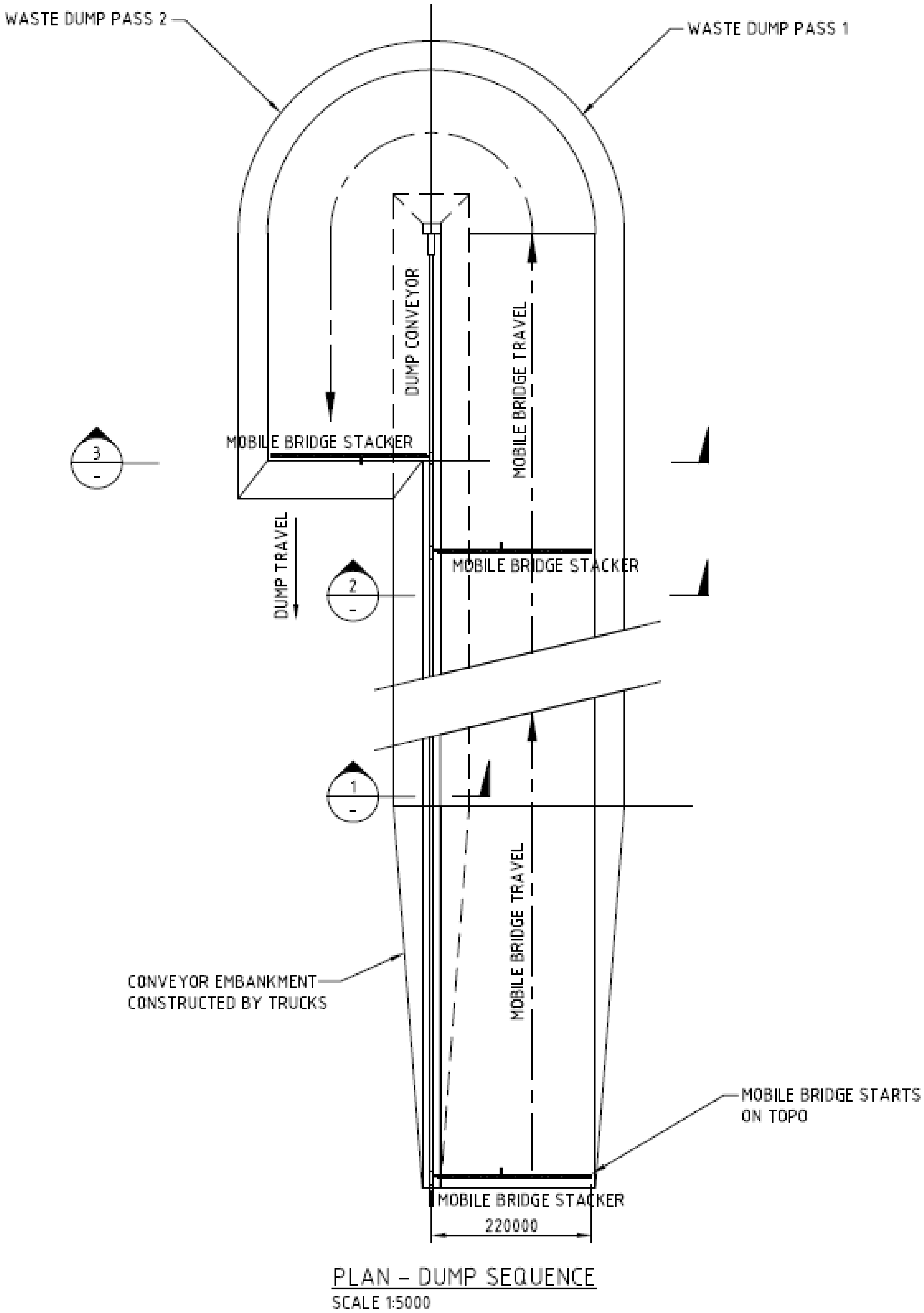
- **Figure 5-3 Mobile stacking conveyor commencing operation.**

When the mobile stacking conveyor has reached the head end of the conveyor it will continue to dump around the head and continue its operation on the eastern side of the dump conveyor.



- **Figure 5-4 Mobile stacking conveyor on eastern side of dump conveyor.**

This operating sequence is shown in plain view in Figure 5-5.

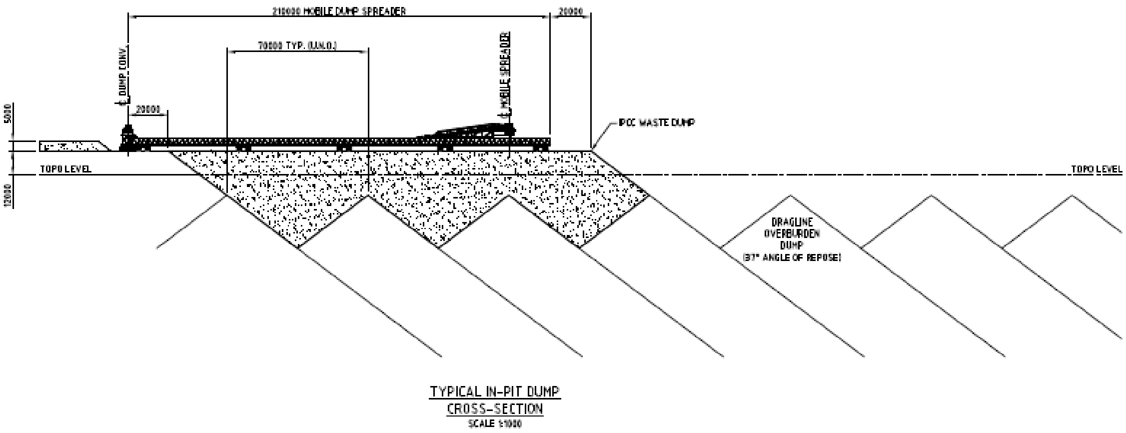


■ **Figure 5-5 Plan view of operating sequence.**

5.2. In Pit Dumping

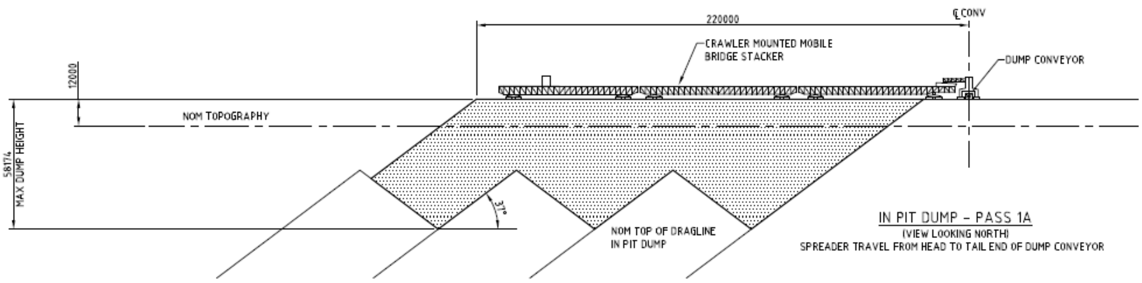
Once the mine has developed, the IPCC operation will commence in pit dumping. The general method to construct the in pit dump will be outlined in the following section.

Note: The IPCC waste material will be placed on top of waste material deposited by the dragline and truck and shovel operations. The figure below shows the expected cross section of the pit at this stage.



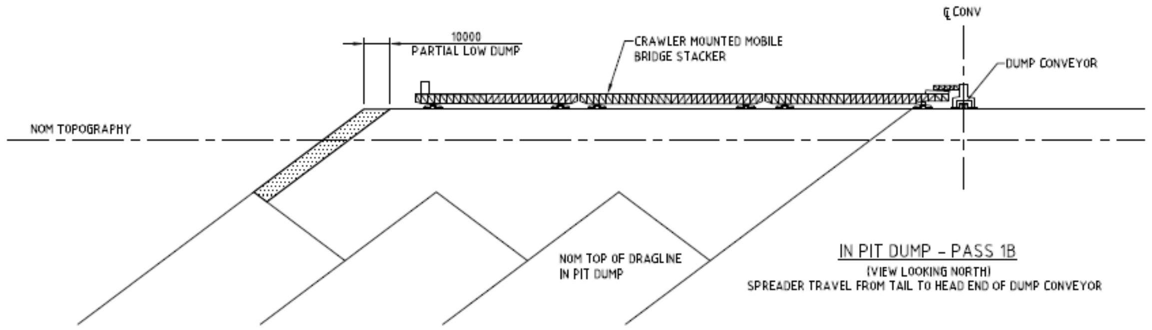
- **Figure 5-6 Cross section of in-pit dump**

The mobile stacking conveyor will commence operation at the head-end of the dump conveyor at the same RL. The stacker will low dump an average 40 m in front of itself and continue until it reaches the tail end of the conveyor. This height will vary with the varying height of the dragline dump.



- **Figure 5-7 Initial dump operation – Low pass 1.**

The stacking conveyor will then head back along the dump conveyor completing a partial low dump at the head end of the stacking conveyor (refer to figure 5-8). The material will be discharged off the end of the stacking conveyor to compete the pass.

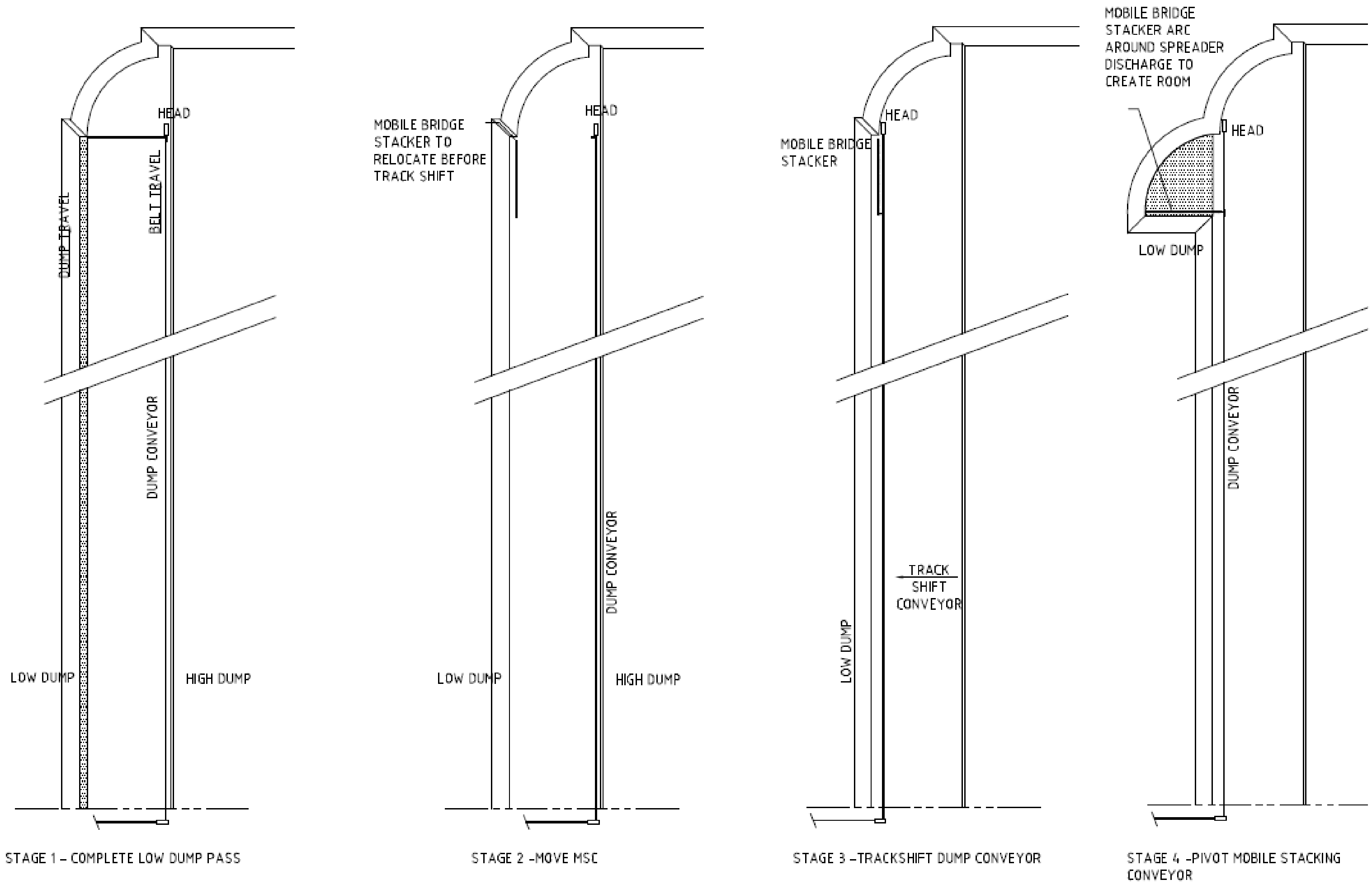


- **Figure 5-8 Partial low dump pass 2.**

When the mobile stacking conveyor has reached the head end of the dump conveyor it will pivot around the head of the conveyor. Then the dump conveyor will be trackshifted.

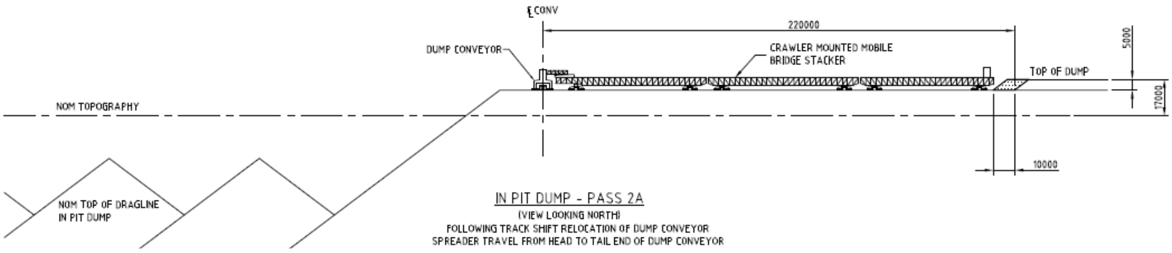
To trackshift the dump conveyor the mobile stacking conveyor needs to be moved out of the way to allow trackshifting. Figure 5-9 outlines the location of the mobile stacking conveyor during the trackshift.

Once the trackshift is complete the mobile stacking conveyor will pivot around the head end of the dump conveyor to move from low dump to high dump. Dozer operation will be required to ensure there is enough room for the mobile stacking conveyor to relocate.



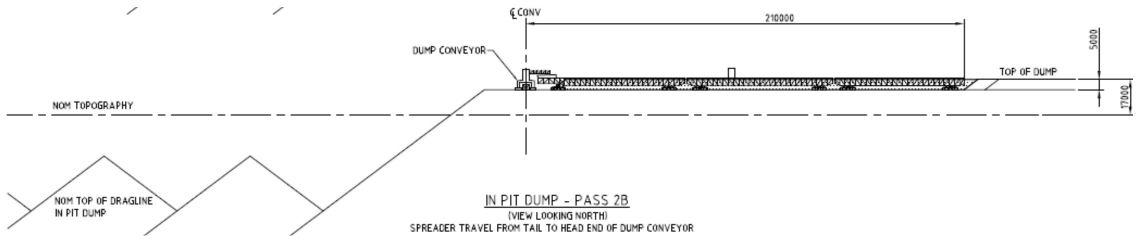
- **Figure 5-9 Conveyor trackshift for in pit dumping**

The mobile stacking conveyor will complete a 5 m partial high dump down the dump conveyor until it reaches the tail of the conveyor.



- **Figure 5-10 Partial high dump pass 3.**

The mobile stacking conveyor will then complete a 5 m high dump back towards the head of the dump conveyor.



- **Figure 5-11 High dump pass 4.**

The mobile stacking conveyor will then pivot around the head of the dump conveyor and operation will commence again.

5.2.1. Dump Conveyor Pit Relocations

For each mining system there is one dump conveyor and spreading system, this system will receive all material from the mining system. Due to the geometry of the pit, when the dump conveyors are moved in-pit the length is limited to 2000m, this is compared to a face length of up to 6km for the shovel. Therefore the advancing rate of the dump conveyor is much faster than the advancing rate of the face conveyors. For this reason the dump conveyor will need to be relocated between pits to prevent the dump conveyor catching up to the mining face.

For example, the dump conveyor for system 1 is initially installed in pit 3a, however after approximately 7 years of operation the dump conveyor will become too close the dragline and coal clearance operations (within 600m) and therefore need to relocate to pit 2 before recommencing dump operations. A schedule of dump conveyor relocations is outlined in the table below.

- **Table 5-1 Dump Conveyor Relocations**

Mining System	Years Requiring Dump Conveyor Relocation
System 1	2024, 2030, 2035, 2041
System 2	2030, 2041

Each relocation will require significant downtime for each system (300 to 400 hours) and needs to be taken into account for that year of operation. When the dump conveyor is relocated there will need to an extension to the cross-pit conveyor to reach the new dump conveyor location.

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6. Electrical HV Supply and Reticulation

6.1. Power Demand

The total installed load for two IPCC systems are summarised in Table 6-1.

Refer to load list HC-SKM-12000-CAL-7000 for details of individual loads, diversity factors, mechanical utilization factors and the power factors considered.

System	kVA Max Demand
IPCC System one	17,381 kVA
IPCC System two	17,611 kVA
TOTAL	**34,992 kVA**

- **Table 6-1 IPCC loading summary**

6.2. Power Distribution

The proposed Alpha Open Cut operation has two IPCC systems each containing relocatable conveyors, sizing rigs, electric shovels and mobile stacking conveyors requiring 11 kV power. The concept for power distribution for both IPCC systems is identical. For the purpose of a functional description one system will be described:

One 66/11 kV relocatable substation will be located near the face operations to supply 11 kV to the mobile sizing rig, electric shovel and face conveyors via trailing and reeling cables. The relocatable substation will relocate with the mining face over the life of the mine.

A second 66/11 kV relocation substation will be located near the dumping operation to supply 11 kV to the Ramp conveyor, mobile stacking conveyor and dump conveyor via trailing and reeling cables. The relocatable substation will relocate with the dumping operation when it moves from out-of-pit dumping to in-pit dumping.

66 kV power will be distributed to the substation via Over Head Line (OHL). The connection point for the 66 kV feeders will be determined during detail design.

Refer to drawings HC-SKM-12300-DRG-7001 to 7009 for the proposed location of 66/11 kV relocatable substations and 66 kV OHL over the life of the mine.

In summary, the IPCC power distribution includes:

- 66 kV reticulations to the IPCC substations from 66 kV connection points.
- 11 kV trailing/reeling cables to IPCC machines supplied from IPCC substations.
- The face operations and dumping operations will each have a designated substation which will supply 11 kV to machines and conveyors.
- The mobile systems will be supplied via 11 kV Reeling cable with integrated fibre optics.

6.3. IPCC Substations

The IPCC substations are fed from the 66 kV overhead transmission line and will be skid based relocatable substations. IPCC substations will have the outdoor switch gear to connect to the step-down 66/11 kV transformer from overhead conductors, 11 kV main switchboards and step-down 11/0.415 kV auxiliary services transformer. Refer to the General Arrangement drawing HC-SKM-12000-DRG-7000.

The substations will be used to supply the IPCC conveyors, electric shovels, mobile sizing rigs, mobile belt wagons and auxiliaries (such as pit dewatering pumps). Refer to the following single line diagrams for the substation details and the trailing cable connection details proposed:

- HC-SKM-12300-DRG-7000 (IPCC system one)
- HC-SKM-12400-DRG-7000 (IPCC system one)

6.4. IPCC On Board Conveyor Switch-rooms

The IPCC On board Conveyor Switch-rooms are fed by 11 kV trailing cable from the IPCC substations.

Two switch-rooms per conveyor head end are required for the IPCC system; one high voltage (H.V.) and one low voltage (L.V.) mounted on the head end of the conveyor. An 11/0.415 kV cast resin transformer is required to feed the L.V. switch-rooms on each conveyor.

The H.V room switch-room includes the following equipment and services:

- 11 kV switchboard to feed HV drives and the 11/0.415 kV Auxiliary transformer.
- Control cabinet

- Refer to single line diagram for the typical head end HV distribution: HC-SKM-12000-DRG-7003

The L.V room switch-room includes the following equipment and services:

- 415 V motor control centre for auxiliary drives and services
- Take up winch control cabinet
- PLC cabinet and communications cabinet

Refer to single line diagram for the typical head end LV distribution: HC-SKM-12000-DRG-7004 to 7005.

7. Control & Communications

IPCC systems will be controlled by a programmable logic controller (PLC) installed in each switch room and substation. The PLCs in the systems are networked on a fibre optic network to the SCADA system at the control room. Refer to drawings HC-SKM-12300-DRG-8000 and HC-SKM-12400-DRG-8000 for the network architecture diagrams for the two IPCC systems.

The site network is proposed as a gigabit ring Fibre optic network for PLC, SCADA, Security, IP Cameras, voice over IP (VOIP) Phones / IT networks. To segregate process networks and data networks two network switches will be used in each switchroom and substation. Fibre Optic cables run along the conveyors between head end switch-rooms and substations to connect the fixed equipment to the site wide network.

For mobile machines in the IPCC system, reeling cables with integrated fibre optics are proposed. The integrated fibre optics will be terminated at the cable reeling car fibre optic rotary joints (FORJs). From the FORJs a military spec fibre optic cable will run along the mobile machines along the HV trailing cable route to establish network connection to the mobile machines.

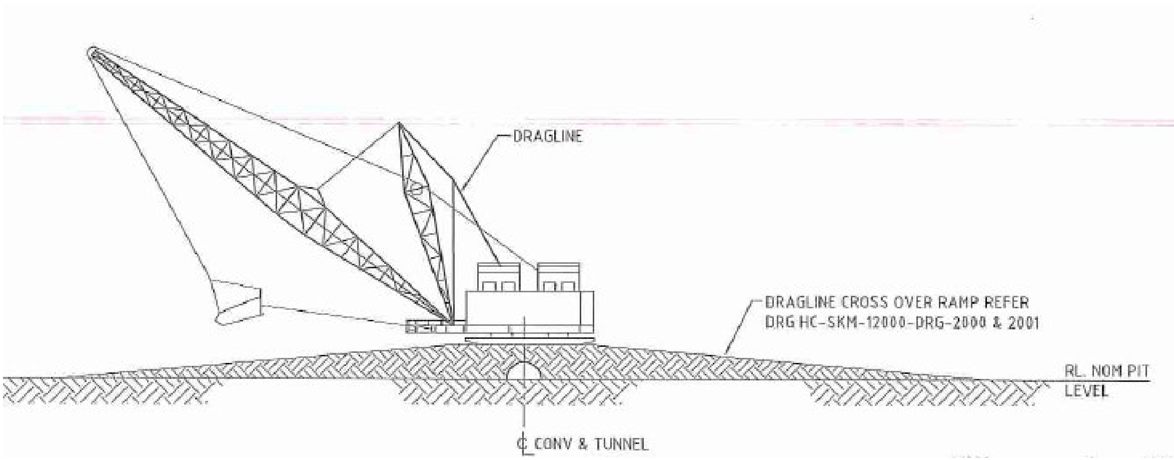
CCTV cameras are strategically located on the machines and conveyors to monitor conveyor transfers and the machine operations.

Telephones are provided in all substations. Radio communications provides personnel communications to the control rooms.

8. Auxiliary Equipment

8.1. Cross-Pit Conveyor Crossover

As the alpha coal mine consists of dragline operations and truck and shovel operations as well as the IPCC, there is a requirement to allow for mobile equipment and draglines to move easily between pits. To allow this mobility crossovers have been installed on the cross-pit conveyors (refer to figure 8-1). However, as the mine progresses, these crossovers will need to be relocated as the mining face advances, it is assumed this relocation will occur every second year for each crossover. Relocation involves moving the crossover along the cross-pit conveyor closer to the mining face, there is a significant amount of earthworks required for the relocation.



- **Figure 8-1 Dragline crossover - refer to drawings HC-SKM-12000-DRG-2000 & 2001**

8.2. Mobile Transport Crawler

The Mobile Transport Crawler (MTC) is diesel-powered crawler-mounted machine with two crawler tracks. The machine is skid steered through changing the relative speed of the tracks.

The MTC is used to relocate the Conveyor drive head assemblies and conveyor restraining weights.

In normal operation the MTC will drive under an item of equipment, lift the mounting table until it comes into contact with the underside of the structure and secure it to the table via clamps. The MTC can then manoeuvre below the item of equipment to align the tracks in the required relocation direction before lifting the table for travelling. For alignment and positioning of relocated loads a creep speed setting is used.

8.3. Belt Reeler

Belt reelers are used to install and replace conveyor belting.