

Karee 3A Shaft HT Cable Installation



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- **Background**
- **Safety Precautions**
- **Karee 3A Shaft Compartments layout**
- **Method of Installation**
- **Karee 3A Shaft layout**
- **20 Level UG2 Main Substation**
- **Pulling Eye Cable Test results**
- **19 Level Cable Drum**
- **Cable Support on Headgear Steelwork**

Background



- **Sinking UG2 Decline Shaft below 20 Level to open ore reserves.**
- **Additional services to be supplied e.g. power, compressed air, water ect.**
- **Cable brackets in Man Hoist Compartment fully utilised.**
- **Rock Hoist Compartments not fully utilized.**
- **Possible methods that can be used to install HT cable in the Rock Hoist compartment.**
 1. **Build a Skelton (limited space cable drum)**
 2. **Hang drum below Inspection Basket (lack of control)**
 3. **Suspend cable below Inspection Basket (HT cable can fall down the shaft)**

Risk Assessment : -

- Risk Assessments were conducted on all three proposed methods.
- Decision was to suspend cable below Inspection Basket.
- Risks were then identified according to a method statement and the necessary precautions were taken to address the risks.

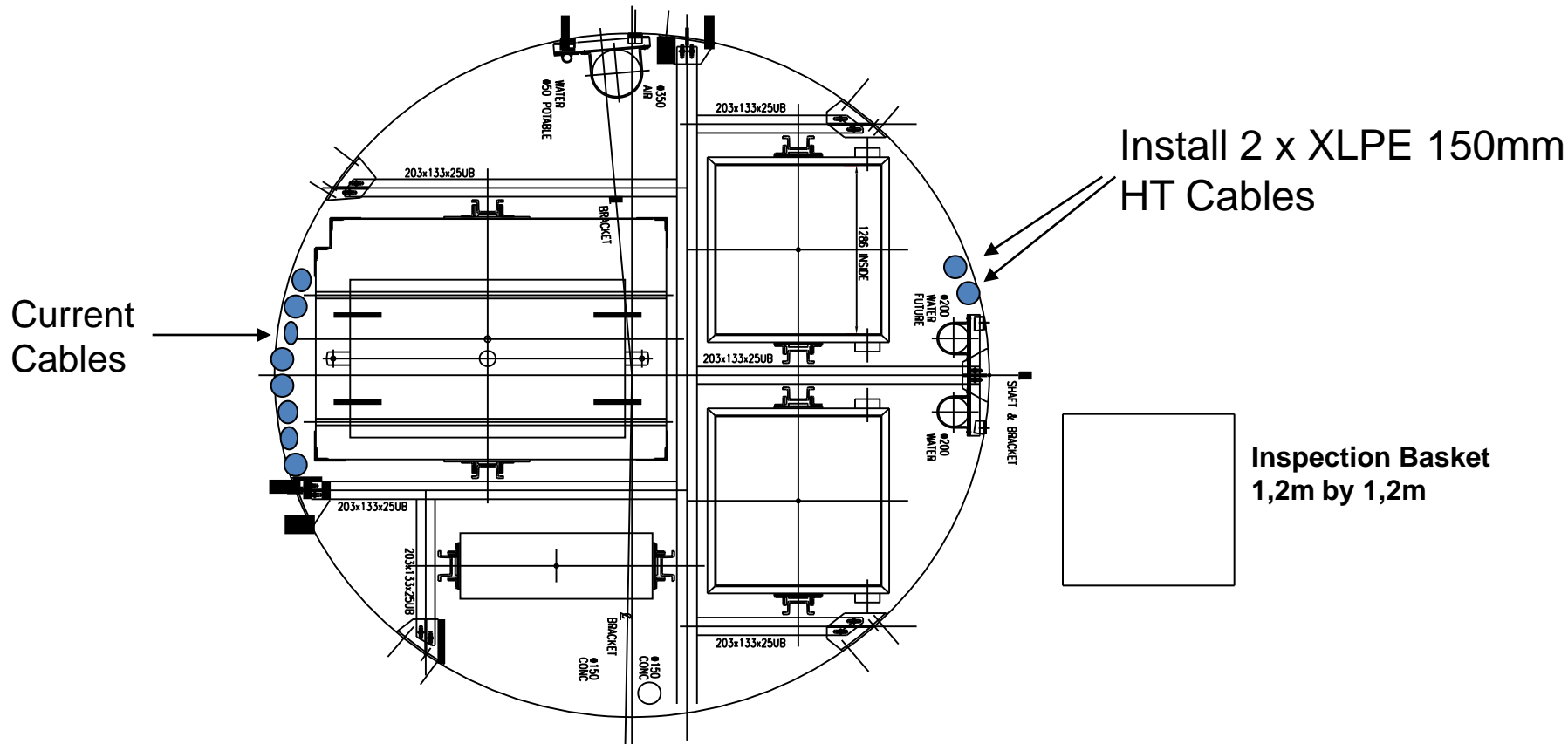
Method Statement: -

- A method statement and installation procedure was drawn up.
- The winder rope, safety slings, shackles and cable pull tests were calculated and incorporated into the method statement.

Project Program: -

- A detailed installation program schedule (Bar Chart) was done in accordance with the Risk Assessment and Method Statement.

Karee 3A Shaft Compartments Layout

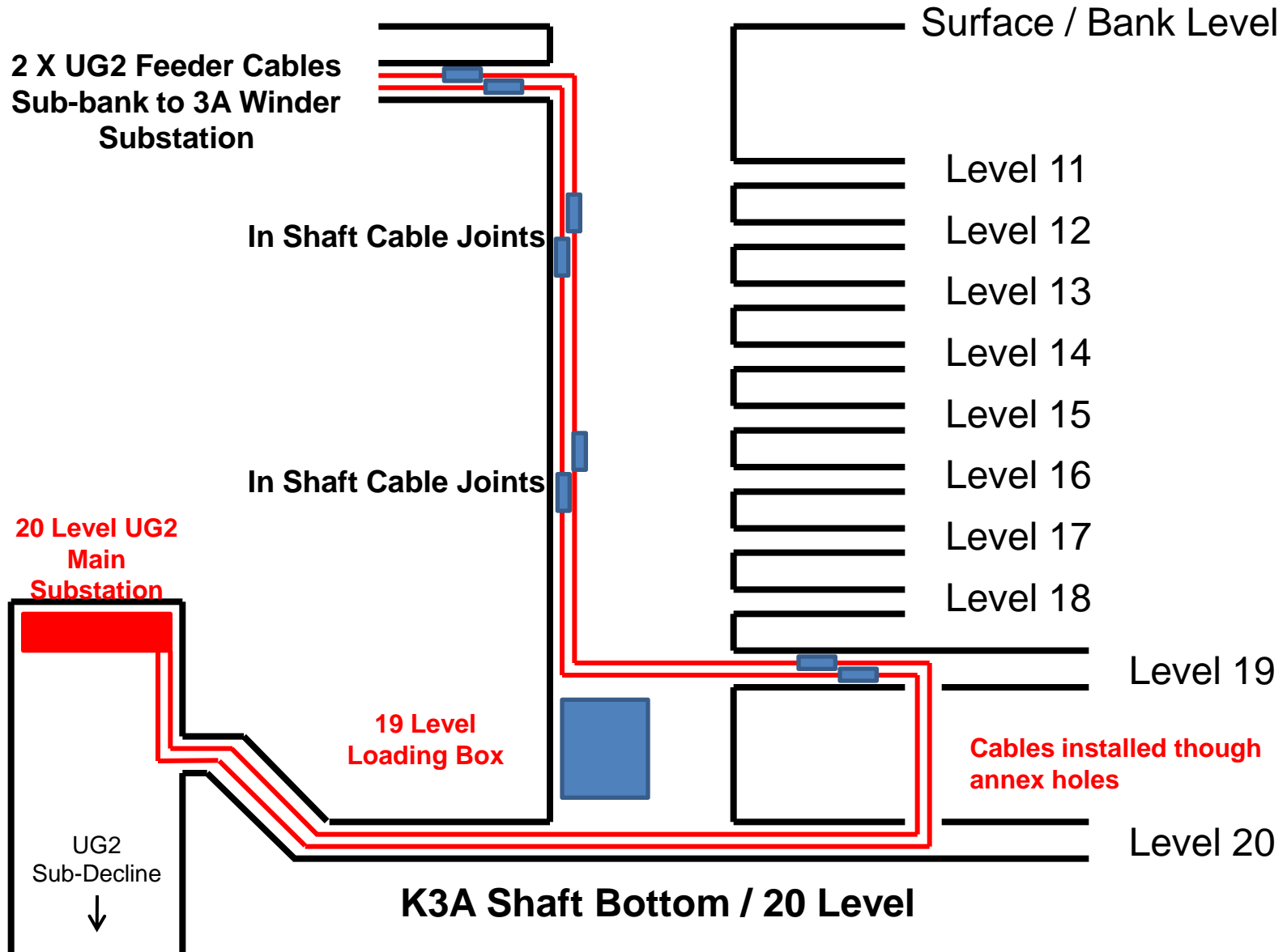


Method of Installation



- Place the cable drums on 19 level.
- Pull the cable from 19 level to surface by suspending the cable with two 25 ton slings to the bridle crosshead with the inspection basket below.
- Support the cable in the Headgear by means of two 25 ton slings.
- Then support the cable into the cable brackets.
- Remove the two support slings from the cable and install the next length of 230m
- Once all the cable lengths have been secured in the shaft support the cables to the cable racks and do the required joints'

KAREE 3A SHAFT (depth to 19L 660m)



20 LEVEL INFRASTRUCTURE

❑ 20 Level UG2 Main Substation: -

- This will be the UG2 Main Substation supplying from 20 to 25 Level that is currently under construction.

**6 600V Actom
MV Switchboard**



**550V
LV Switchboard**

**Single Drum
Material Winder
Base**

Pulling Eye Cable Tests



- Three Tests of the Cable Pulling eye's were conducted by CSIR.
- The three Pulling eye's failed at the following
 1. Test 1 at 30,3Ton;
 2. Test 2 at 30,0 Ton; and
 3. Test 3 at 30,8 Ton.
- 6 XLPE drums were cut to 230m in length and had a weight of 2 760kg each (12kg/m)
- Calculated to a factor of Safety of 11 .



19 Level Cable Drum



- Cable Drum supported and cable end being pulled to the shaft.

- Man cage stopped on 19 level.
- Roof / Top of Cage to allow for platform.
- Cable end fasten to skip.



19 Level Pulling Cable



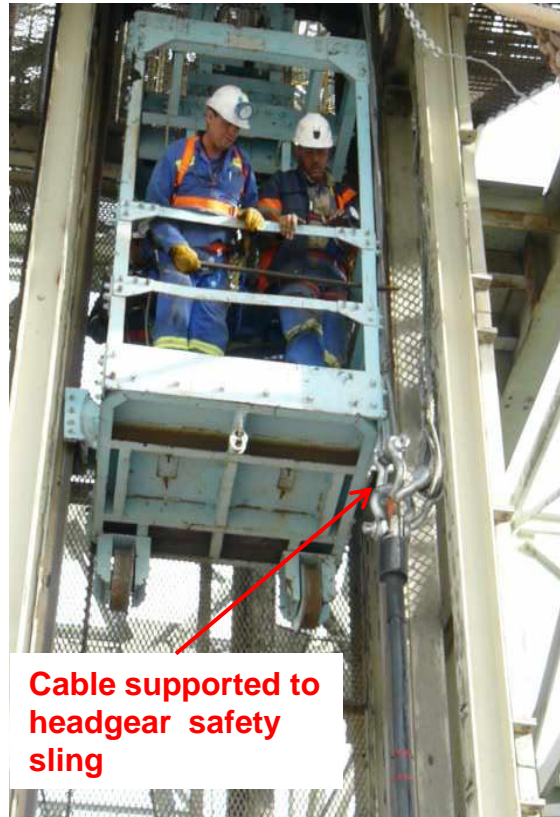
- Cable reels used on 19 level.

- Cable gang slowly feeding the cable to the shaft side while the skip is moving upwards.



Cable Support in Headgear

- Cable Pulled up the shaft with Rock Winder
- Cable Supported to the safety sling in the Headgear
- Cable supported while skip move downwards to install cable clamps



Cable Support on Level



- Cable Supported in the shaft above 19 Level loading bin.

- Cable Supported on cable racks on 19 Level.



Cable Joints in Shaft



- Heat Shrink XLPE Pressure Cable Joints were used
- Resin pumped into the Joint to improve the mechanical strength of the cable joint

Installation Safely Completed



Questions