

APPENDIX F

**TRANSPORTATION AND TRAFFIC
MANAGEMENT PLAN**

FOR THE PROPOSED

**ISUNDU 765/400 KV SUB-STATION AND
TURN-IN TRANSMISSION LINES**

DEA EIA REF: 14/12/16/3/3/2/745

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August 2016

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1. SCOPE OF THIS DOCUMENT

The Transportation and Traffic Management Plan (TTMP) covers the management requirements for the transportation of heavy lift items, labour and equipment within South Africa. The purpose of this management plan is to ensure the safety of employees, contractors, the general public, pedestrians and traffic by undertaking the following:

- Provide, maintain and update an effective TTMP.
- Meet the requirements of the client and project site.
- Achieve zero incidents.
- Achieve zero environmental incidents.
- Define clear tasks, authorities and responsibilities with regard to the control of hazards.
- Ensure general compliance with legal and other project site requirements.
- Keep traffic delays to a minimum.
- Maintain satisfactory property access.
- Minimise disruption to businesses.
- Minimise disturbance to the environment.

The overall objectives of the plan are to eliminate road accidents during all the phases of the project and to minimize personal exposure and property damage. It must be noted that this plan is a living document and will be updated when necessary to reflect new developments on the project. The TTMP should also be read in conjunction with the EMPr and the following Eskom Standards which are found in Appendix A of the EMPr:

- Eskom's Access to Farms Standard (TPC 41-340).
- Eskom Technical Standards (TRMSCAAC1 Revision 3).
- Eskom's Standard for vegetation clearance and maintenance within overhead powerline servitudes (EPC 32-247) (TRMAGAAZ7).
- Eskom's Standard for Transmission Line Towers and Line Construction (TRMSCAAC1).

2. TRAFFIC MANAGEMENT

Traffic management measures are to be adopted at temporary road works, with specific reference to the turn off from the P477 to the informal access track to the Isundu Sub Station. As such, it is necessary to develop standardised approaches to traffic management on site. These management measures could then be applied to more complex situations should they occur in future.

In order to have efficient and safe site operations, a systematic break-down of a site into standardised sub-components is necessary. This will allow the project manager to understand the traffic operation on the site. These sub-components could be hundreds of metres in length at major sites, or a few metres in length at localised sites. These standardised sub-components are discussed in detail below.

2.1 Warning Area

An area of the construction site, which is used to alert motorists of impending temporary conditions that will require particular care.

When the construction site is on or directly adjacent to a road, a stepped reduction in speed will inevitably be required within this area. This stepped reduction should occur in 20 km/hr decrements and at reasonable intervals (minimum 200 metres) until the speed for which the traffic control is designed is indicated. This final speed limit should be repeated at least once as good practice.

The length of the advance warning area should relate directly to measured approach speeds, and a reasonable distance must be allowed for speed reduction. In situations of high traffic volumes, a generous length will be required as more time is needed to take in the sign message and to react accordingly. The advance warning area will become longer in the event of a combination of higher approach speeds and high traffic volumes.

This component of the TTMP is required for the proposed Isundu Substation

2.2 Transition Area

This is the area in which the motorist is required to take an action.

This area of the construction site can be defined as where there is a shift of position on the roadway without a reduction in the number of lanes (diversion), the merge of two lanes into one (lane drop), crossing of the central median (crossover), or entering a detour that is completely separate from the construction works.

The transition area must be clearly demarcated using delineator plates and should conform to the layout, if any, depicted on the guidance signs preceding it. In more complex road works, these should be broken down into a number of standard transition areas. Care should be taken that no signage for subsequent transition conditions is included within a specific transition area. The length of a transition area will depend on the approach speed of traffic and the amount of shift in alignment involved by the transition.

This component of the TTMP is required for the proposed Isundu Substation

2.3 Stabilising Area

The purpose of a stabilising area is to allow traffic flow to stabilise after negotiating a transition area, and before reaching another change of condition. In the instance of where more than one transition area is required to achieve the final traffic configuration, the signing of subsequent transitions should be located within the stabilising area(s). The stabilising area is normally defined by delineator plates.

This component of the TTMP is required for the proposed Isundu Substation

2.4 Buffer Zone

The buffer zone is normally located between a transition area and the actual work area. In a situation involving more than one transition area, the buffer zone will occur after the transition area closest to the work area. The buffer zone can be relatively short, but should be a minimum of 50 metres.

The principal function of a buffer zone is to separate traffic from the workers at the site in the interests of worker safety. The provision of a longitudinal buffer zone, together with a lateral buffer zone, should be considered as fundamental to effective worker safety.

2.5 Work Area

The work area can be adequately defined by delineators in less complex conditions. However, where there is a risk to traffic or workers for vehicles entering the work area, temporary barriers of a standard sufficient to prevent vehicle penetration should be put in place. In the event that traffic is located well away from the work area, then little action is required along the length of the work area other than to protect the workers and construction vehicles.

2.6 Termination Area

This area involves the return of traffic to normal flow conditions. For simple cases, a relatively short taper or delineator signs will suffice. In more complex situations, a reverse crossover may be required. This should follow the same principles given for such conditions at the commencement of the construction works.

This component of the TTMP is required for the proposed Isundu Substation

3. RESPONSIBILITIES ON SITE

The construction manager shall appoint a competent person as being responsible for the control of vehicles and plant on site. This person shall complete and distribute risk assessments for plant used on site, or delegate that responsibility to a competent person. In addition, the construction manager is responsible for ensuring that all plant operators are suitably trained and hold a current operator's license. The construction manager is responsible for checking that only trained and competent persons operate or drive vehicles and plant on site. The construction manager is responsible for ensuring the following:

- That all plant operators hold a current and valid driver's license.
- That all defective items of plant and vehicles are removed from site.
- That all vehicles and plant are maintained and serviced regularly, and are examined and tested in accordance with statutory requirements.
- That all certificates of statutory inspection and testing are kept on file on site.
- That drivers and operators shall be competent and operate plant in accordance with operating instructions and site rules.
- That all defects are reported immediately by the drivers to their supervisor. Defective vehicles and plant must not be used under any circumstances.
- That plant operators must not carry unauthorized passengers or materials at any time and must ensure, where possible, that personnel are not in an area that may be dangerous to them by way of the plant working.
- That no person under the age of eighteen is allowed to operate vehicles, plant or equipment on site.
- That vehicles and plant must not be taken onto public roads without the appropriate consents and licenses being in place.

The construction of the Isundu Sub Station and associated infrastructure involves significant quantities of materials, all of which are moved by vehicles. These include:

- ❑ Sand from quarries to stockpile areas.
- ❑ Aggregate from crusher plants/stockpile areas to concrete batching plants.
- ❑ Concrete to work sites.
- ❑ Rock from stockpile areas to work sites.
- ❑ Borrow material to work sites.
- ❑ Excavated material from cuttings to fill areas or to spoil disposal sites.
- ❑ Electrical infrastructure for the sub station.
- ❑ Tower components for the transmission and distribution lines.

The presence of heavy construction traffic, which is usually slow-moving and involves wider loads than normal, may result in an increased frequency of accidents, particularly those involving overtaking traffic. Even though it is of short duration, these risks are much greater where the access route has steep gradients and bends.

4. RECOMMENDED MITIGATION MEASURES

Traffic management during construction and operation is essential. To address potential risks, the following measures are recommended:

- ❑ Impose and enforce speed limits on all haulage vehicles operating on haul routes.
- ❑ All employees and contractors are required to wear the appropriate Personal Protective Equipment (PPE) for their areas of operation.
- ❑ Establishment of safe sight distances, including within construction areas and construction camp sites.
- ❑ Prepare a detailed plan for signage around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warnings.
- ❑ Provide details regarding maximum permissible vehicular speeds on each section of the site. All signs shall be in both English and isiZulu.
- ❑ Plan to move as far as possible heavy, wide or slow-moving loads at times when traffic volume on the roads concerned is at its lowest.
- ❑ Employ haulage vehicles, which are suitable in all respects for the intended purpose, and are not overloaded.
- ❑ Regularly inspect the access roads conditions and, whenever necessary, repair damages related to construction traffic.
- ❑ Personnel authorised to the construction areas shall be briefed on traffic regulations applicable to the construction areas.
- ❑ Provide training and undertake testing of heavy equipment operators and drivers, including vision tests, with records kept of all training.
- ❑ Create traffic awareness to the local people and inform parents to keep children from exposing themselves to traffic in the construction area.
- ❑ Maintain records of all accidents involving project vehicles and implement a traffic complaint and corrective action procedure.

4.1 Traffic disturbances to Rainbow Chicken Limited (RCL)

The following mitigations are aimed at minimising the disturbances caused by the increased traffic flow during construction to RCL's nearby laying houses.

- Drivers are to be informed of the nearby RCL laying houses sensitivity to noise, light and dust disturbances caused by passing vehicles.
- Strict adherence to the speed limit must be enforced when passing RCL laying houses.
- No hooting is permitted when passing RCL laying houses.
- Deliveries to the construction site must be restricted to daylight hours.

4.2 Vehicle Maintenance and Safety

The following mitigation measures are recommended in terms of vehicle safety standards:

- Vehicles shall be subject to annual inspection by the competent local authority.
- The name of the company employing the workers should be visibly placed on the vehicle.
- Smoking inside the vehicle is prohibited as clearly stated by "No Smoking" signs.
- A contact number should be clearly placed on the vehicle for remarks and complaints.
- Vehicles should be driven according to the speed signs on the road.
- All the seats should have belts.
- All vehicles are to be fitted with a first aid kit with easy access. The kit should be placed in a visible place.
- All vehicles are to be fitted with one fire extinguisher of at least 5 kg each, placed at the back of the vehicle.

4.3 Tyre Selection and Replacement

The life of tyres depends to a large extent on the manner in which the vehicle is driven. Excessive speed, braking or acceleration will cause tyres to deteriorate. If they are repeatedly driven against kerbs or large stones the walls of the tyres will weaken. Similarly, if tyres are not maintained at the manufacturer's recommended pressures, accelerated wear will occur. All tyres should be regularly checked and evidence of inspections available if requested.

All tires should be maintained as per the manufacturer's specifications/recommendations. Each driver is responsible for daily checks of tyre conditions. Daily check sheets are to be completed and recorded, and worn tyres to be reported immediately following inspection.

4.4 Monitoring

The following guidelines are to be followed for completing daily/weekly checks.

Daily

- Check tyres visually.
- Ensure that all lights are operating correctly. It is an offence to drive if vehicle lights are not functioning properly.
- Ensure that the vehicle has sufficient fuel.
- Clean the windscreen, all windows, mirrors, headlamps and all other light lenses.
- Check the engine oil level daily and before setting out on a long journey.

Weekly

- ❑ Check and correct the tyre pressure and tread wear including the spare wheel. Keep to the pressures recommended in the manufacturer's handbook.
- ❑ Check the battery. Keep the terminals clean and ensure that all connections are secure.
- ❑ Check the radiator water - anti-freeze mixture level weekly and/or before setting out on a long journey.
- ❑ Top up the windscreen washer reservoir at least once a week. Check the action of the windscreen wipers and the condition of the wiper blades at the same time.
- ❑ Check the clutch fluid and brake fluid reservoirs (where fitted).

General Service and Maintenance

- ❑ Preventative maintenance through inspection and regular servicing can reduce the defect rate and help improve reliability. It is, therefore, important that all vehicles are properly maintained.
- ❑ Vehicles must be serviced in line with the manufacturer's recommendations. These are outlined in the service book, which accompanies each vehicle.

Seat Belts

- ❑ The wearing of seat belts is compulsory and is the responsibility of the driver.

Drivers

- ❑ All escort and light vehicle drivers must meet the national driving requirements and hold a valid driving license for the type and class of vehicle being driven or operated.
- ❑ The heavy duty drivers must meet the national driving requirements and hold a valid driving license for the heavy duty vehicles being driven or operated.
- ❑ Each driver is responsible for the condition of their own vehicle (fines/penalties and bans will be administered internally).
- ❑ Drivers must meet the minimum national driving standards and any additional project or site requirements must be followed and adhered to.

4.5 Violations and Accidents

The aim of reporting and investigating incidents is to determine the cause and prevent reoccurrence. It is the responsibility of all employees and contractors to report accidents, incidents and near misses at any place of work to their immediate Site Manager/Supervisor or Foreman. It is then the duty of that Manager/Supervisor or Foreman to ensure that appropriate entries are made in the Accident Book and, at the earliest opportunity, to inform the construction manager of the incident and, where applicable, the client's representative. It is the responsibility of the construction manager to initially investigate incidents or delegate the responsibility for such investigation to another competent person. If the incident is major or there is a fatality, then the Regional HSQE Department shall also be involved. It is the responsibility of the construction manager to ensure that recommendations arising from investigations are implemented.