

### General Notes

The works under this subsection shall comprise the design, manufacture, installation, commissioning, training and maintenance of the following described gate system. The work for the sites shall include, but not be limited to the supply and installation of access controlled power operated impact rated vehicle sliding gate systems such as the Ezi Security TruckStopper™.

The vehicle sliding gate systems are to be controlled by access control cards and voice communication systems as specified and shown on drawings. The objective of this project is to safely restrict access by unauthorized personnel, cars, vans and light sized trucks.

The gate design shall, as a minimum is capable of repelling a 7.8 tonne truck traveling at 82.4KPH. The adopted stopping time shall be one (1) second. The method to be used for construction is to be in the form of an electrically operated vehicle gate/s at the locations shown on drawings.

All tenders are to supply and install electrically operated sliding gate systems as shown on drawings and as described in the specification. Each slide gate system shall comprise a single leaf fully cover the relevant road opening to a maximum of 5.5 metres. These systems shall maintain a height equal to the existing fences or walls. The approximate erected height is 3200mm. The vehicle gates are to be equipped with an electric drive motor, gearbox; guide roller systems, vehicle and pedestrian safety devices and power fail gate locking break system.

- The system must be reliable, functional and shall be based on the proven technology for performance systems.
- Each TruckStopper™ shall not exceed a 5.5 metre road opening. Optimum road width being 4.0 metres.
- Each gate system shall have as standard a monitored UPS system with full line conditioning and alarm features. The UPS is to be capable of up to 50 full operations during power failure. Each gate system shall have a safety cage or tube offered for consideration.
- The gate system shall be capable of travel speeds of 1.5 metres per second; however set up speed of 1 metre a second is anticipated. The system shall be 100% duty cycle.
- All tenders shall allow providing data and control cables to suit each gate situation i.e. card system and voice communication.
- All tenders shall allow providing a single of three-phase power source for each sliding gate system and associated equipment. This shall be from the nearest suitable existing switchboard.
- All tenders are to allow supplying all necessary conduit work associated with the cabling to all the relevant National Standards (i.e. electrical orange, data white).
- All tenders are to allow to conduit and cable all equipment points at each gate intersection so as to interconnect these locations.
- All tenders shall allow training all relevant site personnel on each site in the proper use of their system.
- All tenders shall substantiate their design crash calculations with the following as a minimum:
  - A. Drawings
  - B. Independent mathematical calculations
  - C. Crash testing to independent calculations and approval.
- All tenders shall allow supplying as built drawings and two sets of technical and maintenance manuals per gate system installation.
- All tenders shall allow to supply a 12-month defects and liability warranty on parts and labour.
- All tenders shall demonstrate on an existing site all equipment specifically as specified with emphasis on all safety systems.
- All tenders shall provide information to confirm that the automatic gate systems offered are up to date technically, of industry quality, 100% cycle and reliable.
- The automatic gate company offered should adequately demonstrate that this work is their core business.
- It is preferred that international made products be offered for these works providing they meet the technical specifications.
- Any company that has performed this type of work previously for our organisation should detail these works, sites and contacts.

The systems provided overall are to be the latest in technology and upgradeable without major parts redundancy. It shall be a formidable barrier, heavier in construction. All operations shall be smooth.

Each gate system shall satisfy all safety requirements for entry and exit of vehicles and the occasional pedestrian.

The company providing this product should be a specialist company in this field. Systems such as the Ezi range of gates as provided by Ezi Security Pty. Ltd. will be acceptable for consideration.

**Technical Specification  
Truckstopper™ Sliding Gate System**

**Ezi Truckstopper 01**

*Sliding Gate System (Metalwork)*

Each TruckStopper™ gate system shall consist of the following metal work items. One bottom gate leaf, one top gate leaf, two buttress, one back rail, roller brackets, sheet metal cover sets, sheet metal infill and fixings.

All items shall be manufactured utilising heavy-duty materials. All items shall be fully seam welded. All items shall be sand blasted and painted after manufacturing and cleaned as required to give a smooth even finish. Paint colour to be advised.

Material Sizes

Bottom Gate Frame	310 I Beams
Gate Frame	100 x 100 x mm RHS
Drive & End Buttress	100 x 100 x mm RHS
Back Rail	Twin C Channels
Gate Vertical Bars	26.9 O.D Round Tube

The maximum spacing between all vertical bars shall be 125 mm.

The erected height of each gate system shall be 3200 mm. This should consist of 200 mm maximum ground clearance and 3000 mm of gate height. Each top gate frame shall be 1800 mm from the top of the gate frame to the bottom of gate frame. All vertical bars shall be fully welded. The width of each gate opening shall not exceed 5500 mm.

Each gate system shall be constructed such that it is a bolt together assembly. The main equipment buttress shall consist of four vertical 100 mm squared RHS sections connected top and bottom to form a solid full height support tower and equipment enclosure. Each buttress height shall be 1200 mm, the width should be 1200 mm. The motor buttress shall then be sheet metal clad, the front face shall be covered by the use of a full height hinged service access door, and the door shall be key lockable using a SCEC endorsed padlock. The drive buttress service door shall always be on the secure side of the property. All sheet metal covers and doors shall be a minimum of mm thick.

The gate system shall be bolted to its relevant concrete footing using M 24mm x 125 mm fixings (zinc plated).

**Ezi Truckstopper 02**

*Drive Rack*

Each gate system shall use drive rack for power transfer. The drive rack to be used with each gate system shall be zinc plated mild steel. The drive rack shall be welded to the underside of the main member of the sliding gate frame. All drive rack shall be inverted so as not to collect grit and dirt. This rack shall directly mesh with the motor output shaft drive cog. The rack shall be 50 mm wide.

**Ezi Truckstopper 03**

*Drive Cog*

Each gate drive motor gearbox shall have a brass drive cog fitted directly to the output shaft. This drive cog shall be keyway fitted and be no larger than 120 mm in diameter. The bore size of this drive cog should be a minimum of 40 mm.

**Ezi Truckstopper 04**

*Guide Rollers*

Each gate system shall be fitted with gate buttress guide rollers. Two mounted to suit the top rail of the gate and two to suit the bottom rail. Each of these rollers shall be fitted with two sealed bearings. The roller size shall be a minimum of 100 mm x 150 mm diameter. These rollers should be made from black UV resistant nylon. Each guide roller shall have a 25 mm diameter mounting pin/ bolt.

## **Ezi Truckstopper 05**

### *Main Rollers*

Each gate system shall be fitted with two main rollers and two back trolley rollers. The front main roller body shall be zinc plated mild steel. Each roller shall be fitted with two sealed bearings and a 30 mm mild steel axle. The minimum load rating on the main roller shall be 80 tones. The two back trolley rollers shall each consist of a sealed bearing fitted to a zinc plated steel tyre. A rating each of 40 tonnes is to be a minimum requirement for each back trolley roller.

## **Ezi Truckstopper 06**

### *Drive Motor and Gearbox*

Each gate motor gearbox unit shall be a suitably rated three phases. These motor gearbox units shall be IP56 rated and be of true industrial grade and quality.

This drive motor gearbox unit must be rated for a minimum frequency of 200 operations per hour and/or 100° duty cycle.

The drive motor system shall be suitable for the speeds as described under section EZI TRUCKSTOPPER 09 with the cog size as described under section EZI TRUCKSTOPPER 03. The motor gearbox drive system is to utilise and inbuilt safety mechanism to protect the unit from excessive drive torque. A power fail brake system or lock is to be built into this drive motor gearbox system. This shall lock the gate in the closed position and lock the gate during power fail. The motor gearbox and platform assembly shall bolt together and this assembly shall be set up to engage the drive racking which is to be mounted on the horizontal angle iron member of the gate frame.

## **Ezi Truckstopper 07**

### *Electronic Equipment Enclosure*

Each gate control logic module shall be housed within an IP56 steel or poly enclosure, size shall be no less than 800 x 600 x 200 mm. Each enclosure shall have a hinged door and key locking system. Each of these enclosures shall house a true PLC, frequency inverter, power supply, loop detector, GPO, test button, buzzer and misc items such as duct, cable etc. to suit the relevant sliding gate system electronic control.

All equipment mounted within these enclosures shall be installed on din rail. All cabling within each enclosure where practical shall be trunked within duct. No equipment shall be mounted on the enclosure door. All cable penetrations shall have proper glands fitted. An electrical schematic shall be installed within a plastic sleeve on the inside of the enclosure door.

All gate logic control modules shall be installed within the protection of the enclosure. Each equipment enclosure door shall be numbered and a site location shall be nominated. The distribution point for the relevant power feed shall also be nominated on this door. All labels shall be screw fixed trefolite type.

All work within these cabinets shall conform to all the relevant Australian Standards.

## **Ezi Truckstopper 08**

### *Programmable Logic Controller*

Each gate motor drive system is to be PLC controlled utilising a NIAS brand compact PLC. Each PLC shall be fully programmable and have a minimum of 14.I.O. (being 8 outputs and 6 inputs).

These control units shall be capable of being reprogrammed on site after installation for possible further ancillary functions. Each PLC must be expandable if required and offer possibilities of networking. All safety systems described shall be constantly monitored by this PLC system. The background for the proposed program utilised on each gate PLC shall be field tried and proven for a minimum of five years.

## **Ezi Truckstopper 09**

### *Frequency Invertor*

A frequency invertor is to be utilised on each gate system. This frequency invertor shall be utilised for the control of gate operating speeds and control the ramp up and ramp down settings. These units shall be suitable for use on up to 4kw motor ratings. Each frequency invertor shall be set up to display reliable speeds of a minimum of 1000mm per second gate travel. Each frequency invertor shall have a built in program keypad which should remain with the gate system after programming and commissioning. A braking resistor is also a standard requirement for this system.

## **Ezi Truckstopper 10**

### *Inductive Loop Detector*

Each sliding gate system shall include within the relevant equipment enclosure a single channel inductive loop detector; this loop detector shall have two inductive loops connected to it so as to provide vehicular safety and auto closing. The cable tails from the two inductive road loops shall have conduit into the equipment enclosure within the confines of the main tower to the relevant loop detector.

## **Ezi Truckstopper 11**

### *Power Supply*

A switching power supply is to be installed in each gate system control logic module. This power supply shall be din rail mounted and suitable for industrial applications. These power supplies shall be of a regulated type i.e. voltage drop off with over current.

## **EZI TRUCKSTOPPER 12**

### *Test Button*

Each equipment module shall have a din rail mounted test button installed within the enclosure. This button shall have a trefolite test button label mounted below it. This button when depressed shall pulse the gate system open. Closing will be automatic through the safety systems and or time out facility.

## **Ezi Truckstopper 13**

### *Misc. Items*

Each gate control logic module shall have a GPO fitted. This item will need to be din rail mounted.

## **Ezi Truckstopper 14**

### *Safety Buzzer*

Each sliding gate system shall be fitted with a suitable low voltage, audible buzzer to announce gate movement. The buzzer shall be controlled by the gate system PLC. The buzzer must sound 1 second prior to gate movement and shall continue to pulse sound at 1 second intervals during the full open and close cycle for the relevant gate.

Each gate buzzer shall be fitted to the outside of the control equipment enclosure. This buzzer is to be designed to warn pedestrians who may be close to the gate system that the gate is about to move. This buzzer is not to be excessive in noise level.

## **Ezi Truckstopper 15**

### *Safety Flashing Light*

Each sliding gate system shall be supplied with two flashing red low voltage strobe lights, which shall be fitted to the top of the main gate housing. This strobe light will be controlled by the gate system PLC. It is to flash 1 second prior to gate movement and shall continue to flash during the full open and close cycle for the relevant gate. All cables from the strobe unit shall have conduit to within the main gate housing to the control logic enclosure module.

## **Ezi Truckstopper 16**

### *UPS*

An uninterruptible power supply shall be the standard power fail override facility for this gate system. The system shall offer alarm outputs as required. I.e. low battery etc. The system should also offer full power filtration. It is expected that 20 full operations should be the standard capability for this system.

## **Ezi Truckstopper 17**

### *Safety Photo Electric Beams*

A series of failsafe photoelectric beams shall be utilised to provide adequate safety measures for pedestrians. Each sliding gate system shall have four photoelectric safety beam sets fitted. These beams must be transmitter to receiver type and be proven in performance and reliability. The relevant gate PLC must constantly monitor all PE beams. Should a PE beam unit fail, the system must recognise this and shut down the gate system immediately. Similarly, should a person or vehicle the system block a beam should stop and re open and wait until clear, prior to any gate closure. All beams shall be set up as safety reopen.

## **Ezi Truckstopper 18**

### *Proximity Sensors*

Two cylindrical proximity sensors and bars shall be utilised to determine and control the gate position. These proximity sensors shall be set up to detect the proximity bars as secured to the bottom rail of the gate system. These providing position sensing for the gate system. The cabling for the proximity sensors shall be installed in conduit up and into the control logic enclosure. The proximity sensors are to be set up within the confines of the lockable main equipment tower. The gate system shall not become lost or confused.

## **Ezi Truckstopper 19**

### *Safety Inductive Loops*

Each sliding gate system shall have two in ground inductive loops cut into the existing road surface. These loops will be to provide vehicular safety and auto closing. The two loops shall be connected into the inductive loop detector within the equipment enclosure. Each loop should be set back at least 1000mm from the edge of the relevant sliding gate and shall cover at least 60% of the road width.

## **Ezi Truckstopper 20**

### *Safety Fence and General Fencing*

Each sliding gate system as installed shall have the existing fencing connected to the new gate buttress to secure the site properly. This fencing shall match that which exists. An additional section of fence shall be installed to section off the back rail gate travel area. This safety fence shall be full height and match that which exists i.e. cyclone mesh style. This enclosure shall be 1 metre wide and have a padlock style swing gate fitted for service access reasons. This gate shall be padlocked upon commissioning of the automatic gate by the end user.

## **Ezi Truckstopper 21**

### *Concrete Foundation*

Each sliding gate system shall have substantial concrete footing installed to suit the relevant gate with a min of 150mm with recommended 300mm thick concrete for surface mount TruckStopper. All conduit entries shall be set into the correct position prior to the concrete installation. All concrete shall be minimum 25mpa. Relevant trades persons to all Australian Standards shall perform this work. The concrete foundations shall be installed accurately as to the engineering design.

## **Ezi Truckstopper 22**

### *Equipment Pedestals*

Each sliding gate system shall have two dual height equipment pedestals. These pedestals shall be 2000mm high, flange mounted and constructed of 100 square RHS. Each pedestal shall have a weather shrouds made from folded sheet metal. All pedestals shall be hot dip galvanized and painted safety yellow. The equipment shroud plate shall be 300mm square, this to suit the intended proximity card reader and intercom station installation. One pedestal shall be for the entry location and one for the exit location. The pedestals shall be positioned on the driver's side edge of the road and shall not be closer than 4 metres from the face of the relevant automatic sliding gate system.

## **Ezi Truckstopper 23**

### *Bollards*

Each sliding gate main house will have two protective bollards installed to avoid damage to the main housing by vehicles. These would be placed within 500mm of the main housing on both vehicle approach sides. Each protective bollard shall be heavy duty in construction. Each bollard should be 1000mm high and constructed using heavy-duty wall 200mm pipe, these shall be flange mounted and capped. Each bollard shall be hot dip galvanized and painted safety yellow.