

### General Notes

The works under this subsection shall comprise the design, manufacture, installation, commissioning, training and maintenance of the following described gate systems at various sites.

The work for the sites shall include, but not be limited to the supply and installation of access controlled power operated single or dual leaf vehicle gate systems as shown on sub drawings at various sites and locations. The vehicle swing gate systems are to be controlled by radio transmitter and voice communication systems as specified and shown on the drawings. The objective of this project is to restrict access by unauthorised personnel and vehicles.

The method to be used for construction is to be in the form of an electrically operated vehicle gates at the locations shown on the drawings. The construction and detailing used has to be suitable for an extremely secure location and therefore no ledges, protrusions etc. should be inbuilt to allow ease of climbing and access within the secured area.

- All tenders are to supply and install electrically operated single or dual leaf swing gate systems as shown on the drawings and as described in the specification. Each swing gate system shall comprise a single or dual gate leaf to fully cover the relevant road opening. These systems shall maintain a height equal to the existing fences or walls. The approximate erected height is 2350mm. The vehicle gates are to be equipped with an electric drive motor, gearbox, lever arm assemblies, vehicle and pedestrian safety devices and power fail gate locking brake system. The system must be reliable, functional and shall be based on the proven technology for performance systems.
- All tenders shall allow provision of data and control cables to suit each gate situation i.e. card readers, intercoms and remote consoles.
- All tenders shall allow providing a 240volt 15Amp circuit to power each swing gate drive system and associated equipment.
- All tenders are to allow supplying all necessary conduit work associated with the cabling to all the relevant Australian Standards (i.e. electrical orange, data white).
- All tenders shall supply a list of clientele showing where equipment of this type has been installed. This list should include site contacts and phone numbers. A minimum of 5 contact sites is required ranging from new to five years old systems.
- 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 and performance.
- All tenders shall provide information to confirm that the automatic gate systems offered are up to date technically, of industry quality, high in duty cycle and reliable. The automatic gate company offered should adequately demonstrate that this work is their core business and with that provide qualifications to this fact i.e. ref sites, amount of gate systems in current operation within NSW, location of business, service support facilities, spare parts holding and staff numbers dedicated to this work.
- It is preferred that Australian made products be offered for these works providing they meet the technical specifications. It is desirable that the successful automatic gate manufacturer is based within NSW. This base should include full manufacturing and support facilities.
- Any company that have 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, heavy in construction. All operations shall be smooth and quiet.
- 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 swing range of gates as provided by Ezi Security Pty. Ltd. will be acceptable for consideration.

### Industrial Swing Gate System

### **Ezi Swing- 01** Swing Gate System (Metalwork)

Each swing gate system shall consist of the following metal work items. Gate leaf, hinge posts, end post, motor mounting platform, sheet metal cover sets and fixings.

All items shall be manufactured utilising heavy-duty materials. All items shall be fully seam welded. All items shall be hot dipped galvanized after manufacturing and cleaned as required to give a smooth even galvanized finish.

#### **Material Sizes**

Gate Frame	100 x 100 x 3mm RHS
End Post	100 x 100 x 5mm RHS
Hinge Post	200 x 200 x 5mm RHS
Gate Vertical Bars	26.9 O.D round tube

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

The erected height of each gate system shall be 2350mm. This should consist of 150mm maximum ground clearance and 2200mm of gate height. Each gate frame shall be 2000mm from the top of the gate frame to the bottom of gate frame, with 200mm of crimped 26.9 O.D spear protruding through the top gate frame. Each spear top shall be part of the relevant vertical bar of the gate and should pass right through the top main member. All vertical bars shall also be fully welded. The width of each gate opening shall be determined on site and shall cover the entire road width. Each gate system shall have an end post constructed of 100mm RHS. The main hinge post shall consist of three vertical 100mm square RHS sections connected top and bottom to form a solid full height hinge post and equipment mounting post.

Each gate system hinge post shall be concreted into position with the footing. The above swing gate system shall be painted on site by hand 3 months after installation and commissioning. The paint finish shall be applied after a suitable etch primer has been applied and the paint shall be two pack polyurethane. Colour to be advised.

### **EZI SWING- 02** Drive Motor and Gearbox

Each swing gate motor gearbox drive unit shall be a 3-phase .75kw unit. 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 60 operations per hour and/or 100° duty cycle. The drive motor system shall be suitable for controlled speeds with soft start and closing.

Each swing gate system must be capable of controlled automatic open and closing during heavy windstorms without assistance by personnel. All calculations should be based on a 60% sail factor with each of the proposed gates and wind gust of up to 70kmh.

The motor gearbox drive system is to utilise an 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. A brake release override handle is to be included with the system. This handle shall be able to release and hold open mechanically without need for a person to hold it down. Each motor is to be installed on a solid mounted platform. The motor gearbox and platform assembly shall bolt together.

### **Ezi Swing- 03** Electronic Equipment Enclosure

Each gate control logic module shall be housed within an IP56 steel or poly enclosure, size shall be no less than 600 x 400 x 200mm. Each enclosure shall have a hinged door and key locking system. Each of these enclosures shall house a PLC, frequency inverter, power supply, loop detector, RCB, ELB, surge arrestor, double GPO, test button, buzzer and misc items such as duct, cable etc. to suit the relevant swing 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, adjacent to the drive motor location. 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 Swing- 04** Programmable Logic Controller

Each gate motor drive system is to be PLC controlled utilising a NIAS GEC 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 two years.

### **Ezi Swing- 05** Frequency Inverter

A frequency inverter is to be utilised on each gate motor system. The frequency inverter 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 2HP motor ratings. Each frequency inverter shall be set up to display reliable speeds. Each frequency inverter shall have a built in program keypad which should remain with the gate system after programming and commissioning.

### **Ezi Swing- 06** Inductive Loop Detector

Each swing 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 to the relevant loop detector.

### **Ezi Swing- 07** 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 Swing- 08** 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 Swing- 09**

#### Misc. Items

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

#### **Ezi Swing- 10** Buzzer

Each swing 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 3 seconds 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 Swing- 11** Flashing Light

Each swing gate system shall be supplied with a flashing orange low voltage strobe light, which shall be fitted to the top of the hinge post. This strobe light will be controlled by the gate system PLC. It is to flash 3 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 hinge post to the control logic enclosure module.

#### **Ezi Swing- 12** Photo Electric Beams

A series of photoelectric beams shall be utilised to provide adequate safety measures for pedestrians. Each swing gate system shall have two 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 block a beam or vehicle the system should stop and wait until clear, prior to any gate movement. All beams shall be set up as security/safety stop. Two sets of beams will be set on the unsecured side of the gates at 600mm high and 1200mm high respectively.

#### **Ezi Swing- 13** Proximity Sensors

A series of industrial proximity switches shall be utilised to determine and control the gate position at all times. These proximity switches shall be set up to detect the lever arm of each motor for position settings. The proximity sensor shall be set up on the drive motor gearbox mounting plate. This providing position sensing for the gate system. The cabling for these proximity sensors shall have conduit up to and into the control logic enclosure. The gate system shall not become lost or confused.

#### **Ezi Swing- 14** Inductive Loops

Each swing 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. The inside loop shall be cut under the swing path of the gates and with this provide safety for vehicles.

#### **Ezi Swing- 15** Backup Power Supply

A separate price is required to provide a suitable UPS (uninterruptible power supply) for each gate drive system. Each UPS is to be capable of providing power during the event of a power failure. Each unit should be capable of at least 10 full cycle gate operations. During this condition each cycle shall consist of a full opening and closing of the relevant gate and associated gate electronics. Each UPS system should be wired in such that at all times, it is powering the relevant gate system. The units should be based on battery storage. Each UPS unit should be housed locally to its relevant gate system.

**Ezi Swing- 16**  
Fencing

Each swing gate system as installed shall have the existing fencing connected to the new gate end post and hinge post to secure site properly. This fencing shall match that which exists.

**Ezi Swing- 17**  
Concrete Foundation

Each swing gate system shall have substantial concrete block footing installed to suit the relevant gate. This block footing shall be 1000mm cubed. This footing shall have reinforcing rods installed. All conduit entries shall be set into the correct position prior to the concrete installation. All concrete shall be minimum 32mpa. Relevant trades persons to all Australian Standards shall perform this work.

**Ezi Swing- 18**  
Equipment Pedestals

Each swing gate system shall have two single car height equipment pedestals. These pedestals shall be 1100mm high, flange mounted and constructed of 100 square RHS. Each pedestal shall have a gooseneck and weather shroud made from folded sheet metal. All pedestals shall be hot dip galvanized and painted safety orange. The equipment shroud plate shall be 300mm square, this to suit the intended radio intercom station installation. One pedestal shall be for the entry location and one for the exit location. The pedestals shall be positioned on the drivers side edge of the road and shall not be closer than 4 metres from the face or swing area of the relevant automatic swing gate system

**Ezi Swing- 19**  
Concrete Footings

Each equipment pedestal shall have a concrete block footing set 500mm deep x 500mm square. All conduits shall be set in place centrally on these footings prior to concrete installation.

**Ezi Swing- 20**  
Voice Communication

Each equipment pedestal shall be fitted with a radio intercom slave station to suit the existing on site radio communication system. This system must be capable of voice communication and opening of the relevant gate system by depressing an existing button on any of the site hand held radio devices. Closing of the gate system shall be automatic via the gate safety systems and/or time out.

**Ezi Swing- 21**  
Radio Transmitter System

Each gate control logic panel shall have a 27MHZ radio receiver and whip aerial fitted to it. This is so single channel radio transmitters can be issued to dedicated staff to gain entry to their relevant gate system. Provide an each price on single channel radio transmitters and batteries

**Ezi Swing- 22**  
Debris

All and any debris as caused in the progression of works must be removed from site and not stockpile on site. At no time is debris to be left in a position that may obstruct vehicles or persons from reasonable movement.