

**SCOPE OF WORK  
FOR THE  
INSTALLATION OF  
TWO RSS 2000 BARRIER AT POST**

# SOW FOR THE INSTALLATION OF TWO RSS 2000 BARRIERS

## **1.0 OBJECTIVE.**

Remove two [2] existing Norshield (Nor 82) vehicle arrest systems, controls, and support equipment and replace them with two [2] new RSS-2000 Electric Wedge vehicle arrest systems, controls, and support equipment.

## **2.0 BACKGROUND.**

Reliability issues with the existing vehicle arrest systems have warranted replacement with a new DS approved vehicle arrest system.

## **3.0 REQUIREMENTS.**

The contractor is to complete following tasks as part of this project.

### 3.1 Demolition

- 3.1.1 The contractor shall remove two (2) existing Nor 82 vehicle arrest barriers, one located at Main Gate and one located at the Service gate. This includes the removal of the concrete foundations, reinforcing steel rebar(s), and aggregate materials as required to install the new equipment.
- 3.1.2 The contractor shall remove all hydraulic lines, electrical wiring, and control wiring connecting each Nor 82 vehicle arrest barrier back to the hydraulic pumping units.
- 3.1.3 The contractor shall remove all underground conduits connecting each of the Nor 82 vehicle arrest barriers back to the hydraulic pumping units. The contractor may cut back the conduit beyond the work area, cap, and abandon them in-place if applicable.
- 3.1.4 The contractor shall remove the hydraulic pumping units, hydraulic fluid, associated concrete foundation, reinforcing steel rebar(s)/mesh, and all electrical and control wiring. All conduits shall be cut back below the floor level, capped, and abandon in-place, as a minimum.  
Note: the existing conduit runs connecting the Nor 82 HPU to the power distribution panel, slave controller in the guard station, and barrier control panel in the CAC equipment room may be reused, as required per the design drawings.
- 3.1.5 The contractor shall remove the enclosures that house the hydraulic pumping units, if installed.

## **SOW FOR THE INSTALLATION OF TWO RSS 2000 BARRIERS**

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- 3.1.6 The contractor shall remove the vehicle Stop/Go signal light assemblies, associated concrete foundation, all electrical wiring, and conduit as connected underground and back to the control circuits for the Nor 82 vehicle arrest systems.
- 3.1.7 The contractor shall remove the vehicle detector circuits on the secure side, associated concrete foundation, all electrical wiring, and conduit as connected underground and back to the control circuits for the Nor 82 vehicle arrest barrier.
- 3.1.8 The contractor shall disconnect the vehicle detector circuits on the non secure side, and cut back all electrical wiring and conduit beyond the work area, cap the conduit, and abandoned it in-place.
- 3.1.9 The contractor shall remove the vehicle barrier drainage water sump pump systems including all associated electrical wiring, conduit, and drain piping as connected underground and back to the Nor 82 vehicle arrest barriers. This includes all discharge lines from the sump pump back to the storm drains.
- 3.1.10 The contractor shall remove water drainage piping as required for the rerouting flow of drainage water through and/or around the vehicle barrier construction sites.
- 3.1.11 The contractor shall move and/or reroute all existing utilities (i.e. water, sewage, gas, electric, communication, data, etc.), which are or maybe affected by the installation of the new barrier equipment, so that they are outside of the construction area.
- 3.1.12 Notice of Construction and/or Repair (See 6.23) for any gas line must be submitted to the local oil and gas commission before the start of any construction or repairs. Construction and/or repairs must be under the authority and supervision of the local oil and gas commission.
- 3.1.13 Notice of Construction and/or Repair (See 6.21) for any electrical utility lines must be submitted to the local electric cooperative before the start of any construction or repairs. Construction and/or repairs must be under the authority and supervision of the local electric cooperative.
- 3.1.14 The contractor shall identify and immediately bring to the attention of the government project representative any anomalies of concern.

## SOW FOR THE INSTALLATION OF TWO RSS 2000 BARRIERS

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### 3.2 Installation

- 3.2.1 The contractor shall install one (1) RSS-2000 Electric Wedge vehicle arrest system located at Main gate and one (1) RSS-2000 Electric Wedge vehicle arrest system located at Service gate as required per the design drawings and manufacture instructions and specifications.
- 3.2.2 The contractor shall install the concrete foundation, reinforcing steel rebar(s), and aggregate materials, as required per the design drawings, and manufacture instructions and specifications for the installation of the RSS-2000 Electric Wedge vehicle arrest system, controls, and support equipment (i.e. traffic lights, vehicle detector systems, etc.).
- 3.2.3 The contractor shall install the Barrier Control Panel (BCP) and Battery Backup Panel (BBP) per the design drawings, and manufacture instructions and specifications.
- 3.2.4 The contractor shall fabricate and install the unistrut frame, and associated concrete foundation, if used, that supports the BCP and BBP per the design drawings, and manufacturer instructions and specifications.
- 3.2.5 The contractor shall install all electrical and control wiring, conduit, conduit fittings, and pull boxes as required between the RSS-2000 Electric Wedge vehicle arrest barrier, traffic lights, IR detectors, and loop detector system back to the Barrier Control Panel (BCP) and Battery Backup Panel (BBP) per the design drawings, and manufacture instructions and specifications.
- 3.2.6 The contractor shall install all rack mounted equipment, fiber, electrical and control wiring, wire and fiber fittings, conduits, and conduit fittings required between the BCP and BBP and the power distribution panels, barrier control panel, fiber panel, CAC slave control station, and post 1 per the design drawings, and manufacture instructions and specifications.
- 3.2.7 The contractor shall install the vehicle Stop/Go signal light assemblies, associated concrete foundation, all electrical wiring, conduit, and conduit fittings as connected underground and back to the BCP for the RSS-2000 Electric Wedge vehicle arrest barriers per the design drawings, and manufacture instructions and specifications.

## SOW FOR THE INSTALLATION OF TWO RSS 2000 BARRIERS

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- 3.2.8 The contractor shall install the vehicle IR detector system, associated concrete foundation, all electrical wiring, conduit, and conduit fittings as connected underground and back to the BCP for the RSS-2000 Electric Wedge vehicle arrest barriers per the design drawings, and manufacture instructions and specifications.
- 3.2.9 The contractor shall install the vehicle loop detector system on the secure side, associated concrete foundation, all electrical wiring, conduit, and conduit fittings as connected underground and back to the BCP for the RSS-2000 Electric Wedge vehicle arrest barriers per the design drawings, and manufacture instructions and specifications.
- 3.2.10 The contractor shall install the vehicle barrier drainage water piping (4" and 1-1/2" diameter) from the RSS-2000 Electric Wedge vehicle arrest barriers to the nearest water drainage or sewer system per the design drawings, and manufacture instructions and specifications.
- 3.2.11 The contractor shall identify and immediately bring to the attention of the government project representative any anomalies of concern.

### 3.3 Site Condition and Clean-Up

- 3.3.1 The contractor shall maintain the site in a safe and secure condition at all times.
- 3.3.2 The contractor shall maintain the site in a neat and clean condition at all times.
- 3.3.3 The contractor shall remove and dispose of all waste materials including old barriers and equipment, concrete, aggregate materials, reinforcing steel rebar(s), conduit, piping, and all electrical wiring associated with the removal and installation process as identified in Sections 3.1 and 3.2 above.
- 3.3.4 The contractor shall return the construction site back into the same condition or better, as it was found prior to the start of the project.

### 3.4 Project Time Line.

- 3.4.1 The contractor shall provide a construction schedule which defines the timelines for the major project activities (i.e. project mobilization, demolition, barrier installation, cable/conduit installation, equipment installation, concrete curing, start-up, testing, etc.) for the removal

## **SOW FOR THE INSTALLATION OF TWO RSS 2000 BARRIERS**

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of the existing system and installation of a new fully operational vehicle arrest systems at each gate.

3.4.2 The schedule shall reflect a total elapsed time not to exceed 9 weeks for both gates, from the time the personnel and equipment arrival at site to turn-over of barrier systems to post.

3.4.3 The contractor will have access to the site 6 days a week, 10 hours per day. All work outside of this time frame will require prior approval from the government project representative.

### **4.0 U.S. GOVERNMENT FURNISHED MATERIALS.**

The U.S. Government, here after referred to as the government, shall provide the following:

- 4.1 The government shall provide two (2) RSS-2000 Electric Wedge vehicle arrest barriers with built-in sump systems.
- 4.2 The government shall provide the RSS-2000 Barrier Control Panels (BCPs).
- 4.3 The government shall provide the RSS-2000 Battery Backup Panels (BBPs).
- 4.4 The government shall provide all rack mounted barrier and gate control panels (slave and master panels) for each CAC and Post 1,
- 4.5 The government shall provide all rack mounted panels, power supplies, media converters, and fittings required for the fiber conversion.
- 4.6 The government shall provide the unistrut materials and hardware for the construction of the support structure for the BCPs and BBPs per the design drawings.
- 4.7 The government shall provide the RSS-2000 Stop/Go signal lights, support posts, and support bases.
- 4.8 The government shall provide the IR vehicle detector sensors, support posts, and mounting brackets.
- 4.9 The government shall provide the spray paint, safety yellow [if applicable].
- 4.10 The government shall provide the spray paint, gloss black [if applicable].

## **SOW FOR THE INSTALLATION OF TWO RSS 2000 BARRIERS**

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- 4.11 The government shall provide all of the PVC and Rigid conduit, conduit fittings, water drainage piping, electrical pull boxes, fiber cable, electrical wiring, control wiring, and miscellaneous parts associated with the installation of the new barriers.
- 4.12 The government shall provide all reinforcing steel rebar(s) required for the foundation installation of the two (2) RSS-2000 vehicle barrier(s), only, per the design drawings, and manufacture instructions and specifications.

### **5.0 CONTRACTOR FURNISHED MATERIALS.**

The contractor shall provide the following:

- 5.1 The contractor shall provide all concrete and aggregate materials required for the foundation installation of two (2) Rss-2000 barrier(s) per the design drawings, and manufacture instructions and specifications.
- 5.2 The contractor shall provide all concrete and aggregate materials required for the foundation installation of the BCP and BBP per design drawings, and manufacture instructions and specifications.
- 5.3 The contractor shall provide all concrete and aggregate materials required for the foundation installation of the vehicle detector circuits, and the Stop/Go signal light assemblies per design drawings, and manufacture instructions and specifications.
- 5.4 The contractor shall provide all concrete and aggregate materials required for the foundation installation of the conduit and electrical pull boxes per the design drawings.
- 5.5 The contractor shall provide all concrete and aggregate materials required for the foundation installation of the drain lines per the design drawings.
- 5.6 The contractor shall provide all concrete, aggregate materials, and materials of construction (i.e. piping, conduit, wire, conduit fittings, etc.) as required for moving and/or rerouting utilities as defined in Section 3.1.10 through 3.1.13 above.
- 5.7 The contractor shall provide all concrete and aggregate materials, and materials of construction (i.e. piping, conduit, wire, conduit fittings, etc.) as required to reroute and repair utility lines damaged during the demolition and installation of the new vehicle barrier arrest systems (refer to Section 3.1.10 through 3.1.12 above).

## **SOW FOR THE INSTALLATION OF TWO RSS 2000 BARRIERS**

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- 5.8 The contractor shall provide all reinforcing steel mesh and/or rebar(s) required for the foundation installation of all barrier support equipment and systems, except as defined in Section 4.12 above, per the design drawing, and manufacture instructions and specifications.
- 5.9 The contractor shall provide a dumpster(s) as required for the cleanup and disposal of all waste materials.
- 5.10 The contractor shall provide any and all excavation and installation equipment required (i.e. forklift, front loader, excavator with hoe ram and bucket attachments, handheld breaker hammer, arc welding equipment, cutting torch, ground tamper, wheel barrow(s), powered saw for concrete cutting, steel rake(s), pick axe(s), flat head shovel(s), spade shovel(s), push broom(s), water hose w/spray attachments, pressure washer, large handheld grinder with cutoff and masonry wheels, electrical extension cord(s), concrete vibrator(s), chain slings, etc.) .
- 5.11 The contractor shall provide any and all excavation materials (i.e. masonry blocks, lumber for formwork, concrete to concrete expansion joints, plastic sheeting for concrete curing, string line, nails, expandable spray foam, etc.).
- 5.12 The contractor shall provide any and all small handheld tools, drills, drill bits, wrenches, screwdrivers, knockout punch set, hole saw kit, fish tape, grease guns, etc. as required for the installation project.
- 5.13 The contractor shall provide well covers as required for the project installation. The well and covers shall meet or exceed a 25 ton load capacity.
- 5.14 The contractor shall provide vehicle blocking barrier(s) as required for ensuring construction site safety and security. The blocking barrier(s) must be approved by the Post RSO or PSO.
- 5.15 The contractor shall provide pedestrian fencing and/or netting as needed/required for pedestrian safety and access control.
- 5.16 The contractor shall provide a construction site Portable Restroom as required for contractor personnel unless access to post restrooms is permitted.
- 5.17 The contractor shall identify and immediately bring to the attention of the government project representative any anomalies of concern.

## SOW FOR THE INSTALLATION OF TWO RSS 2000 BARRIERS

### **6.0 CONTRACTOR RESPONSIBILITIES.**

The contractor shall conform to the following:

- 6.1 The contractor is totally responsible for ensuring that a fully functional vehicle barrier arrest system is installed per the requirements of the design drawings, and the manufacture guidelines and installation specifications.
- 6.2 The contractor is responsible for ensuring the safety of the workers and site personnel during the project.
- 6.3 The contractor shall verify and be responsible for all dimensions and conditions at the job site.
- 6.4 The contractor shall verify that the foundation concrete will be placed directly into neat excavations. And where sides of the excavation are not stable the contractor shall provide shoring. Type and method of shoring shall be at the contractor's option subject to approval by the government project representative.
- 6.5 The contractor shall ensure the excavation site is kept dry at all times.
- 6.6 The contractor shall ensure the concrete is laboratory designed, machine mixed, producing minimum of 3,000 PSI (20.68 MPA) at 7 days via independent/certified testing lab.
- 6.7 The contractor shall ensure the cement is tested Portland cement conforming to ASTM C150, Type II Only.
- 6.8 The contractor shall ensure the aggregates conform to ASTM C33 & B GRADE per standard specifications. Maximum size of aggregate shall be 1-1/2 inches (38mm).
- 6.9 The contractor shall ensure that all reinforcing steel they provide is deformed bars conforming to ASTM A615, grade 60 (60,000 PSI or 413.7MPA).
- 6.10 The contractor shall ensure that all hooks and bends conform to ACI STANDARD 318. Latest revision. Inside diameter of hooks and bends shall be at least six (6) bar diameters.
- 6.11 The contractor shall provide spacer bars, chairs, spreaders, blocks, etc. as required to positively hold the steel in place before concrete is poured.

## **SOW FOR THE INSTALLATION OF TWO RSS 2000 BARRIERS**

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- 6.12 The contractor shall ensure the concrete is conveyed from the mixer to final deposit by methods that will prevent separation and loss.
- 6.13 The contractor shall ensure the concrete is thoroughly consolidated by suitable means during placement and shall be thoroughly worked around reinforcement and embedded fixtures and corners of forms.
- 6.14 The contractor shall ensure the concrete is maintained above 50°F (10°C) and in a moist condition for at least seven (7) days after placement. And that adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near freezing weather.
- 6.15 The contractor shall ensure that where exterior wall face requires shoring and/or forming, the forms shall be substantial and sufficiently tight to prevent leakage, and that forms shall not be removed until the concrete is seven (7) days old.
- 6.16 The contractor shall ensure that backfilling will be done by depositing and tamping into place clean sand or pouring lean concrete to 95% percent compaction. Water jetting shall not be allowed.
- 6.17 The contractor shall ensure that conduit and pipes of aluminum, other than above grade support posts, are not allowed.
- 6.18 The contractor shall ensure that construction joints that are not indicated on the drawings shall not be allowed. Where a construction joint is to be made, the surface of the concrete shall be thoroughly cleaned and all laitance and standing water removed.
- 6.19 The contractor shall be responsible for the protection of all adjacent areas against damage and shall repair all damaged areas to match existing improvements.
- 6.20 The contractor shall be responsible for the protection of all electrical lines and/or wiring located in the adjacent areas against damage and shall repair all damaged electrical lines and/or wiring.
- 6.21 The contractor shall be responsible for notifying the local electric cooperative before the start of any construction and/or repairs of electrical utility lines.
- 6.22 The contractor shall be responsible for the protection of all water, gas, and sewage lines located in the adjacent areas against damage and shall repair all damaged water, gas and/or sewage lines.

## **SOW FOR THE INSTALLATION OF TWO RSS 2000 BARRIERS**

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- 6.23 The contractor shall be responsible for notifying the local Oil and Gas Commission before the commencement of any construction and/or repairs of gas lines.
- 6.24 The contractor shall be responsible for determining the location of underground power lines, water, gas, and sewer mains to prevent damage during construction. It is critical to protect City utilities from 'dig-ins', which could result in death, injury and considerable liability.
- 6.25 The contractor shall keep the construction area clean at all times and at completion of work remove all surplus materials, equipment and debris leaving the premises in a clean condition acceptable to the owner or owners representative.
- 6.26 The contractor shall perform damage restoration improvements as associated with the vehicle arrest system installation.
- 6.27 The contractor shall identify and immediately bring to the attention of the government project representative any anomalies of concern.

### **7.0 REPORTING REQUIREMENTS.**

The contractor shall provide the following:

- 7.1 The contractor shall provide daily written progress reports to the government project representative.
- 7.2 The contractor shall provide daily verbal progress reports as requested by the government project representative.
- 7.3 The contractor shall provide verbal notice, to the government project representative, two week in advance of the delivery of any and all materials and equipment to site.
- 7.4 The contractor shall provide written notice to the government project representative, three weeks in advance, of the need of access to the site of any additional construction personnel after the start of the project. This also pertains to delivery personnel who will need to be on site for an extended period of time, more than simply dropping off materials (i.e. operators of rental equipment, driver of the concrete delivery truck, etc.)
- 7.5 The contractor shall identify and immediately bring to the attention of the government project representative any anomalies of concern.

## **SOW FOR THE INSTALLATION OF TWO RSS 2000 BARRIERS**

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### **8.0 GENERAL INFORMATION.**

- 8.1 Throughout the installation process there will be a government project representative on site to oversee and assist the contractor with any anomalies or areas of concern.
- 8.2 The contractor, upon completion of the project shall remand all documentation for the project as required by post Regional Security Officer and/or Post Security Officer.
- 8.3 The contractor shall surrender any/all documentation, pertaining to the project, to the government project representative as requested and/or required by the project representative.