

SECTION D

SPECIAL PROVISIONS 2008 Warning Sirens

ACCOUNT NO. ESTM 58599-810485-00-53W0658

CONTRACT NO. 6222

It is the intent of these Special Provisions to set forth the final contractual intent as to the matter involved and shall prevail over the Standard Specifications and plans whenever in conflict therewith. In order that comparisons between the Special Provisions can be readily made, the numbering system for the Special Provisions is equivalent to that of the Specifications.

SECTION 102.7 WITHDRAWAL OF PROPOSALS

All proposals filed with the City will be kept secure and unopened and will not be allowed to pass out of the custody of a representative of the City, except on written request of the bidder or the bidder's authorized representative made prior to expiration of the time set for receipt of proposals.

If such withdrawal is made, such prospective bidder shall not be entitled to bid on the contract at hand unless the same contract is re-advertised and proposals are again requested upon such advertisement.

SECTION 102.10 MINIMUM RATE OF WAGE SCALE

The wages and benefits paid on this contract shall not be less than those specified in the Prevailing Wage Determination included with these contract documents for **“Building and Heavy Construction.”**

SECTION 104 **SCOPE OF WORK**

This contract is for the installation of two (2) new emergency warning siren installations using city provided poles, and one (1) alternate new warning siren location using the pole and base specified under bid item 90003.

The scope of work includes the furnishing all labor, materials, equipment, tools, and services; and includes all costs of permits and any other costs whatsoever which may be required for the installation of the outdoor siren system. The Contractor shall furnish any apparatus, appliance, material, or labor that may be necessary to complete the work, in accordance with the intent of this contract. This includes, but is not limited to coordination with local utilities to ensure proper delivery of electrical power, acquiring road closure permits if needed, site restoration and costs of equipment such as a bucket truck, crane, or auger. The Contractor shall use properly functioning equipment capable of performing the tasks required. The Contractor shall furnish workers who perform quality work and who are experienced and knowledgeable in the work proposed.

The City has a cooperative arrangement with the Dane County Department of Emergency Management (DCEM) and Dane County 911 Center (911) to manage, maintain, and operate a system of emergency sirens.

The County has a custom built system for remote control of the sirens via radio signal. The central controls are located in the County 911 Center, with backup at the DCEM. The control system uses National Instruments Lookout SCADA software and Zetron model 1700 controllers to monitor and log site status reports, conduct tests, and activate the sirens. The system operates on a County-licensed low band VHF frequency transmitted from two tower sites in the County. The microwave, low band base stations and tower infrastructure is all owned and operated by the County.

Very specific equipment is needed at each siren site in order to tie the new installations into the County system. All equipment specifications for a complete installation are listed in the Bid Item 9000X section of these special provisions. Any equipment being replaced during an upgrade installation shall match these specifications.

SECTION 104.1 LANDS FOR WORK

Sirens P-1 and P-2 are located within the public right of way or on lands owned by the City of Madison. Siren A-1 is located on lands owned by the State of Wisconsin Department of Transportation.

Bidders shall visit each site of the proposed work and carefully examine the existing conditions and limitations at each site. Bidders shall include in their proposals the costs to be incurred as a result of difficulties and limitations presented by the existing conditions.

SECTION 107.2 PROTECTION AND RESTORATION OF PROPERTY

The Contractor shall not grade, excavate, store materials or equipment or otherwise disturb any areas outside the project limits shown on the plans.

It is the intent that all disturbed areas shall be restored as follows:

- 1) Asphalt – shall be brought to grade daily with granular material and restored permanently at the end of the project with a TYPE III trench patch.
- 2) Turf/grass areas – shall be restored with permanent seed, matting, fertilizer, and polymer in accordance with the Standard Specifications. Seed Mixtures shall be that specified for “Terrace Seed Mixtures”.
- 3) Concrete sidewalk and concrete curb and gutter shall be replaced in accordance with the Standard Specifications.

SECTION 108.2 PERMITS

The City of Madison shall submit for a DNR Notice of Intent (NOI) to obtain coverage under the

Construction Site General Permit No. WI-S067831-2 for construction site erosion control.

The Contractor shall meet the conditions of the permit by properly installing and maintaining the erosion control measures shown on the plans, specified in these Special Provisions, or as directed by the Construction Engineer or his designees. This work will be paid for under the appropriate contract bid items or, if appropriate items are not included in the contract, shall be paid for as Extra Work. A copy of the permit is available at the City of Madison, Engineering Division office.

SECTION 109.2 PROSECUTION OF THE WORK

Work shall begin only after the contract is executed and the start work letter is received. If it is desirable to begin work before the above-mentioned date, the Contractor shall establish a mutually acceptable date with the City Engineer (contact the Construction Engineer at 266-9091). The time of completion shall be **NINETY (90) CALENDAR DAYS**. The time of completion will be computed in accordance with Section 109.7 of the Specifications starting with the latest start date or the date work actually begins whichever is sooner. The Contractor shall limit the workdays from 7:00 a.m. to 7:00 p.m., unless approved by the Engineer in writing and no work shall be performed on holidays.

BID ITEM 9000X – Emergency Siren Installation.

DESCRIPTION OF EQUIPMENT.

All materials and components shall be new and of the manufacturer's latest design in current production. All new installations shall use equipment and controls as specified below for a complete installation. All upgrade installations shall use new equipment as specified below and as indicated in the Method of Measurement section in these Special Provisions.

The equipment shall comply with the specifications set forth herein and shall comply with all performance specifications as advertised or otherwise represented by the Vendor. The equipment shall be manufactured, assembled, installed, and tested in accordance with the current industry standards, which shall be considered minimum requirements:

- The American National Standards Institute (ANSI).
- The Institute of Electrical and Electronic Engineers (IEEE).
- The National Electrical Code (NEC).
- State of Wisconsin electrical code.
- Where test standards exist, all materials and equipment furnished shall bear the label of the Underwriters Laboratory (UL).

Radio Controls

Each new siren site is to be set up with new radio control equipment necessary for complete integration into the Dane County Emergency Management's (DCEM) SCADA system.

Components include:

Item	<u>Manufacturer</u>	Part Number/Specifications
Antenna	Sinclair	SG101-SFXPASNM, tuned to 45.320 MHz
Power Supply	Astron	SS-25 12 V/25 Amp
Lightning Protector	PolyPhasor	IS-B50LN-C0
Antenna Cable	Belden	40 Ft, RG-8 Coax, N-male/N-male connectors
Low Band Mobile Radio	Motorola	CDM 750 low band radio, 42-50 MHz, with power cable, mounting bracket, 16 pin option cable, manual, two year warranty, 6 ft jumper cable, N male-MiniUHF male (HKN9087B)
Remote Terminal Unit (RTU)	Zetron	Model 1708 with group call
Radio/RTU interface Cable	Zetron	709-7308 Radius interface cable
Programmable Logic Controller (PLC)	GE/Fanuc	Versamax Micro 28pt PLC, 12 VDC in/12 Relay out, Part # IC200UDR006
Control Battery		12 Volt/33 Amp Hour
Current Monitor	SSAC, Inc	RLM-240

Various sensors and relays to provide remote sensing and data reporting are also included. Remote sensing includes the following:

- AC Power
- DC Power
- Quiet Test
- Activation

Siren Commands include:

- Poll
- Quiet Test
- Alert
- Cancel

DCEM has complete programming information and wiring schematics for these components and will provide them as needed to the successful bidder.

The radio control components must be grounded and installed in a water-proof, pole mounted cabinet. The cabinet must be furnished in natural finish aluminum or stainless steel, or coated with a material that provides a high resistance to UV degradation, rust, and corrosion.

Siren Units

New siren site installations and replacement installations shall have a complete, new siren at each site. The units shall contain all of the equipment necessary to engage the siren.

The siren units shall be designed to meet the following requirements:

1. Electro-mechanical, rotating, directional siren. Electronic sirens will not be considered.
2. Pole mounted.
3. Capable of producing a minimum of 130 dB sound level at 100 feet for a minimum of 15 minutes.
4. Capable of operating on single-phase AC power, 208 or 240 Volts. Battery back up is a requirement.
5. Capable of operating in a harsh environment, with an operating temperature range of -30 to +60 degrees Celsius.
6. Furnished in natural finish aluminum or stainless steel, or coated with a material that provides a high resistance to UV degradation, rust and corrosion.
7. Maintenance-free siren head.
8. Interior of siren to be protected to prevent entry of insects, birds, squirrels, and other pests.

Control Cabinets

Any necessary control cabinets shall meet the following specifications:

1. Appropriate NEMA rating.
2. Furnished in natural finish aluminum or stainless steel, or coated with a material that provides a high resistance to UV degradation, rust and corrosion.
3. Pole mounted. The mounting system shall have sufficient strength to support the entire weight of the cabinet and all modules, accessories and other contents.
4. Locking.
5. Maintenance-free with the exception of periodic lubrication of hinges and locking mechanisms.
6. If equipped with ventilation louvers, all louvers shall be screened to the inside to prevent the entry of insects, birds, squirrels, and other pests.
7. Cabinets should be equipped with a lifting hook to facilitate installation and removal of cabinet.
8. Capable of withstanding high winds, rain, hail, snow, etc., without damage to the cabinet or contents.

Utility Poles

Utility poles for new siren installations P1 and P2 shall be 55-foot long, Class 2 wooden poles. Poles shall be buried with at least 10 feet in the ground. The poles shall be new and free of defects such as cracks, rotting, warping, or any other defect that would limit the load bearing capabilities of the completed siren installation. Poles shall not be equipped with climbing pegs. All poles shall be pressure-treated to assure long-term resistance to environmental conditions.

The utility pole for new siren installation A1 shall be 80-foot long Class 1 steel pole. The pole shall be of two-piece construction with a hot dipped galvanized finish with no climbing pegs. The installation shall be a direct bury with a minimum bury of 10 feet in the ground. The contractor shall include any required caps, brackets, etc required for a complete installation of the siren head and associated components.

INSTALLATION OF NEW SIRENS.

The Contractor shall provide all the necessary personnel, tools, equipment, and transportation for the successful installation of all equipment provided.

All equipment shall be installed according to the manufacturer's specifications and recommendations.

The Contractor shall provide for all deliveries, permits, and complete installation of the equipment, including new utility poles, siren heads, controllers, and control boxes.

In the event that Siren A-1 is accepted for installation the City will pursue any permits and easements required by the State of Wisconsin Department of Transportation. The contractor will remain responsible for all other required permits.

AC power for the sirens and control components shall be obtained from the local power utility and may require the installation of a device for metering power consumption. The Contractor will be responsible for coordinating all work with the affected utilities to provide electrical power to the new siren installation. The Contractor shall pay any special costs associated with providing power that are not covered by the utility. All associated permits required for providing electrical power shall be paid for and obtained by the Contractor. *The City shall reimburse the Contractor for the cost of charges from the utility based on actual invoices.*

All wiring shall be in accordance with the applicable electrical codes. All electrical wiring shall be enclosed in steel conduit and junction boxes. All equipment shall be designed and constructed for the service intended. All equipment shall be properly grounded and protected from lightning and power surges according to manufacturer's recommendations. Care shall be taken to install all components in a manner that will reasonably protect them from the environment and will not impede maintenance access. The Contractor is responsible for all permits and inspections.

The sites will be constructed on city owned property or in easements or rights-of-way.

All necessary steps shall be taken to ensure that all utility poles are plumb prior to final backfilling around the drilling site. The pole must not be more than 5 degrees from vertical.

The Contractor shall make every effort to ensure that the installations are affected with minimal impact to the surrounding turf. The Contractor shall be responsible for site restoration if damage is done to the grounds, public sidewalk, curb and gutter, pavement and turf during installation.

All control cabinets must be fully accessible for servicing, mounted no less than six feet and no

more than eight feet from the ground to the base of the box.

All AC service lines shall be dedicated. Overhead service lines shall only be allowed in areas where overhead power lines already exist. Buried service lines shall be enclosed in galvanized metal conduit, of the appropriate diameter, at the pole from a point one foot below finished grade to the first connection to protect against vandalism.

ACCEPTANCE TESTING

Two levels of field-testing are required to ensure that the equipment is operating properly.

The Contractor shall test all radio control components to ensure that they are operating on frequency, correctly receiving radio control signals, and that all timing sequences are performed as specified. All radio controllers supplied for this contract must be tested.

Once a new siren has been successfully installed, the Contractor shall perform a field test to ensure that the unit is operating properly. This must be a comprehensive test of the installation including a test of all functions of the radio controller, the siren motor control components, and the siren head itself. This testing must be coordinated with the DCEM.

When the project is complete the Contractor shall inform the City and DCEM, in writing, that the system is operating. Upon receipt of this notification and agreement by the City and DCEM that the system has been successfully installed, a 60-day Acceptance Period will begin. During this time, the DCEM will perform a series of tests to determine that the system is operating according to specifications. The major conditions for acceptance are as follows:

- All new sirens must operate properly for two sequential monthly tests. DCEM tests the sirens once a month. The DCEM must get 100% performance of the new sirens two months in a row. The DCEM also expects 100% performance in the event of an actual emergency activation during this time period.
- Failure to meet the performance testing requirements will result in re-establishing a new 60-day Acceptance Period, beginning at the time of failure.
- If testing results prove inadequate, the Contractor will take immediate action to repair or replace the faulty equipment. This shall be done at no expense to the City. The system warranty period shall begin at the end of the Acceptance Period.

DOCUMENTATION

The Contractor shall submit a minimum of two hard copies of the equipment manuals, engineering plans, surveys, and any other documentation associated with siren installations or the components supplied. One copy shall be provided to the City the other to DCEM.

METHOD OF MEASUREMENT

Each Emergency Siren Installation shall be measured as a unit (Each) based on each site's specific need as indicated below. Each site's bid price shall be listed on the bid document, the City of Madison reserves the right to remove individual sites from the contract at any time during the

contract.

1. Site P-1, new installation, Storck Road:
 - a. Siren head per specifications
 - b. All controls, cabinets, etc per specifications
 - c. 55 foot Class 2 Pole provided by the city
 - d. Electrical service reimbursed by invoice provided to the City of Madison.

2. Site P-2, new installation, Sayle Street:
 - a. Siren head per specifications
 - b. All controls, cabinets, etc per specifications
 - c. 55 foot Class 2 Pole provided by the city
 - d. Electrical service reimbursed by invoice provided to the City of Madison.

3. Site A-1, new installation, 5601 Eastpark Boulevard (WISDOT Park and Ride Lot):
 - a. Siren head shall be American Signal Corporation, Model Tempest T-135 or approved equal.
 - b. All controls, cabinets, etc per specifications
 - c. 80' Class 1 galvanized steel pole per specifications
 - d. Electrical service reimbursed by invoice provided to the City of Madison.

BASIS OF PAYMENT

An Emergency Siren Installation shall be measured as above and paid for at the contract price for all work, materials, permits, programming, testing, documentation, warranty, site restoration, and incidentals to complete the work as described in order to provide a fully functioning Emergency Siren Installation.