

CITY OF AUSTIN ELECTRIC UTILITY DEPARTMENT

PURCHASE SPECIFICATION

FOR

POLE AND LUMINAIRES, DISTRIBUTION, OH, 1PH, 1500W, MULTI-VOLTAGE, FOR SOCCER FIELDS

DATE	PREPARED BY	ISSUANCE/REVISION	APPROVAL PROCESS SUPV. / MATERIALS SUPV.
01/07/97	Peter G. Soosay	Issuance	Brian K. Davison / Peter G. Soosay
01/22/97	Peter G. Soosay	Revision	Brian K. Davison / Peter G. Soosay

REASON FOR REVISION	AFFECTED PARAGRAPHS

This specification, until rescinded, shall apply to each future purchase and contract for the commodity described herein.
Retain for future reference.

**CITY OF AUSTIN ELECTRIC UTILITY DEPARTMENT
PURCHASE SPECIFICATION
FOR
POLE MOUNTED LIGHTS FOR SOCCER FIELDS**

1.0 SCOPE AND CLASSIFICATION

1.1 Scope

1.1.1 The City of Austin (COA) requires a qualified Contractor to install pole mounted lights for soccer fields. The Contractor shall perform all work in this project, in compliance with the City of Austin Standards and Specifications, City of Austin Environmental Policies and Procedures and City of Austin Safety Policies and Procedures. This is a TURN-KEY Project, where the Contractor shall be completely responsible for the labor, materials, Architecture, installation and start-up of the pole mounted lights for the soccer field. Wood poles are not acceptable for this project. All materials and equipment used for this project shall be new. Used or refurbished materials and equipment shall not be used by the Contractor to complete this project. All materials and equipment used for this project shall be NON-PROPRIETARY.

1.1.2 Underwriters Laboratory (UL) Test Report

The Contractor shall supply with the bid submittal a copy of the complete Underwriters Laboratory report covering the entire lighting system being bid for the Engineer's review and retention. Partial UL files will not be accepted per the requirements of UL.

1.2 Classification

The soccer field is located as shown on the drawings referenced in the bid documents.

2.0 APPLICABLE SPECIFICATIONS

The latest revision of the following standards:

- 2.1 Underwriters Laboratories (UL)
- 2.2 National Electrical Safety Code (NESC)
- 2.3 National Electrical Code (NEC)
- 2.4 ASTM 123-89a - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- 2.5 UL 1572 - High Intensity Discharge Fixtures.
- 2.6 AWS D1.1 - Structural Welding Code Steel.
- 2.7 ASTM A153 -Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- 2.8 ASTM A325 - Structural Bolts, Steel, Heated Treated, 120/105 ksi Minimum Tensile Strength.
- 2.9 Occupational Safety and Health Administration (OSHA)
- 2.10 NFPA 780 - Standard for the Installation of Lightning Protection Systems.

3.0 FUNCTIONAL REQUIREMENTS

The Pole Mounted Lights for the soccer field shall have, but shall not be limited to, the following features:

3.1 Pole

The poles shall have the following features:

- 3.1.1 Made of hot dipped galvanized steel. The inside and outside surfaces of the poles shall be hot dipped galvanized as per ASTM 123-89a.
- 3.1.2 Circular in design.
- 3.1.3 Poles shall not be shorter than 50.0 ft (measured from ground level to the light fixtures) in height. The poles shall not exceed 80.0 ft (measured from ground level to the highest light fixtures) in height.
- 3.1.4 Wiring inside the pole
 - a) The wiring inside each pole shall be in wire supporting harness.
 - b) The wiring harness shall have shock absorbing bumpers, which will prevent abrasion of the wiring harness against the inside walls of the pole.
 - c) The wire size shall be copper, 14 gauge to 12 gauge.
- 3.1.5 Wiring Circuits
 - a) All circuits shall be labeled with fixture reference.
 - b) All harnesses (§ 3.1.4) shall be labeled with pole reference.
- 3.1.6 Lightning Protection
 - a) All structures shall be equipped with lightning protection meeting standards established by NFPA 780.
 - b) There shall be provided at each structure at least one (1) copper clad steel ground rod of not less than $\frac{5}{8}$ " in diameter and not less than 10 ft. in length, extending vertically into the earth at least 10 ft.
 - c) The ground rod(s) shall be connected to the structure by a copper main down conductor. This conductor shall be not less than a number 2 conductor.
 - d) For steel poles, the main down conductor shall extend from the base of the steel pole to the ground rod(s) and shall be mounted to the steel pole and the equipment ground. All metal components on the pole shall be bonded to the pole.
 - e) No bend of any conductor shall be formed and included angle of less than 90° nor shall it have a radius bend of less than 12".
 - f) The Contractor must provide a written statement of compliance and drawings showing compliance with the above requirements.
- 3.1.7 Grounding and Protection Against Electrical Shocks
 - a) The Contractor shall provide proper electrical grounding and warnings about any electrical hazards in accordance with the National Electrical Safety Code.
 - b) All poles, fixtures and distribution panels shall be grounded according to National Electric Code recommendations.

3.1.8 Pole Identification

The words, "CITY OF AUSTIN" and the alpha-numeric identification of the field (Attachment I) plus the four (4) digit pole number specific to the field (example: OK01-xxxx, where xxxx is the four (4) digit pole number, for Oak Hill Youth Sports Association (OK) Field Number 01) shall be indent stamped on the pole, at 6 ft. above ground level. An example of the complete indent stamp on the pole (if the pole number is 0002 and the field is 01) shall be as shown below:

CITY OF AUSTIN

OK01-0002

3.1.9 Structural strength of the pole and luminaire

- a) The pole and luminaire assembly shall withstand wind forces of 80 mph, with 1.3 gust factor, without damage or misalignment to luminaire assembly and pole. The luminaire assembly shall be warranted for 125 mph with a 1.3 gust.
- b) The structural integrity of the pole shall be based on the wind loading forces (§ 3.1.9a) and the sum of the actual weight of all lamps, luminaries and supportive electrical equipment and luminaire supportive structure.
- c) Loading
 - i) Vertical forces due to pole weight, luminaries, attachments and maintenance device shall be included in the maximum stress at the base.
 - ii) Wind pressures shall be adjusted for shape and height and shall be applied to the centroids of all projected areas.
 - iii) Eccentric moments due to deflection under maximum wind and eccentric loads shall be considered. Sum of maximum stresses shall not exceed the guaranteed minimum yield strength of the material.
 - iv) Base and anchor bolts shall be designed to withstand the maximum combined stress at the base of the pole.
 - v) All structural calculations shall be certified by sealed by a Professional Engineer licensed in the State of Texas.

3.1.10 Fall Protection Line

Poles may require a fall protection line (safety cable) depending on where the poles will be located. Poles which require a fall protection line will be identified during the Pre-Bid Walk Through (§ 4.8). The lineman shall be able to latch his safety belt to the fall protection line.

3.1.11 Pole steps

Pole steps shall start at 12 ft. above ground level. Each step shall be rated as per OSHA guidelines. Poles which require steps will be identified during the Pre-Bid Walk Through (§ 4.8). The need for steps on poles is dependent on the location of the poles.

3.2 Crossarms for the poles

- 3.2.1 The crossarms for the poles shall be made of hot dipped galvanized steel as per ASTM 123-89a.
- 3.2.2 All wiring for the light fixtures shall have the wires enclosed within the structure. Exposed wiring will not be accepted.

3.3 Foundations for the poles

- 3.3.1 Direct buried poles shall be backfilled with concrete (3000 psi, minimum) are also acceptable.
- 3.3.2 Pre-fabricated concrete bases shall be back filled with concrete.
- 3.3.3 Pre-fabricated steel foundations with concrete back fill are also acceptable.
- 3.3.4 Pre-fabricated foundations (§ 3.3.2 & § 3.3.3) shall be back filled with 3000 psi (minimum) concrete.
- 3.3.5 Concrete (3000 psi, minimum) foundations with anchor bolt poles are also acceptable. Anchor bolts shall be galvanized as per ASTM A153. The Contractor shall use all anchorage hardware of the correct size and strength. Bolts shall be galvanized and in compliance with ASTM A325.

3.4 Welding on Poles

Any welding on the poles shall be done in compliance with AWS D1.1. Any field modifications of the poles, shall be approved by the Engineer.

3.5 Cable

All copper cables connecting the poles shall be buried at least 24" of cover. The cables shall be # 6 AWG XLP in Schedule 40, 2" PVC conduit. Direct burial of cables is not acceptable.

3.6 Luminaire Voltage

Lighting System(s) shall be designed to accommodate existing voltage supply at the field.

3.7 Circuit Breaker and Electrical Accessories

3.7.1 The Contractor shall provide all associated electrical equipment for the safe operation of the lights. Each pole shall have a circuit breaker for the isolation of the lights on the poles. Each circuit breaker shall be enclosed in an all weather enclosed casing. The Contractor shall state in the bid submittal the type of circuit breaker the Contractor will use for the poles. The circuit breaker must be approved by the Engineer. Pre-approved Manufacturers are as follows:

- General Electric
- Siemens
- Cutler-Hammer

Bidders may bid the specified products or proven equals. The City reserves the right to test any "equal" product that is bid prior to determination of the award. If the amount of time required for testing exceeds ten (10) days, the City may award to bidder(s) with pre-tested products. Products that are not pre-tested must be available within forty-eight (48) hours after bid opening for testing and evaluation at no charge to the City.

3.7.2 Distribution Control Box

- a) The Contractor shall provide only one (1) distribution control box for the soccer field. This distribution control box shall be able to turn all the lights "ON" and "OFF". The distribution control box and bracket shall be approved by the Engineer.

b) Fenced Cage

The Contractor shall build a fenced cage to completely enclose each distribution control box. The fenced cage shall have a padlock gate for entry by authorized personnel. The cage shall be designed to protect the distribution control box from any unauthorized operation.

3.8 Lights

The light fixtures and assemblies shall be designed for use in wet locations and shall be in compliance with UL 1572. The light fixtures and all hardware assemblies shall be corrosion resistant.

3.8.1 Luminaries

- a) All lamps, shall only be metal halide, 1500 Watts (minimum) with high intensity discharge (HID) ballast.
- b) 1.7 kW/fixture (maximum allowed with ballast). Initial lumen design shall be calculated at 155,000 lumens per lamp.

3.8.2 Light Level

The soccer field shall be illuminated at 30 foot-candles (minimum).

3.8.3 The luminaire lens shall be made of tempered glass.

3.8.4 Spill and Glare Correction

The luminaire assemblies shall have accessories capable of addressing spill and glare.

3.8.5 Ballast Design and Enclosure

- a) Ballasts, capacitors, fuses and breaker disconnect shall be remote mounted approximately 8 to 10 ft. above finished grade in a NEMA 3R 14 gauge galvanized lockable box. Box shall be hot-dip galvanized to ASTM 123 standards. Continuous galvanized material is not acceptable. Remote ballast boxes shall be UL listed.
- b) Hinges and fasteners shall be stainless steel.
- c) Wiring schematic shall be mounted on the inside of the enclosure door.
- d) Ballasts, capacitors and circuits shall be labeled with a fixture reference.

3.8.6 Fuse (§ 3.8.5a)

Each light fixture shall be individually fused.

3.8.7 Non-accessible Poles

- a) Crossarms identified on these poles shall not exceed three (3) luminaries laterally.
- b) Poles shall have steps (§ 3.1.11) and fall protection line (§ 3.1.10).

4.0 CONTRACTOR RESPONSIBILITY

4.1 The Contractor shall perform all work related with the installation of the pole mounted lights for the soccer field (§ 1.2) including surface restoration, asphalt work, concrete flat work, any masonry (if applicable); installation, maintenance and removal of erosion and sedimentation controls; re-vegetation; removal and re-installation of fences, excavation of backfill and cleanup, and electrical requirements.

4.2 The Contractor shall provide all necessary labor, material, transportation, and equipment for the safe installation of the of the pole mounted lights for the soccer field.

- 4.3 The Contractor shall deliver all materials under protective cover, so as to protect from damage prior to and during installation. All structures shipped to the work sites shall be firmly secured and adequately packed to assure protection to the structures and to finish.
- 4.4 Foundations and Structures
- 4.4.1 All new pole mounted lights, shall be mounted on new foundations constructed by the Contractor. The new pole mounted lights, shall not be installed on old or pre-existing foundations.**
- 4.4.2 It is the responsibility of the Contractor to ensure the structural integrity and anchorage of the new foundations for the pole lights.
- 4.4.3 Foundation details shall assure that water or excessive moisture cannot accumulate at the base of the pole. This shall include providing drainage for any water caused by condensation inside the pole.
- 4.4.4 The Contractor shall check newly installed pole for excessive vibrations which would cause any structural damage or bolt loosening. The Contractor shall take all corrective actions to resolve this problem.
- 4.5 The Contractor shall notify the Engineer, four (4) weeks prior to start of any work on the removal of poles and materials. The City of Austin will de-energize and isolate all related poles and transformers (if any) that are mounted on the existing light poles for the fields.
- 4.7 Layout of the Pole Light Installation
- 4.7.1 NO EXCAVATION OR CONDUIT PLACEMENT SHALL BE MADE ACROSS THE SOCCER FIELD.**
All excavations shall be done around the perimeter of each field. All new underground cables in conduit shall be buried around the perimeter of the soccer field.
- 4.7.2 The new pole lights shall be installed around the perimeter of the field. The pole lights shall enclose the field, without obstructing the spectator's view of the soccer field.
- 4.8 Pre-Bid Meeting and Walk Through
- 4.8.1 The Contractor shall perform all necessary field measurements of the soccer field.
- 4.8.2 The Contractor shall verify all environmental conditions, including soil conditions and dimensions of the soccer field. The drawings provided by the City of Austin are for reference purposes only.
- 4.8.3 The Contractor shall use the City of Austin power source available to the soccer field as shown on the drawings for the safe functioning of the pole mounted lights.
- 4.8.4 Project Time Frame
- THE CONTRACTOR SHALL PROVIDE A TIME LINE FOR COMPLETION OF THIS PROJECT AT THE TIME OF THE BID SUBMITTAL.**
- 4.9 Field Layout and Aiming Diagrams
- 4.9.1 The Contractor shall provide the Engineer with field mapping of the number of poles and the aiming of the lights for the soccer field. Prior to start of this project, the field layout and aiming diagrams for the soccer field shall be provided to the Engineer for review and approval.

- 4.9.2 Upon completion of the project, the Contractor shall provide the Engineer with the following information for each field:
- a) For each pole light, the Contractor shall identify the pole using pole identification (§ 3.1.8) and give the X, Y, Z coordinates (in angular degrees with respect to the crossarms) for each luminaire on each pole. The X, Y, Z angular coordinates shall give the final aiming of each luminaire for each pole.
 - b) The Contractor shall provide this information (§ 4.9.2 a) in table form for each field. This table shall contain, at a minimum, the following information:
 - i) Name of Field
 - ii) Pole Identification (§ 3.1.8)
 - iii) The respective X, Y, Z angular coordinates for each luminaire mounted on each specific pole.
 - iv) The Contractor can choose an appropriate label for each luminaire on each specific pole.

4.9.3 The X, Y, Z angular coordinates for aiming the luminaries will be used by the City of Austin for maintenance and replacement of the luminaries.

4.9.4 Aiming Recapture

The lighting equipment shall have a mechanical device for recapturing the original aiming when it is necessary to move the reflector for re-lamping. Drawings of this shall be provided in the bid submittal.

4.9.5 Testing and Measurement Procedures - Spill/Glare Values - Designated Areas

- a) Light meter shall be United Technology's Digital Model #671, a Grossen Panlux Electronic 2 or COA approved equivalent. The Contractor shall provide the Engineer with proof of calibration, prior to testing.
- b) Horizontal light levels shall be taken 36" above playing surface.
- c) Spill/Glare test stations shall be identified prior to bid and shall be tested for compliance with this section.

4.10 Drawings

Upon completion of the project, the Contractor shall provide the Engineer with all drawings (electrical, mechanical, structural). The electrical drawings shall include all wiring schematics.

4.11 Storage of New Equipment and Materials

The Contractor shall be responsible for the storage of all new equipment and materials used for the installation of the light poles, both on-site and off-site.

The Contractor shall be responsible for locating gas lines, water lines and other utilities present at the soccer field site.

5.0 CITY OF AUSTIN RESPONSIBILITY

- 5.1 The City of Austin will provide the Contractor with a schedule of the soccer field availability, in order for work to start on this project.
- 5.2 All transformer's, primary wire and primary metering will be provided by the City of Austin.

- 5.3 The City of Austin will provide the Contractor with AutoCad Release 12 (.dxf) files for the soccer field layout. These layout drawings are for reference purposes only.
- 5.4 The term Engineer refers to the City of Austin Electric Utility Department Engineer as identified elsewhere in the bid documents, or as may be identified to the Contractor in writing by the City of Austin during the performance of the contract.

6.0 OTHER REQUIREMENTS

6.1 Mandatory Pre-Bid Meeting

ALL BIDDERS SHALL ATTEND THE PRE-BID MEETING AND SITE WALK THROUGH (§ 4.8). NO BID WILL BE ACCEPTED FROM BIDDERS WHO HAVE NOT ATTENDED A PRE-BID WALK-THROUGH PRIOR TO SCHEDULED BID OPENING.

- 6.2 All questions regarding this bid shall be addressed to the City of Austin Purchasing Office. The City of Austin Purchasing Office will direct technical questions to the Engineer.

6.3 Materials and Drawings

6.3.1 THE SUCCESSFUL BIDDER WITHIN TEN (10) DAYS AFTER THE BID OPENING AND PRIOR TO THE RECOMMENDATION FOR AWARD OF THE CONTRACT WILL BE REQUIRED TO MAKE AVAILABLE FOR INSPECTION BY THE CITY OF AUSTIN ALL MATERIALS CONTRACTOR WILL FURNISH TO FULFILL THE WORK SCOPE DESCRIBED IN THIS SPECIFICATION OR FURNISH EVIDENCE SATISFACTORY TO THE CITY OF AUSTIN THAT SUCH MATERIALS WILL BE MADE AVAILABLE. THE CITY OF AUSTIN RESERVES THE RIGHT TO VISIT THE APPARENT LOW BIDDER'S PLANT AND INSPECT THE BID MATERIALS.

- 6.3.2 The foundation drawings shall be stamped and certified by a structural engineer (Professional Engineer (PE) licensed in the State of Texas).

- 6.3.3 The Bidder's drawings (§ 6.3.2), will be reviewed by the Engineer, for compliance to this specification.

6.4 NO BID WILL BE ACCEPTED FROM BIDDERS WHO FAIL TO PROVIDE DRAWINGS (§ 6.3.2) AT THE TIME OF BID.

- 6.5 The Contractor shall warrant the installation to be free from defects in materials and workmanship.

6.6 Minimum Qualifications of Contractor

- 6.6.1 All prime Contractors considered for award of this contract shall have been in business for no less than two (2) years at the time of the bid opening for this project, performing work of the scope and category described in this Specification.

- 6.6.2 The Contractor shall provide a reference list of previous and current clients using the Contractor's pole mounted lights, including names of contact persons, addresses, and telephone numbers.

- 6.7 The Contractor shall provide the Engineer with all documentation for the safe operation of the pole mounted lights.

6.8 Warranty

- 6.8.1 The Contractor shall warrant in writing the entire lighting system (excluding fuses and lamps) to be free from defects in materials and workmanship for a period of seven (7) years from the date of delivery.

- 6.8.2 The Contractor agrees in writing to provide labor and materials for a period of two (2) years, to replace defective parts or repair defects in workmanship, or at its election, to pay reasonable costs of labor for such repairs. For the remainder of the warranty period, replacement materials shall be provided at no charge.
- 6.8.3 Lamps shall be warranted in writing by the Contractor not to fail for two (2) years from the date of delivery. Lamps which fail during the first year of the warranty period shall be replaced and installed at no cost to the City of Austin. Lamps which fail during the second twelve (12) months shall be replaced by the Contractor, but installation will be the City of Austin's responsibility.
- 6.8.4 The Contractor warrants in writing accurate alignment of the luminaries on the luminaire assembly for a period of seven (7) years starting from the date of acceptance (§ 6.11) of the project by the City of Austin.
- 6.8.5 Included in the bid price for this project, the Contractor shall furnish to the City of Austin spare lamps and spare fuses equal to five percent (5%) of the number required for the total project.

6.9 Patent Rights and Infringement

There are various established performance criteria throughout this specification for products and services. There may exist patent coverage for some means and methods of achieving those performance criteria. Bidders are responsible for ascertaining that means and methods of the products and services which they are providing are not being provided in violation of any such patent rights. Bidders' responsibilities are as follows:

- 6.9.1 To hold harmless the City of Austin as to any violation to include dollar amounts that could be owing as a result of damages for infringement including potential treble damages as provided for under US Patent Law.
- 6.9.2 Any and all costs the City of Austin would incur in replacing materials and services which are determined to infringe patent rights.
- 6.9.3 All administrative, legal and other costs that would be incurred as a result of an infringement.
- 6.9.4 In any product or services bid are unknown by the Bidder to be subject to any existing claims of infringement, bidder shall notify the City of Austin of such claim and provide evidence of financial ability to perform on the above hold harmless requirements.

6.10 Any damages caused by the Contractor to the soccer field site and structures during the course of the installation of the pole mounted lights shall be repaired by the Contractor to the satisfaction of the City of Austin.

6.11 Project Acceptance and Final Walk Through

- 6.11.1 The City of Austin will measure all light levels at night time, for the soccer field, upon project completion by the Contractor.
- 6.11.2 Upon completion of the work scope described herein, the Contractor shall demonstrate to the Engineer, by walk through of all the soccer field, the compliance of the pole mounted lights, to the work scope. If any discrepancies are found by the Engineer, the Contractor shall make the necessary corrections, at no cost to the City of Austin. Only upon completion of a satisfactory walk through will the project be accepted by the Engineer.

6.12 AMENDMENT

Notice is hereby given to Contractor, and Contractor understands that the City of Austin's field personnel are not authorized to amend, revise or waive this specification or the terms and conditions of the Contract. No "work order", "receipt" or similar Contractor-prepared document shall be effective to amend, revise or waive these specifications or the City of Austin's contract terms and conditions. In the event of any conflict between this specification and the City of Austin's contract terms and conditions, the provisions of this specification shall govern.

ATTACHMENT I

Abbreviations of the Soccer Fields

Abbreviations of the Soccer Fields

Humane Soccer Field
1100-1400 blk. W. 1st. on Cesar Chavez

HM

ATTACHMENT II

Vendors List

**Austin Energy
Specification
For
Pole Mounted Lights For Soccer Fields
(E-1516)**

Include the following Vendors in the Bid

GE
3101 Longhorn Blvd., Suite 116
Austin, Tx 78759

Larry Simon: (512) 490-0255; Fax: (512) 834-2783

Lone Star Lighting, Inc.
8120 N. IH 35, Suite 101
Austin, Tx 78753

Danny Leger: (512) 836-4992; Fax: (512) 836-7359

Techline, Inc.
9609 Beck Cir.
Austin, Tx 78758

Bob Brode: (512) 833-5401; Fax: (512) 833-5407

MUSCO SPORTS LIGHTING
12096 Lake View Manor Dr.
Willis, Tx 77378

Floyd Randolph: (409) 856-4934; Fax: (409) 856-8413