

**CITY OF BATON ROUGE
PARISH OF EAST BATON ROUGE
DEPARTMENT OF ENVIRONMENTAL SERVICES**

August 22, 2025

ADDENDUM NO. 2

TO: ALL BIDDERS

SUBJECT: **ANNUAL LANDSCAPING SERVICES FOR THE ENVIRONMENTAL SERVICES
FACILITY
CITY-PARISH PROJECT NO. 25-LS-MS-0016**

ORIGINAL BID DATE: Tuesday, AUGUST 26, 2025 at 2:00 PM

CURRENT BID DATE: Thursday, SEPTEMBER 4, 2025 at 2:00 PM

The following revisions shall be incorporated in and take precedence over any conflicting part of the original contract document:

PART 1 – UNIFORM CONSTRUCTION BID FORMS:

1. For paper sealed bidders, with reference to page UCBF 1 of 4 of Part 1, Uniform Construction Bid Forms, the Bidder shall indicate the receipt of this addendum in the space provided. For online Central Bidding bidders, an acknowledgement of this addendum will be prompted by the electronic bidding program prior to formally submitting the bid. Failure to indicate the receipt of this addendum shall be cause for the bid to be rejected.
2. Replace the Unit Price Form with the attached Unit Price Form (dated 8/18/2025). This revised Unit Price Form **MUST** be used by all Bidders on this project. **Failure to submit on the revised Unit Price Form shall cause for the bid to be rejected.**
3. Acting in accordance with Louisiana Revised Statutes 38:2212, (C) (1), the bid opening date is postponed by nine (9) calendar days. **Bids will be opened at 2:00 PM Tuesday, September 4, 2025 in Room 806 of City Hall**, in lieu of August 26, 2025.

PART 2 – SPECIAL PROVISIONS AND CONTRACT DOCUMENTS:

1. For paper sealed bidders, with reference to page UCBF 1 of 4 of Part 1, Uniform Construction Bid Forms, the Bidder shall indicate the receipt of this addendum in the space provided. For online Central Bidding bidders, an acknowledgement of this addendum will be prompted by the electronic bidding program prior to formally submitting the bid. **Failure to indicate the receipt of this addendum shall be cause for the bid to be rejected.**
2. Replace the Unit Price Form with the attached Unit Price Form (dated 8/18/2025). This revised Unit Price Form **MUST** be used by all Bidders on this project. **Failure to submit on the revised Unit Price Form shall cause for the bid to be rejected.**
3. Acting in accordance with Louisiana Revised Statutes 38:2212, (C) (1), the bid opening

date is postponed by nine (9) calendar days. **Bids will be opened at 2:00 PM Tuesday, September 4, 2025 in Room 806 of City Hall**, in lieu of August 26, 2025.

SPECIAL PROVISIONS:

1. Remove **Section 904 Landscaping** in its entirety and replace with the revised copy attached to this addendum.
2. Remove **Section 32 84 23 Landscape Irrigation Systems** in its entirety and replace with the revised copy attached to this addendum.

COMMENTS & QUESTIONS:

1. Is the spraying of weeds protruding through cracks and/or joints of the pavement on site required as a part of routine maintenance?

Yes. The scope of work included in the ESF Landscaping Maintenance Pay Item has been revised to include this service.

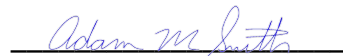
REVIEWED:



Obie Watts, P.E.



APPROVED:



Adam Smith, P.E.

LOUISIANA UNIFORM PUBLIC WORK BID FORM

UNIT PRICE FORM

TO: City of Baton Rouge
Parish of East Baton Rouge
Purchasing Division, Room 826
222 Saint Louis St, City Hall
Baton Rouge, Louisiana 70802
(Owner to provide name and address of owner)

BID FOR: Annual Landscaping Services for the Environmental
Services Facility

City Parish Project Number 25-LS-MS-0016

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

| DESCRIPTION: | <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Removal of Trees (13" to less than 25") | | | |
|--------------|---|------------------|------------|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i> |
| 2010301 | Each | 3 | | |

| DESCRIPTION: | <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ ESF Lawn Maintenance | | | |
|--------------|--|------------------|------------|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i> |
| 3290001 | Each | 44 | | |

| DESCRIPTION: | <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ ESF Landscaping Maintenance | | | |
|--------------|---|------------------|------------|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i> |
| 9040501 | Each | 4 | | |

| DESCRIPTION: | <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ New Plantings Allocation (Fixed Cost of \$20,000) | | | |
|--------------|---|------------------|-------------|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i> |
| 9040502 | Lump Sum | 1 | \$20,000.00 | \$20,000.00 |

| DESCRIPTION: | <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ ESF Landscaping Initial Assessment, Recommendations, and Report | | | |
|--------------|---|------------------|------------|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i> |
| 9040503 | Each | 1 | | |

| DESCRIPTION: | <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ ESF Landscaping Maintenance Hourly Rate | | | |
|--------------|---|------------------|------------|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i> |
| 9040504 | Hour | 30 | | |

| DESCRIPTION: | <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Irrigation System Repair Materials Allocation (Fixed Cost of \$5,000) | | | |
|--------------|---|------------------|------------|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i> |
| 9999991 | Lump Sum | 1 | \$5,000.00 | \$5,000.00 |

| DESCRIPTION: | <input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____ Irrigation System Repairs Hourly Rate | | | |
|--------------|---|------------------|------------|---|
| REF. NO. | QUANTITY: | UNIT OF MEASURE: | UNIT PRICE | UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i> |
| 9999992 | Hour | 30 | | |

All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

SECTION 904 LANDSCAPING

Delete this Section in its entirety and replace with the following:

SECTION 904

LANDSCAPING

904-1 DESCRIPTION: This work consists of furnishing plant materials and performing landscaping work.

904-2 MATERIALS: Materials shall conform to the following Sections and Subsections:

| | |
|------------|--------|
| Topsoil | 1022-1 |
| Fertilizer | 1022-2 |
| Plants | 1022-4 |

904-2.1 ESF PLANT SCHEDULE:

The following schedule details the existing plants present at the Environmental Services Facility (ESF):

| Botanical Name | Common Name |
|--------------------------------------|-------------------------------|
| Agapanthus africanus | Lily of the Nile |
| Ulmus parvifolia 'Emer II' | Allee Elm |
| Ulmus parvifolia 'Bosque' | Bosque Elm |
| Dietes vegeta | Butterfly Iris |
| Ilex cornuta 'Carissa' | Carissa Holly |
| Ilex x attenuata 'Fosteri' | Foster Holly |
| Lantana camara PP24641 | Lantana Royale Pina Colada |
| Liriope muscari | Liriope |
| Quercus nuttallii | Nuttall Oak |
| Nandina domestica 'Seika' PP21891 | Obsession Nandina |
| Muhlenbergia capillaris | Pink Muhly Grass |
| Centipede | Sod – Centipede |
| Magnolia virginiana 'Australis' | Sweetbay Magnolia |
| Itea virginica | Virginia Sweetspire |

904-3 CONSTRUCTION:

- a. **Handling and Storage:** The contractor shall protect balled and burlapped (B & B) plants and bare root plants from drying out by covering root system with mulch, wood chips or other suitable materials and watering root system and foliage as necessary. Plants shall be protected from drying winds and sun. Plants shall be lifted from bottom only. Container grown plants shall be kept moist.
- b. **Planting Season:** Unless otherwise authorized, planting shall be performed as early as practical during winter from November 1 to April 15.

Work shall be suspended when air temperature falls below 32° F, wind velocity is excessive, ground is frozen or too wet, or continuation of prevailing weather would likely cause unsatisfactory results.

- c. **Plant Pits:** Plants shall be set plumb in center of dug pits at such depth that, after settlement, crown of plant will be at its normal relation with ground surface. Soil in bottom of plant pits shall be loosened and broken up to a depth of 6" prior to setting plants.

Backfill soil for plant pits shall be composed of the following:

- 5 parts topsoil
- 3 parts rotted pine bark
- 1 part weed-free manure
- 1 part coarse sand

Backfill shall be placed and water-settled around plant to ground surface. Root stimulant fertilizer shall be mixed with water at rate recommended by manufacturer. A levee 3" high shall be formed around perimeter of plant pit.

- d. **Plant Beds:** Vegetation and debris shall be removed from plant beds and areas treated with an approved preemergence herbicide in accordance with manufacturer's recommendations. The following materials shall be added to plant beds:

| <u>Material</u> | <u>Rate/1000 SF</u> |
|------------------|---------------------|
| Compost | 3 cy |
| Rotted Pine Bark | 7 cy |
| Weed-free Manure | 3 cy |
| Fertilizer | 20 lb |

After all materials are added, plant beds shall be rototilled to a depth of 12", after which beds shall be raked smooth and grass, sticks and debris removed. Tops of beds next to walks or buildings shall be 2" higher than adjoining walks or ground.

- e. **Weed Control Fabric:** Before placing mulch, an approved plastic weed control fabric shall be installed on the beds. The fabric shall be designed to block weed growth and light to plant bed soil while allowing for air and water filtration. Fabric shall be at least 18 mils thick and shall be installed in accordance with the manufacturer's instructions.

- f. **Mulching:** A top dressing of mulch shall be placed to a depth of 3" within plant Saucers and in plant beds. Mulch shall be pine straw, pine bark, cypress bark, eucalyptus bark or other approved mulch; however, neither fresh nor rotted bark shall be used.
- g. **Maintenance:** Plant areas shall be watered immediately after planting and at intervals necessary to maintain plants in healthy condition. Plant areas shall be kept free of debris, and shall be weeded at intervals not exceeding 10 days. Dead, dying or damaged plants shall be replaced.
- h. **ESF Landscaping Maintenance:** The Owner intends on performing maintenance to the existing flower beds at the Environmental Services Facility (ESF) at a minimum four (4) times a year. The Owner reserves the right to perform maintenance activities on an as-needed basis.

The Contractor shall perform the following landscaping activities at the ESF:

- a. Shrubs and trees to be fertilized in accordance with the specific needs of the plants in order to maintain a healthy and vigorous condition. A formulated complete fertilizer containing at least 5096 slow release nitrogen shall be used.
- b. Pruning: All ornamental plantings shall be pruned in accordance with standards of good practice and with the intended function of the plants.
- c. Weed Control shall be done during each maintenance activity. Methods should include pre and post emergent chemicals as well as hand weeding as necessary.
- d. Collect and dispose of litter, trash, and debris.
- e. Consultation: The Owner shall be debriefed after completion of each maintenance activity to inform on condition of existing plantings, recommendations on watering, recommendations on removing of dead plantings, recommendations on additional plantings, plans for fertilization, *addition and/or replacement of mulch*, etc. *This should be a formal report containing material and labor costs to be evaluated by the Owner.*
- f. Remove dead plants with Owner's approval
- g. *Weed control shall be performed on all joints and/or cracks in existing pavement on site. Weed control shall performed on an as-needed basis, only at the locations where weeds are actively growing and visible.*
- i. **New Plantings:** The Owner may request the Contractor to furnish and install new plantings at the ESF on an as-needed basis. New plantings shall include, but will not be limited to, the species of plants listed on ESF Plant Schedule included in Section 904.
- j. **Initial Assessment, Recommendations, and Report:** *The Contractor shall perform an initial assessment of the existing conditions of the landscaping at the facility. The goal of this assessment is for the Contractor to make a recommendation to the Owner on the scope of work required to restore the landscaping back to the conditions as shown in the Planting Plan and Courtyard Plan as built drawings. The Contractor shall identify all deficiencies and quantify all new planting requirements to restore the landscaping back to original conditions and submit a report to the Owner for review and approval. The report shall also include a proposal of estimated manhours required to perform the work identified during the initial assessment. The Owner reserves the right to authorize the work recommended by the Contractor or to modify the scope of work for restoration. Any follow up work associated with landscaping restoration shall be performed using other pay items included in the Contract. This report shall be submitted by the Contractor within thirty (30) days of the Notice to Proceed.*

- k. **ESF Landscaping Maintenance Hourly Rate:** *At the Owner's discretion, the Contractor may be authorized to perform landscaping maintenance work on an hourly basis. This work shall be limited to the work identified by the Contractor from the Initial Assessment, Recommendations, and Report. **This work shall be considered as separate from the routine maintenance, and is only intended to be performed as a part of the initial restoration of landscaping.** The Owner may authorize the Contractor to perform hourly maintenance work on other occasions in the future should the conditions of the landscaping at the facility become impacted by significant weather events, however hourly work shall not be allowed without written pre-approval by the Owner .*
- l. In compliance with the City's Municipal Separate Storm Sewer System (MS4) to minimize the impact of the use of pesticides, herbicides, and fertilizers (i.e. PHF), the Contractor must maintain PHF application records. All PHF application records must be reported on every 15th day of the month, or as an attachment with weekly invoice periods. The PHF records shall include all of the following information:
 - a. Application Dates
 - b. Amount of PHF Sprayed
 - c. Name of Herbicide(s) Used
 - d. Amount of Herbicide(s) Used
 - e. Location(s) of Application
- m. Prior to the commencement of the contract and annually thereafter, the Contractor's project manager and field employees shall take a one-hour training course provided by the City-Parish Department of Environmental Services on proper storage, use, and disposal of pesticides, herbicides, and fertilizers.

904-4 MEASUREMENT:

- a. **ESF Landscaping Maintenance:** Measurement for this item shall be on a per each basis for each time the Contractor performs landscaping maintenance at the site. Measurement for each item shall include ALL existing flower beds located at the Environmental Services Facility.
- b. **New Plantings Allocation:** Measurement of this item shall be made on lump sum basis, and shall be negotiated per each planting work order issued by the Owner.
- c. **Initial Assessment, Recommendations, and Report:** *Measurement for this item shall be on a per each basis. The Contractor shall perform one (1) initial assessment and provide a report to the Owner of recommendations.*
- d. **ESF Landscaping Maintenance Hourly Rate:** *Measurement of this item shall be made on an hourly basis for one (1) laborer.*

904-5 PAYMENT:

- a. **ESF Landscaping Maintenance:** Payment for this work shall include all labor, material, equipment, and all miscellaneous items required but not already included in the contract documents.
- b. **New Plantings Allocation:** *Payment for this work shall include reimbursement of material required for new planting installations as defined by written Work Order issued by the*

Owner. Contractor will be reimbursed for the actual cost of material plus ten percent (10%) markup. Invoice paid receipt or canceled check will be required for reimbursement. Although the pay unit of this allocation is lump sum, this is a not to exceed allocation for Contractor to bill against for reimbursement. Material shall include, but not be limited to, plants, soil, mulch, or other items identified by the Initial Assessment, Recommendations, and Report and/or the Quarterly Maintenance Consultation Report. Payment shall be negotiated per each new planting required. Total New Plantings installation costs may not exceed the available contract allocation without prior approval from the Owner.

- c. **Initial Assessment, Recommendations, and Report:** Payment for this item shall be full compensation for all labor, material, equipment, and all incidentals required for the completion and submissions of the Initial Assessment Report.
- d. **ESF Landscaping Maintenance Hourly Rate:** Payment for this item shall be full compensation for the labor, equipment, tools, supplies, and incidentals required to complete the work based on the Initial Assessment, Recommendations, and Report and/or the Quarterly Maintenance Consultation Reports. Payment for materials shall be made using the New Plantings Allocation.

904-6 PAY ITEMS:

| <u>Item No.</u> | <u>Item</u> | <u>Unit</u> |
|-----------------|--|-------------|
| 9040501 | ESF Landscaping Maintenance | Each |
| 9040502 | New Plantings Allocation | Lump Sum |
| 9040503 | ESF Landscaping Initial Assessment, Recommendations, and Report | Each |
| 9040504 | ESF Landscaping Maintenance Hourly Rate | Hour |

SECTION 32 84 23

LANDSCAPE IRRIGATION SYSTEM REPAIRS

PART 1 GENERAL

1.1 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. American Water Works Association (AWWA):
 - a. C509, Resilient-Seated Gate Valves for Water Supply Service
 - b. C550, Protective Interior Coatings for Valves and Hydrants
 - 2. ASTM International (ASTM):
 - a. D1784, Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
 - b. D1785, Standard Specifications for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
 - c. D2241, Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
 - d. D2464, Threaded Poly(vinyl chloride) (PVC) Plastic Pipe Fittings, Schedule 80
 - e. D2466, Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
 - f. D2467, Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
 - g. D2564, Solvent Cements for Poly(vinyl chloride) (PVC) Plastic Piping Systems
 - h. D2672, Joints for IPS PVC Pipe Using Solvent Cement
 - i. D2774, Underground Installation of Thermoplastic Pressure Piping
 - j. D2855, Making Solvent-Cemented Joints with Poly(vinyl chloride) (PVC) Pipe and Fittings
 - k. F656, Primers for Use in Solvent Cement Joints of Poly(vinyl chloride) (PVC) Plastic Pipe and Fittings
 - 3. National Electrical Manufacturers Association (NEMA):
 - a. NEMA 250, Enclosures for Electrical Equipment (1000 Volts Maximum)
 - 4. Manufacturers Standardization Society of the Valve and Fittings Industry (MSS):
 - a. MSS SP-107, Transition Union Fittings for Joining Metal and Plastic Products
 - b. MSS SP-122, Plastic Industrial Ball Valves

1.2 SUMMARY

- A. Section includes the maintenance and repairs on the following components of the irrigation system:
 - 1. Piping
 - 2. Manual Valves

3. Automatic control valves
4. Sprinklers
5. Drip Irrigation
6. Controllers
7. Boxes for automatic control valves
8. Wiring

- B. For the purposes of this Contract, work orders shall only be issued on portions of the irrigation system that are within existing flower beds.

1.3 SUBMITTALS

1. Shop Drawings:
 - a. Product Data:
 - 1) Rotors (lawn)
 - 2) 4" pop-up sprays (lawn), including nozzle types
 - 3) 12" pop-up sprays (plants), including nozzle types
 - 4) Automatic Controller
 - 5) Valves
 - 6) Wiring
 - 7) Piping

1.4 QUALITY ASSURANCE

- A. Following the completion of repairs, perform the following task to ensure the system is functioning properly.
1. Flush system completely, with nozzles removed, to remove debris.
 2. Verify sprinkler operation and alignment for direction of throw
 3. Check pop-up spray nuzzling for proper arc of spray
 4. Insure uniform distribution and head-to-head coverage

PART 2

PART 2 PRODUCTS

2.1 PIPES, TUBES, AND FITTINGS

- A. Comply with requirements in the piping schedule for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.
- B. PVC Pipe: ASTM D1785, Schedule 40 and ASTM D2241 Class 200 SDR 21
1. PVC Socket Fittings: ASTM D 2466, Schedule 40.
 2. PVC Threaded Fittings: ASTM D 2464, Schedule 80.
 3. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket ends.

2.2 PIPING JOINING MATERIALS

- A. Solvent Cements for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
- B. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

2.3 MANUAL VALVES

- A. Mainline Isolation Valves:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide NIBCO Class 125 Bronze Gate Valve or comparable product by one of the following:
 - a. American Valve.
 - b. Wilkins
 - c. Approved Equal
 - 2. Description:
 - a. Standard: AWWA C509.
 - b. Pressure Rating: 200 psi minimum.
 - c. Body Material: Bronze ASTM B 62.
 - d. End Connections: Mechanical joint or push-on joint.
 - e. Interior Coating: Comply with AWWA C550.
 - f. Body Design: Nonrising stem.
 - g. Operator: Stem nut.
 - h. Disc: Solid wedge with resilient coating.
- B. Operating Wrenches for Bronze Gate Valve Casings: Furnish two steel, tee-handle operating wrench(es) with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut for Project.
- C. Manual Zone Valves:
 - 1. Manufacturers: Subject to compliance with requirements, provide Spears Manufacturing Company plastic ball valve or comparable product by one of the following:
 - a. American Valve, Inc.
 - b. NIBCO INC.
 - c. Approved Equal.
 - 2. Description:
 - a. Standard: MSS SP-122.
 - b. Pressure Rating: 150 psi.
 - c. Body Material: PVC Type 1, ASTM D 1784.
 - d. Type: Union.
 - e. End Connections: Socket or threaded.
 - f. Port: Full.

2.4 AUTOMATIC CONTROL VAVLES

- A. Manufacturers: Subject to compliance with requirements, provide Hunter Industries Incorporated PGV automatic control valve or comparable product by one of the following:
 - 1. Hunter Industries Incorporated.
 - 2. Rain Bird Corporation.
 - 3. Toro Company (The); Irrigation Division.
 - 4. Approved Equal.
- B. Description: Molded-plastic body, normally closed, diaphragm type with manual-flow adjustment, and operated by 24-V ac solenoid.

2.5 CONTROLLERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Hunter Industries Incorporated Pro-C Controller or comparable product by one of the following:
 - 1. Rain Bird Corporation.
 - 2. Toro Company (The); Irrigation Division.
 - 3. Weathermatic.
 - 4. Approved Equal.
- B. Description:
 - 1. Controller Stations for Automatic Control Valves: Each station is variable from approximately 5 to 60 minutes. Include switch for manual or automatic operation of each station.
 - 2. Exterior Control Enclosures: NEMA 250, Type 4, weatherproof, with locking cover and two matching keys; include provision for grounding. .
 - a. Body Material: Stainless-steel sheet metal.
 - b. Mounting: Surface type for wall.
 - 3. Interior Control Enclosures: NEMA 250, Type 12, drip-proof, with locking cover and two matching keys.
 - a. Body Material: Molded plastic.
 - b. Mounting: Surface type for wall.
 - 4. Control Transformer: 24-V secondary, with primary fuse.
 - 5. Timing Device: Adjustable, 24-hour, 14-day clock, with automatic operations to skip operation any day in timer period, to operate every other day, or to operate two or more times daily.
 - a. Manual or Semiautomatic Operation: Allows this mode without disturbing preset automatic operation.
 - b. Nickel-Cadmium Battery and Trickle Charger: Automatically powers timing device during power outages.
 - c. Surge Protection: Metal-oxide-varistor type on each station and primary power.
 - 6. Moisture Sensor: Adjustable from one to seven days, to shut off water flow during rain.

2.6 SPRINKLERS

- A. General Requirements: Designed for uniform coverage over entire spray area indicated at available water pressure.
- B. Plastic, Pop-up Spray Sprinklers:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Hunter Industries – PRS-30 Pro Spray body with Hunter Pro Spray nozzles and MP Rotators or comparable products by one of the following:
 - a. Rainbird
 - b. Toro.
 - c. Approved Equal
 - 2. Description:
 - a. Body Material: ABS.
 - b. Popup Height: 12”
 - c. Nozzle: ABS.
 - d. Retraction Spring: Stainless steel.
 - e. Internal Parts: Corrosion resistant.
 - f. Pattern: Fixed or adjustable, with flow adjustment.

2.7 DRIP IRRIGATION SPECIALTIES

- A. Drip Tubes with Direct-Attached Emitters:
 - 1. Tubing: Flexible PE or PVC with plugged end.
 - 2. Emitters: Devices to deliver water at approximately 20 psig.
 - a. Body Material: PE or vinyl, with flow control.
 - b. Mounting: Inserted into tubing at set intervals.
 - 3. Capacities and Characteristics:
 - a. Tubing Size: 1/2 inch
 - b. Emitter Spacing: 12 inches
 - c. Emitter Flow: .6 gph
- B. Application Pressure Regulators: Brass or plastic housing, with corrosion-resistant internal parts; capable of controlling outlet pressure to approximately 20 psig.
- C. Filter Units: Brass or plastic housing, with corrosion-resistant internal parts; of size and capacity required for devices downstream from unit.
- D. Air Relief Valves: Brass or plastic housing, with corrosion-resistant internal parts.
- E. Vacuum Relief Valves: Brass or plastic housing, with corrosion-resistant internal parts.

2.8 WIRING

- A. UL 493, Type UF multiconductor, with solid-copper conductors; insulated cable suitable for direct burial. Contractor shall provide a minimum of three spare wires for future use.
 - 1. Low-Voltage, Branch-Circuit Cables (Distances less than 1000 feet from controller to valve): No. 18 AWG minimum multi-conductor, between

controllers and automatic control valves; color-coded different colors for multiple-cable installation in same trench.

2. Low-Voltage, Branch-Circuit Cables (Distances greater than 1000 feet from controller to valve): No. 14 AWG minimum, between controllers and automatic control valves; color-coded different colors for multiple-cable installation in same trench.

- B. Splicing Materials: Manufacturer's packaged kit consisting of insulating, spring-type connector or crimped joint and epoxy resin moisture seal; suitable for direct burial.

2.9 BOXES FOR AUTOMATIC CONTROL VALVES

- A. Plastic Boxes:

1. Description: Box and cover, with open bottom and openings for piping; designed for installing flush with grade.
 - a. Size: As required for valves and service.
 - b. Shape: Round.
 - c. Sidewall Material: High density, structural Foam Polyethylene.
 - d. Cover Material: High density, structural Foam Polyethylene.
 - 1) Lettering: "VALVE BOX or IRRIGATION."

- B. Drainage Backfill: Cleaned gravel or crushed stone, graded from 3/4 inch minimum to 3 inches maximum.

2.10 ACCESSORIES

- A. Swing Joint:

1. The flexible sprinkler connection shall be an articulated swing joint assembly that connects to a lateral pipe and permits accurate positioning of the sprinkler head to variable grade levels.
2. The swing joint shall allow stable positioning of the sprinkler to grade during installation and allow flexibility in three dimensions to reposition the sprinkler head.
3. The swing joint shall be manufactured of durable, UV stable, corrosion resistant materials and be pressure rated to 150 psi.
4. The connections shall be any combination of a tapered 1/2" or 3/4" Male National Pipe Threads, as specified.

PART 3 EXECUTION

3.1 TRENCH EXCAVATION, PREPARATION AND BACKFILL

- A. Excavating, trenching, and backfilling shall be performed in a safe and workmanlike manner. Contractor shall employ competent individuals who have adequate experience with performing repairs on irrigation systems and shall comply with industry standards, codes, and best practices relative to the scope of work.
- B. Provide minimum cover over top of underground piping according to the following:

1. Irrigation Main Piping: Minimum depth of 18 inches below finished grade.
2. Circuit Piping: 12 inches.
3. Drain Piping: 12 inches.
4. Sleeves: 18 inches.

3.2 PIPING INSTALLATION/REPAIR

- A. Location and Arrangement: Drawings indicate location and arrangement of piping systems. Remove and replace existing piping as indicated unless deviations are approved by the Owner.
- B. Install piping free of sags and bends.
- C. Install groups of pipes parallel to each other, spaced to permit valve servicing.
- D. Install fittings for changes in direction and branch connections.
- E. Install underground thermoplastic piping according to ASTM D 2774.
- F. Install expansion loops in control-valve boxes for plastic piping.
- G. Lay piping on solid subbase, uniformly sloped without humps or depressions.
- H. Install PVC piping in dry weather when temperature is above 40 deg F. Allow joints to cure at least 24 hours at temperatures above 40 deg F before testing.
- I. Install sleeves made of Schedule 40 PVC pipe and socket fittings, and solvent-cemented joints.

3.3 JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- C. Flanged Joints: Select rubber gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.
- D. PVC Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
 1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
 2. PVC Pressure Piping: Join schedule number, ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
 3. PVC Nonpressure Piping: Join according to ASTM D 2855.

3.4 VALVE INSTALLATION

- A. Underground Bronze Gate Valves, Resilient Seat: Comply with all local codes. Install plumb to within 1/16 inch in valve box with six (6) inch deep layer of coarse gravel beneath bottom of valve.
- B. Automatic Control Valves: Comply with all local codes. Install plumb to within 1/16 inch in valve boxes for automatic control valves with six (6) inch deep layer of coarse gravel beneath bottom of valve.

3.5 SPRINKLER INSTALLATION

- A. Install sprinklers after hydrostatic test is completed.
- B. Install sprinklers at manufacturer's recommended heights.
- C. Locate part-circle sprinklers to maintain a minimum distance of 4 inches from walls and 2 inches from other boundaries unless otherwise indicated.

3.6 AUTOMATIC IRRIGATION-CONTROL SYSTEM INSTALLATION

- A. Equipment Mounting: Install interior controllers on wall.
 - 1. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
- B. Equipment Mounting: Install exterior controllers on wall.
 - 1. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
- C. Install control cable in same trench as irrigation piping and at least 2 inches below or besides piping. Provide conductors of size not smaller than recommended by controller manufacturer. Install cable in separate sleeve under paved areas.

3.7 CONNECTIONS

- A. Install piping adjacent to equipment, valves, and devices to allow service and maintenance.
- B. Connect wiring between controllers and automatic control valves.

3.8 FIELD QUALITY CONTROL

- A. Tests and Inspections:
 - 1. Leak Test: After completion of repairs, charge system and test for leaks. Repair leaks and retest until no leaks exist.

2. Operational Test: After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.9 ADJUSTING

- A. Adjust settings of controllers.
- B. Adjust automatic control valves to provide flow rate at rated operating pressure required for each sprinkler circuit.
- C. Adjust sprinklers and devices, except those intended to be mounted aboveground, so they will be flush with, or not more than 1/2 inch above, finish grade.

3.10 CLEANING

- A. Flush dirt and debris from piping before installing sprinklers and other devices.

3.11 PIPING SCHEDULE

- A. Install components having pressure rating equal to or greater than system operating pressure.
- B. Piping in control-valve boxes may be joined with flanges or unions instead of joints indicated.
- C. Underground irrigation main piping, NPS 4 and smaller, shall be the following:
 1. Schedule 40, PVC pipe and socket fittings, and solvent-cemented joints.
- D. Circuit piping, NPS 2 and smaller, shall be the following:
 1. Class 200 PVC pipe and socket fittings; and solvent-cemented joints.
- E. Underground Branches and Offsets at Sprinklers and Devices: Schedule 80, PVC pipe; threaded PVC fittings; and threaded joints.
 1. Option: Plastic swing-joint assemblies, with offsets for flexible joints, manufactured for this application.
- F. Risers to Aboveground Sprinklers and Specialties: Schedule 80, PVC pipe and socket fittings; and solvent-cemented joints.

3.12 VALVE SCHEDULE

- A. Underground, Shutoff-Duty Valves: Use the following:
 1. NPS 1 and Larger: Bronze gate valve, resilient seated; bronze gate valve casing; and operating wrench(es)

PART 4 MEASUREMENT AND PAYMENT

4.01 Measurement

- a. *Irrigation System Repair Materials Allocation: Measurement for this item shall be for all materials furnished by the Contractor for unforeseen repair condition, when prior approval is obtained from the Owner.*
- b. *Irrigation System Repairs Hourly Rate: Measurement for this item shall be per hour for one (1) laborer.*

4.02 Payment

- a. *Irrigation System Repair Materials Allocation: Contractor will be reimbursed for the actual cost of material plus ten percent (10%) markup. Invoice paid receipt or canceled check will be required from Contractor for reimbursement. Although the pay unit of this allocation is lump sum, this is a not to exceed allocation for Contractor to bill against for reimbursement. Contractor is not entitled to full lump sum without paid invoice backup documentation. Payment shall be negotiated per each irrigation system repair required. Total irrigation system repair costs may not exceed the available contract allocation without prior approval from the Owner.*
- b. *Irrigation System Repairs Hourly Rate: Payment for this Item shall be full compensation for all labor, equipment, tools, supplies, and incidentals required to complete the work.*

4.03 Pay Items

| <u>Item No.</u> | <u>Item</u> | <u>Unit</u> |
|-----------------|---|-------------|
| 9999991 | Irrigation System Repair Materials Allocation | Lump Sum |
| 9999992 | Irrigation System Repairs Hourly Rate | Hour |

END OF SECTION