SP-155058
(New)

SPECIAL PROVISIONS
FOR
SPLASH PAD

Des Moines County
EDP-0977(653)--7Y-29

Effective Date
June 15, 2021

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

155058.01 DESCRIPTION.

A. Description of Work.

1. The work described in this section includes the design, supply, supervision, labor, transportation, temporary construction, equipment, tools, excavation, backfill, services and incidentals to install the mechanical and electrical systems for the Burlington Riverfront Splash pad as detailed and shown on the plans and this specification prepared by Fountain Technologies, Ltd. Provide start-up assistance, maintenance manuals, replacement parts and instruction to Commission for splash pad care and operation.

2. Related Work Specified Elsewhere.

- **a.** Power Supply – Refer to plans for characteristics of power requirements to splash pad equipment, including fused main disconnect switches or circuit breakers for power supply line disconnect. Power supply to line side of splash pad control panel by others.
- **b.** Water Supply – Refer to plans for characteristics of water supply requirements to splash pad equipment. Positive pressure backflow preventer and shut-off valve shall be provided by others.
- **c.** Drainage – Refer to plans for splash pad drainage requirements. All drains to be of adequate size to handle volumes specified, installed to code and complete with backwater devices.
- **d.** Bonding – Splash pads require loop bonding as per National Electric Code requirements.

B. Quality Assurance.

1. Plumbing Code – For plumbing work included in the splash pad work, comply with Local Building Codes.

2. Electrical Code – For electrical work included in the splash pad work, comply with Local Codes and the National Electrical Code.

3. Use skilled tradesmen supervised by qualified personnel with at least 5 years of experience in the installation and operation of splash pads of similar size and complexity. Assume responsibility for the performance of the entire splash pad.

4. All work must meet or exceed the latest standards for local building code, electrical safety code, health and safety codes and all other applicable codes and regulations set by jurisdictional authorities.

5. Contractor shall co-ordinate splash pad construction with other trades, including mechanical, electrical, cast-in-place and architectural precast concrete.

6. Contractor shall provide written declaration stating single source responsibility for splash pad equipment installation, operating system, and engineering co-ordination. Must have 10 years of experience building similar systems.

7. Pre-Installation Conference – Conduct pre-installation conference at project site to be attended by the Engineer, Contractor, equipment/supplier, mechanical and electrical contractors and any other trades associated with the installation of the splash pad.

8. Progress Meetings/Critical Phase Inspections – Conduct a minimum of 3 day site meetings during construction with the splash pad equipment supplier. These meetings are separate from Start-up as outlined herein.

9. Start-Up – The splash pad equipment manufacturer shall supply qualified personnel with a minimum of 10 years of experience to supervise start-up and programming of splash pads. A minimum of 2 days on site is required. Contractor to provide personnel for adjustments required to all mechanical and electrical equipment as required by equipment supplier or Engineer.

10. No plastic parts will be accepted as substitutes for metal splash pad equipment as outlined in the equipment list.

11. Provide written results for pressure tests of all pipe and conduit. All tests must be witnessed by Engineer. Provide certified test reports clearly indicating compliance with performance requirements specified.

12. Provide completed Pre-Startup Checklist 3 business days prior to beginning of scheduled splash pad startup.

13. Provide engraved valve to match valve charts in mechanical room.

14. Splash pad contractor shall design, supply, and install the splash pad.

C. Submittals.

1. Samples – Submit samples in color and finish selected. Samples shall be prepared with materials and to thicknesses specified.

2. Product Data – Submit manufacturer's product specifications and installation instructions for complete splash pad system, including all pipe work, valves and fittings, pipework for each component or product used in system. Include complete listing and description of performance and control product data. Submit manufacturer's product specifications and

installation characteristics, clearly indicating wherein actual components will be in any way modified from requirements, and how these differences exceed minimum requirements

3. Construction and Shop Drawings – Submit shop drawings of entire splash pad mechanical and electrical systems. Include piping and wiring control diagrams, drains, and various parts of the system. Show plan locations, and all details of penetrations of slab.

4. Maintenance Manuals – Submit three copies of bound maintenance manuals for splash pad. Include full maintenance and operating instructions, parts, lists, recommended spare parts and emergency parts inventory, sources of purchase for major and critical components and similar information. Include mechanical and electrical certification from authorities having jurisdiction.

5. Contract Close-Out Submittals – Provide copies of all approved product data used, including any approved substitutions. Provide as-built plans to include control and breaker panel systems, exact conduit and pipework routing, pump systems, wiring sizes and materials.

D. Product Handling and Protection.

1. Handle and store materials in accordance with manufacturer's directions. Arrange for suitable storage areas.

2. Be responsible for damage to work until project is complete and accepted by Engineer. Make good damaged materials.

3. Cover and protect work of other sections in the area of work from damage. Make good all damage to the satisfaction of Consultant.

4. Provide special protective devices, caps, plugs and covers for exposed splash pad hardware during construction period.

E. Co-ordination.

Coordinate splash pad work with the work of other trades, for proper time and sequence to avoid construction delays.

F. Water Tightness Test.

Test piping for water tightness prior to pouring concrete. Test must be witnessed by Engineer. Minimum 5 days of notice in writing must be given to all parties prior to test. Must hold 15 PSI for a period of 24 Hours.

G. Warranty.

1. Contractor hereby warrants that work specified under this section shall remain free from defects in materials and workmanship in accordance with the Standard Specifications, for a period of 1 year. Any defects occurring within warranty period shall be repaired or replaced by Contractor at no cost to the Commission, including required removal and re-installation of other work. The warranty period shall commence on the date of substantial completion. Lamps and fuses are not included in this 1 year warranty.

2. Defects shall include failure of system to produce water patterns and heights stipulated on plans.

155058.02 MATERIALS.

A. General.

1. The plans indicate control and flow diagrams explaining the intended splash pad operations. Diagrams are for information only; verify all equipment and connections are suitable for intended purpose. Splash pad contractor to examine entire set of contract plans for information affecting his work. Installing contractor should carefully investigate the site conditions affecting his work.

2. Establish final sizes of equipment and connections based on manufacturer's equipment complying with intended purpose.

3. Schedules on plans indicate principle required equipment of the splash pad system and product numbers of one manufacturer indicate minimum acceptable quality. Final equipment configuration, including required quantities is the responsibility of the splash pad equipment provider and installed.

B. Specialized Equipment.

1. **General.**
   - **a.** Splash pad equipment supplier and installer:
     Fountain Technologies, Ltd.
     423 Denniston Ct.
     Wheeling, IL 60090
     Tel: (847) 537-3677
     Fax: (847) 537-9904
   - **b.** All specialized splash pad materials used in mechanical and electrical systems shall be first quality lines, non-corrosive, separated from dissimilar metals, long lasting types having full U.L. Certification where necessary. All submersible and cast-in items in the pools will be constructed of bronze, copper, 316 stainless steel or where otherwise noted in this specification.
   - **c.** Assume full responsibility for the performance of the splash pads.

2. **Equipment List.**
   - **a.** Plans and installation specifications are based on manufacturer's literature. Other manufacturers shall comply with the minimum quality standard of material and detailing indicated on the plans or specified herein. Refer to plans for mechanical and electrical equipment lists.
   - **b.** Substitutions shall not be permitted unless submitted 10 days prior to bid closing and approved by Engineer.

3. **System Features.**
   Please refer to splash pad plans for system features.

C. Plumbing Components and Fixtures.

1. Use only 95/5 solder.

2. Interconnecting piping between pool(s) and splash pad equipment room – use copper (buried-type "K", exposed-type M) or fabricated stainless steel (14 gauge, type 302/316) or C.P.V.C. schedule 80 (if permissible). Drainage piping to waste may be cast iron.

3. Use true union ball valves on pipe of 2 inches in diameter or smaller.

4. Use lever operated butterfly/gate valves on pipe 2 inches to 3 inches in diameter

5. 3/4 inch valve with electronic solenoid to be used in fresh water fill assembly.

D. Electrical Components and Fixtures.

1. Use rigid PVC conduit for interconnecting conduit outside from water switches to control panel.

2. Make connections between dissimilar metals with dielectric fittings.

155058.03 CONSTRUCTION.

A. Inspection.

Examine conditions under which splash pad work is to be installed. Notify Contractor, in writing, of conditions detrimental to proper performance of splash pad work. Do not proceed with splash pad installation until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

B. Installation.

1. Comply with codes, governing regulations, the requirements, and recommendations of the splash pad manufacturer.

2. **Plumbing.**
   - **a. Pipe Assembly.**
     - **1)** Install piping straight and true in accordance with the best practice.
     - **2)** Make pipe runs as direct as possible, using a minimum number of fittings.
     - **3)** Cut pipe ends accurately to fit. Bending or springing of pipe will not be permitted, unless so specified and confirmed by Engineer.
     - **4)** Cut pipe ends square and thoroughly ream or file ends and wipe clean to remove all burrs prior to joining.
     - **5)** Make pipe size reductions with reducing fittings. Bushings will not be permitted.
     - **6)** Make screwed joints tight with tongs and wrenches.
     - **7)** Make soldered joints for copper tubing without corrosive paste flux. Use solder approved for application.
     - **8)** Install unions or flanged connections on at least one side of all check valves, solenoid valves and control valves. Install unions or flanged connections at all equipment locations (pumps, filters, etc.) so that such equipment may be readily disconnected.
   - **b. Thermal Expansion.**

     Provide swing joints, turns, expansion loops or long offsets wherever shown on plans, or whenever necessary to allow for proper expansion and contraction of piping.
   - **c. Noise and Vibration.**
     - **1)** Install piping, equipment, and systems with utmost precautions to prevent noise and vibration transmission. Use hangers and isolators as recommended by pipework manufacturer to minimize noise.
     - **2)** Isolate equipment that would tend to cause noise or vibration with suitable vibration dampeners to reduce noise or vibration transmission to buildings and/or other equipment. Also, isolate piping connected to this equipment.
     - **3)** Ensure all pipework is adequately supported to prevent movement and vibration.
   - **d. Pipe Coding.**
     - **1)** Identify all drain pit components with engraved plastic white on black surface identification labels complete with stainless steel or brass chain, in an approved manner as to service and characteristics.
     - **2)** Identify flow direction on all pipework systems with colored directional adhesive labels in an approved manner.
   - **e. Valves, Union and Flanges.**
     - **1)** Locate valves required for control or isolation of any part of the splashpad mechanical system in accessible positions. Where several valves are related as to function, group together, wherever possible, or as indicated on the plans.

2) Use brass “U’ valves with non-rising stem and positive shut-off or equivalent for valves 2 inches or smaller.
3) Use gear operated butterfly valves on discharge lines larger than 2 inches diameter.
4) Use butterfly type or gate valves on suction lines larger than 2 inches diameter.
5) In submerged locations, use valves designed for such use and/or approved for such use by the EOR.
6) Use unions suitable for not less than 125 psi and of the same size and material as the adjacent piping.
7) Use flanges of the companion type faced and drilled, complete with necessary adapter and suitable for not less than 125 psi. Use flanges of the same size and material as the adjacent piping.

3. Electrical.

a. Wiring Materials.

1) Install electrical conductors connected to equipment having a tendency to cause noise or vibration in seal tight flexible conduit not to exceed 4 feet in length.
2) Install other electrical conductors in rigid PVC conduit, unless otherwise specified or indicated on plans. Make connections with approved fittings.
3) Use 3/4 inch minimum conduit size unless otherwise specified or indicated on the plans.
4) Select wire, flexible cord, cable and/or conductors as to size, type, current carrying capacity, voltage and insulation based on intended service
5) Use connecting and terminating devices used for making connections, taps and/or splices as approved for specific application.
6) Use junction and/or pull boxes, that conform to applicable codes, are of sufficient size, suitable design, and approved.
7) Construction to meet site requirements.

b. Installation of Conduit.

1) Install and seal wiring in conduit in accordance with the best practice.
2) Conceal conduit in finished areas, unless otherwise specified or indicated on the plans.
3) Cut square and carefully ream the ends of all conduit cut. Remove rough edges.
4) Seal open ends of conduit with approved conduit seals during construction.
5) Provide a bushing where a conduit enters a box or fitting to protect conductors from abrasion.
6) Use approved fittings for exposed runs of conduit. Make fittings covers accessible. Bends will not be permitted around corners of beams, walls or equipment.
7) Make threadless couplings and connectors suitable for preventing water from entering the conduit where conduit is installed in wet locations or is buried in concrete or ground. Running threads will not be permitted.
8) Provide sliding expansion joints with bonding straps where conduits cross building expansion joints.
9) Make bends in conduit so that the conduit is not damaged, and the inside diameter of the conduit is not effectively reduced. Use no more than four 90 degree bends on any single run of conduit between outlets and/or other fittings.
10) Provide adequate support for concealed and/or exposed conduit.

c. Installation of Conductors.

1) Install conductors in conduit after conduit, except exposed conduit with removable conduit seals, has been completed.
2) Remove debris and moisture from all conduit, boxes and other fittings before installing conductors. Do not use cleaning agents or lubricants that might have a detrimental effect on conductor coverings.
3) Connect conductors to terminals using approved connectors. Neatly group wires to panel cabinets, pull boxes and wiring gutters. Fan wires out to the terminals.
4) Protect conductors from damage resulting from further mechanical work. Replace damaged conductors.

d. Conductor Color Coding.
- **1)** Use conductors (600 volts and under) color-coded and identified by one color. Maintain color continuity throughout the project.
- **2)** Use the following color-coding: Phase “A” – Black, Phase “B” – Red, Phase “C” – Blue, Neutral – White, and Grounding Conductors – Green.

e. Grounding.
- **1)** Ground electrical systems to maintain a continuous positive electrical ground throughout the entire system.
- **2)** Ground all metal objects in and around pool as required by the National Electric Code.
- **3)** Provide grounding lug on metal items requiring grounding.

4. Tests and Adjustment
- **a.** Arrange for all testing as required of all connections to meet municipal codes and regulations, and as further on plans. Do not backfill or enclose any fitting until tests have been carried out and work has been accepted.
- **b.** Thoroughly flush pipe and equipment prior to operating system. Protect sensitive equipment from clogging, including sensors and valves.
- **c.** All inlaid plumbing lines to be pressure tested at 15 PSI.
- **d.** Correct and/or repair any leaks and run tests again. Test remaining splash pad systems as indicated on plans.
- **e.** Adjust water systems for volume and water flow characteristics to reflect design intent and as directed by Engineer.

5. Clean-up and Instructions
- **a.** Upon completion of work, clean up all areas affected by this work, remove excess materials, debris, and tools.
- **b.** Submit to Contracting Authority instructions on use and maintenance of system.

155058.04 METHOD OF MEASUREMENT.

Splash Pad will not be measured for payment.

155058.05 BASIS OF PAYMENT.

A. Payment for Splash Pad will be at the lump sum contract price.

B. This payment shall be full compensation for, fabrication, delivery to site, furnishing material, labor, tools necessary, and installation of items.