3.7.4 **Landscaping Within 10' of Foundation.** All areas within 10' of the building or porch foundation shall be xeriscaped using either cobble, mulch or other approved material and may contain drip emitters only for either trees or shrubs due to hydrocompactive soils in the area.

3.7.5 **Irrigation Systems.** Irrigation systems should efficiently distribute water to those plants and will be concealed below the topsoil. Temporary and drip or other low-water consumption systems will be encouraged.

3.7.5.1 PVC Pressure Mainline Pipe and Fittings

A. Pressure mainline pipe will be 1" PVC CL200

B. Standard section lengths shall be 20 feet (+/-1") for all sizes.

C. All pipes shall be free from visible cracks, holes, foreign material, blisters, dents, wrinkles or ripples, die and heat marks.

D. The pipe shall be extruded from PVC meeting the requirements of cell classification 1254-A or 1254-8 as defined in ASTM D 1784, PVC compounds.

E. PVC Schedule 80 nipple shall be manufactured with molded threads. Machined threaded nipples will not be allowed.

F. All mainline fittings will be Sch40 PVC solvent weld.

3.7.5.2 Sleeving and Conduit

A. Material shall be PVC CL200 with solvent weld joints.

B. Install separate sleeve beneath hardscape areas to route each run of irrigation pipe or wire bundle.

C. Sleeving diameter will be equal to twice the diameter of the irrigation pipe or wire bundle.

3.7.5.3 Irrigation Point of Connection (POC)

A. Fabricate and install POC as shown in Appendix B found at the end of this document.

B. Set discharge pressure at 40 psi at the POC

3.7.5.4 Lateral Pipe and Fittings

A. Use 1" Polyethylene (PE) with 100 pound pressure rating that is National Sanitation Foundation (NSF) approved, and conforms to ASTM standard D2239.

B. Use Type 1 PVC insert fittings conforming to ASTM standard D2609. All insert fittings shall be certified by NSF for use in potable water service.

C. Use stainless steel worm gear clamps (including screw) or Oetiker pinch clamps to secure PE pipe to insert fitting.

3.7.5.5 Drip Tubing and Emitters

A. Use UV resistant polyethylene pipe.

B. Use PVC compression line fittings compatible with the drip lateral pipe. Install tubing stakes to hold ground pipe in place.

C. Install flush cap at the end of each lateral pipe, as shown on the installation detail in Appendix B found at the end of this document.

D. Barb mounted pressure compensating emitter device as shown on the installation detail in Appendix B found at the end of this document.

   a. Ground Cover Planting – 1 emitter per square foot of planting material

   b. 1-5 gallon container plant – 2 single emitters per plant.

   c. Tree – 4 single emitters per plant or 1 multi outlet emitter using 4 emitters.

E. Use distribution tubing to move water from emitter to outlet. Length of tubing shall not exceed five feet. Secure tubing with tubing stakes.

3.7.5.6 Controller

A. Controller will have a minimum station count of sixteen and will have modular station expansion capability.

B. The controller will be installed as shown on the installation details in Appendix B found at the end of the document. The controller shall be installed according to the manufacturer's recommendations.

C. The controller will be located in a non-conspicuous location and all conduits will be painted to match the surrounding structure(s).

3.7.5.7 Heads

A. Heads will of the type shown in the installation details in Appendix B found at the end of this document. Use a nozzle selection that allows for a matched precipitation rate (MPR) for all heads on the zone.

B. Heads irrigating maintained bluegrass will be spaced at no greater than 50% of the diameter of throw.

C. Spray heads irrigating native areas will be spaced at no greater than 90% of diameter of throw.

D. ZONES WILL NOT EXCEED 12 GALLONS PER MINUTE (GPM).

3.7.5.8 Remote Control Valves (RVC)

A. RCV will be of the type shown in the installation details in Appendix B found at the end of this document.

B. Use King "One Step" Direct Bury wire connector or equal to make the wire connection between solenoid wire and station wire.

C. Wire connectors will be located inside valve box.

D. Leave 12" of wire neatly coiled inside the valve box for valve maintenance.

3.7.5.9 In General

B. Irrigation system shall be installed in accordance with all applicable state and local codes. Rain gage use is encouraged.

B. Follow equipment manufacture's directions for installation of irrigation components.

3.7.5.10 Station Zoning

A. Irrigation zones will be separated into like areas.

B. Areas will be identified as bluegrass, native, and drip.

C. Sub-groups can be defined as well depending upon slope, exposure, and size of areas.

3.7.5.11 Utility Locates

A. Arrange for and coordinate with local authorities the location of all underground utilities. Colorado Utility Locate Number is 1-800-922-1987.

B. Any marked utility damaged during installation of the irrigation system will be repaired at the Owner's expense.

C. The Owner will notify the Ironbridge Property Owners' Association of any utilities damaged during installation.

3.7.5.12 Excavation, Trenching, Backfill Material

A. Excavate a wide enough trench to allow for adequate workspace for installing connections/fittings and allow pipe to have continuous bottom support along the entire length of the trench.

B. Pipe depth (minimum – maximum) on PVC mainline pipe is 12" – 16".

C. Pipe depth (minimum – maximum) on PE pipe is 12" – 16".

D. Pipe depth (minimum – maximum) on drip lateral pipe is 6" – 8".

E. Pipe depth (minimum – maximum) on drip tubing pipe is 3" – 4" in mulch cover only.

F. Pipes sharing a trench must have a minimum of 4" lateral clearance from each other and 24" lateral clearance from other trades.

G. Use of a vibratory plow is not an allowable installation method.

H. Backfill material will be clean of rubbish, plant material, frozen soil, soil clods larger than 2" in diameter and rock larger than ¾ inch.

I. Backfill will be compacted in 6 inch lifts. Material will have adequate soil moisture to achieve 90% Standard Proctor Density.

3.7.5.13 Mainline Pipe and Fittings

A. Keep pipe free of dirt and debris.

B. Use primer and solvent cement approved by the pipe manufacturer and within the limits of the ambient air temperature.

C. Join pipe in accordance with the manufacturer's recommendations.

D. Allow pipe to cure for 30 minutes before handling and 24 hours before introducing water into the pipe.

E. Flush mainline pipe of any debris.

3.7.5.14 Lateral Pipe and Fittings

A. Keep pipe free of dirt and debris.

B. Join pipe in accordance with the manufacturer's recommendations.

C. Flush line before installing sprinkler head.

3.7.5.15 Installation of Irrigation Components

A. Sprinkler Heads

a. Heads will be perpendicular to finish grade.

b. The zone will have matched precipitation rate (MPR) nozzles.

c. The arc and radius will match the area to be irrigated.

B. Remote Control Valves

a. No more than four valves can be located in one valve box. There must be space inside the valve box for valve maintenance procedures.

b. No more than two drip valves can be located in one valve box. There must be space inside the valve box for valve maintenance procedures.

C. Flush Cap

a. Install a flush cap assembly on the end of each drip lateral as detailed in Appendix B found at the end of this document.

D. Controller

a. The controller will be installed as detailed in Appendix B found at the end of this document. Follow the manufacture's recommendations for power supply, surge protection, and grounding.

b. Locate the controller on the outside of the house in an inconspicuous location.

c. Access to the controller must be made available at all times in case of an emergency.

3.7.5.16 Valve Boxes

A. Valve boxes will be set flush with grade.

B. Grouped valve boxes will be set in parallel orientation to each other.

3.7.5.17 Drip Emitters

A. Install as detailed in Appendix B found at the end of this document.

B. Flush lateral piping before installing the emission device.

C. Use only the emitter manufacture's punch tool to make the puncture on the drip lateral tubing.

3.7.5.18 **Water meters**. Shall be installed by owners.
***See Appendix C for approved equipment.**

3.7.6 **Trees.** The DRB encourages the use of sizable trees to complement the landscaping surrounding each residence. Each landscaping plan must incorporate the use of a minimum number of larger coniferous and/or deciduous trees ("Larger Trees") in order to be approved by the DRB. Larger Trees shall be defined as follows: (i) coniferous trees of at least ten feet (10') in height, and (ii) deciduous trees with a caliper of 2.5" or greater.

3.7.7 **Street Trees.** Heron Crossing, Phase III. Each lot will have installed (2) 1 ½" diameter street trees which will be drip irrigated. This will be the responsibility of the homeowner and installed at the time all other landscaping is installed. These trees will be located 8 feet back of curb on Lots 16 – 42. 4 feet from bike path on Lots 43 - 61. No trees are to be planted between the bike path and curb. The trees will be selected the following list.
Sensation Boxelder, Skyline Honeylocust, Littleleaf Linden, Autumn Blaze Maple, Emerald Lustre Maple and Autumn Purple Ash