SECTION J

LANDSCAPE IRRIGATION POLICY

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Landscape Irrigation Policy

1. DEFINITIONS.

The following words and terms, when used in this Section J, have the following meanings, unless the context clearly indicates otherwise.

Air gap – a complete physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel.

Atmospheric vacuum breaker – An assembly containing an air inlet valve, a check seat, and an air inlet port. The flow of water into the body causes the air inlet valve to close the air inlet port. When the flow of water stops the air inlet valve falls and forms a check against back-siphonage. At the same time it opens the air inlet port allowing air to enter and satisfy the vacuum. Also known as an Atmospheric Vacuum Breaker Back-siphonage Prevention Assembly.

Backflow prevention – The mechanical prevention of reverse flow, or back siphonage, of non-potable water from an irrigation system into the potable water source.

Backflow prevention assembly – Any assembly used to prevent backflow into a potable water system. The type of assembly used is based on the existing or potential degree of health hazard and backflow condition.

Completion of irrigation system installation – When the landscape irrigation system has been installed, all minimum standards met, all tests performed, and the irrigator is satisfied that the system is operating correctly.

Consulting – The act of providing advice, guidance, review or recommendations related to landscape irrigation systems.

Cross-connection – An actual or potential connection between a potable water source and an irrigation system that may contain contaminates or pollutants or any source of water that has been treated to a lesser degree in the treatment process.

Design - The act of determining the various elements of a landscape irrigation system that will include, but not limited to, elements such as collecting site specific information, defining the scope of the project, defining plant watering needs, selecting and laying out emission devices, locating system components, conducting hydraulics calculations, identifying any local regulatory requirements, or scheduling irrigation work at a site. Completion of the various components will result in an irrigation plan.

Design pressure – The pressure that is required for an emission device to operate properly. Design pressure is calculated by adding the operating pressure necessary at an emission device to the total of all pressure losses accumulated from an emission device to the water source.

Double-check valve – An assembly that is composed of two independently acting approved check valves, including tightly closed resilient seated shutoff valves attached at each end of the assembly and fitted with properly located resilient seated test cocks. Also known as a Double-check Valve Backflow Prevention Assembly.

Emission device – Any device that is contained within an irrigation system and that is used to apply water. Common emission devices in an irrigation system include, but are not limited to, spray and rotary sprinkler heads, and drip irrigation emitters.

Employed – Engaged or hired to provide consulting services or perform any activity relating to the sale, design, installation, maintenance, alteration, repair, or service to irrigation systems. A person is employed if that person is in an employer-employee relationship as defined by Internal Revenue Code, 26 United States Code §3212(d) based on the behavioral control, financial control, and the type of relationship involved in performing employment related tasks.

Head-to-head spacing – The spacing of spray or rotary heads equal to the manufacturer's published radius of the head.

Health hazard – A cross-connection or potential cross-connection with an irrigation system that involves any substance that may, if introduced into the potable water supply, cause death or illness, spread disease, or have a high probability of causing such effects.

Hydraulics – The science of dynamic and static water; the mathematical computation of determining pressure losses and pressure requirements of an irrigation system.

Inspector – A licensed plumbing inspector, water district operator, other governmental entity, or irrigation inspector who inspects irrigation system and performs other enforcement duties for a municipality or water district as an employee or as a contractor.

Installer – A person who actually connects an irrigation system to a private or public raw or potable water supply system or any water supply, who is licensed according to Chapter 37 of the Texas Water Code (relating to Occupational Licenses and Registrations).

Irrigation inspector – A person who inspects irrigation systems and performs other enforcement duties for a municipality or water district as an employee or as a contractor and is required to be licensed under chapter 37 of the Texas Water Code (relating to Occupational Licenses and Registrations).

Irrigation plan – A scaled drawing of a landscape irrigation system which lists required information, the scope of the project, and represents the changes made in the installation of the irrigation system.

Irrigation services – Selling, designing, installing, maintaining, altering, repairing, servicing, permitting, providing consulting services regarding, or connecting an irrigation system to a water supply.

Irrigation system – An assembly of component parts that is permanently installed for the controlled distribution and conservation of water to irrigate any type of landscape vegetation in any location, and/or to reduce dust or control erosion. This term does not include a system that is used on or by an agricultural operation as defended by Texas Agricultural Code §251.002.

Irrigation technician – A person who works under the supervision of a licensed irrigator to install, maintain, alter, repair, service or supervise installation of an irrigation system, including the connection of such system in or to a private or public, raw or potable water supply system or any water supply, and who is required to be licensed under chapter 37 of the Texas Water Code (relating to Occupational Licenses and Registrations).

Irrigation zone – A subdivision of an irrigation system with a matched precipitation rate based on plant material type (such as turf, shrubs, or trees), microclimate factors (such as sun/shade ratio), topographic features (such as slope) and soil conditions (such as sand, loam, clay, or combination) or for hydrological control.

Irrigator – A person who sells, designs, offers consultations regarding, installs, maintains, alters, repairs, service or supervises the installation of an irrigation system, including the connection of such system to a private or public, raw or potable water supply system or any water supply, and who is required to be licensed under chapter 37 of the Texas Water Code.

Irrigator-in-charge – The irrigator responsible for all irrigation work performed by an exempt business owner, including, but not limited to obtaining permits, developing design plans,

Supervising the work of other irrigators or irrigation technicians, and installing, selling, maintaining, altering, repairing, or servicing a landscape irrigation systems.

Landscape irrigation – The science of applying the necessary amount of water to promote or sustain healthy growth of plant material or turf.

License – An occupation license that is issued by the commission under Chapter 37 of the Texas Water Code to an individual that authorizes the individual to engage in an activity that is covered by this landscape irrigation policy.

Mainline – A pipe within an irrigation system that deliver water from the water source to the individual zone valves.

Maintenance checklist – A document made available to the irrigation system's owner or owner's representative that contains information regarding the operation and maintenance of the irrigation system, including, but not limited to: checking and repairing the irrigation system, setting the automatic controller, checking the rain or moisture sensor, cleaning filters, pruning grass and plants away from irrigation emitters, using and operating the irrigation system, the precipitation rates of each irrigation zone within the system, any water conservation measures currently in effect from the water purveyor, the name of the water purveyor, a suggested seasonal or monthly watering schedule based on current evapotranspiration data for the geographic region, and the minimum water requirements for the plant material in each zone based on the soil type and plant material where the system is installed.

Major maintenance, alteration, repair, or service – Any activity that involves opening to the atmosphere the irrigation main line at any point prior to the discharge side of any irrigation zone control valve. This includes, but is not limited to, repairing or connecting into a main supply pipe, replacing a zone control valve, or repairing a zone control valve in a manner that opens the system to the atmosphere.

Master valve – A remote control valve located after the backflow prevention device that controls the flow of water to the irrigation system mainline.

Matched precipitation rate – The condition in which all sprinkler heads within an irrigation zone apply water at the same rate.

New installation – An irrigation system installed at a location where one did not previously exist.

Non-health hazard – A cross-connection or potential cross-connection from a landscape irrigation system that involves any substance that generally would not be a health hazard but would constitute a nuisance or be aesthetically objectionable if introduced into the potable water supply.

Non-potable water – Water that is not suitable for human consumption. Non-potable water sources include, but are not limited to, irrigation systems, lakes, ponds, streams, gray water that

is discharged from washing machines, dishwashers or other appliances, water vapor condensate from cooling towers, reclaimed water, and harvested rainwater.

Pass-through contract – A written contract between a contractor or builder and a licensed irrigator or exempt business owner to perform part or all of the irrigation services relating to an irrigation system.

Potable water – Water that is suitable for human consumption.

Pressure vacuum breaker – An assembly containing an independently operating internally loaded check valve and an independently operating loaded air inlet valve located on the discharge side of the check valve. Also known as a Pressure Vacuum Breaker Back-siphonage Prevention Assembly.

Reclaimed water – Domestic or municipal wastewater which has been treated to a quality suitable for beneficial use, such as landscape irrigation.

Records of landscape irrigation activities – The irrigation plans, contracts, warranty information, invoices, copies of permits, and other documents that relate to the installation, maintenance, alteration, repair, or service of a landscape irrigation system.

Reduced pressure principle backflow prevention assembly – An assembly containing two independently acting approved check valves together with a hydraulically operating mechanically independent pressure differential relief valve located between the two check valves and below the first check valve.

Static water pressure – The pressure of water when it is not moving.

Supervision – The on-the-job oversight and direction by a licensed irrigator who is fulfilling his or her professional responsibility to the client and/or employer in compliance with local or state requirements. Also a licensed installer working under the direction of a licensed irrigator or beginning January 1, 2009, an irrigation technician who is working under the direction of a licensed irrigator to install, maintain, alter, repair or service an irrigation system.

TAC – Acronym for the Texas Administrative Code.

Water conservation – The design, installation, service, and operation of an irrigation system in a manner that prevents the waste of water, promotes the most efficient use of water, and applies the least amount of water that is required to maintain healthy individual plant material or turf, reduce dust, and control erosion.

Zone flow – A measurement, in gallons per minute or gallons per hour, of the actual flow of water through a zone valve, calculated by individually opening each zone valve and obtaining a valid reading after the pressure has stabilized. For design purposes, the zone flow is the total flow of all nozzles in the zone at a specific pressure.

Zone valve – An automatic valve that controls a single zone of a landscape irrigation system.

2. **BACKFLOW PREVENTION.**

(a) All backflow testers performing a backflow test on an approved backflow prevention assembly within the District's CCN service area must pre-register annually with the District office. A registration fee of $50.00 will apply at the time of registration. The following information will be required at the time of registration:

(1) A valid copy of TCEQ Backflow Prevention and Assembly Testers license;

(2) A valid copy of current drivers license;

(3) A valid copy of current test gauge certification;

(4) And $50.00 registration fee.

(b) To ensure adequate protection of the public water supply, the District requires that all backflow prevention devices must be tested upon installation and, at least annually thereafter for devices protecting against a Health Hazard. All commercial properties with backflow prevention devices must be tested at least annually, regardless of health hazard.

(c) All irrigation systems connected to a public or private potable water supply must be properly connected through one of the following backflow prevention methods:

(1) *Atmospheric vacuum breakers.* Atmospheric vacuum breakers are designed to prevent only back siphonage. Therefore, atmospheric vacuum breakers must not be used in any irrigation systems where back-pressure may occur. There cannot be any shutoff valves downstream from an atmospheric vacuum breaker. Where atmospheric vacuum breakers may be used, they must be installed at least six inches above any downstream piping and the highest downstream opening. Where local topography effectively prohibits such installation, the executive director shall be consulted for alternative acceptable installation criteria. Such alternative criteria must provide equivalent protection to the potable water supply. In addition, continuous pressure on the supply side of an atmospheric vacuum breaker is prohibited. Where atmospheric vacuum breakers are used in an irrigation system, a separate atmospheric vacuum breaker must be installed on the discharge side of each water control valve, between the valve and all of the sprinkler heads which the valve controls.

(2) *Pressure-type vacuum breakers.* Pressure-type vacuum breakers are designed to prevent back siphonage and can operate under continuous pressure. Pressure vacuum breakers must be installed at least 12 inches above any downstream piping and the highest downstream opening. Where local topography effectively prohibits such installation, the executive director shall be consulted for alternative

acceptable installation criteria. Such alternative criteria must provide equivalent protection to the potable water supply.

(3) *Double-check valve assembly backflow preventors.* Double-check valve assembly backflow preventors are designed to prevent back pressure and back siphonage of water not containing any toxic substance. They may be used where water supply pressure and back pressure on the backflow prevention device may continuously exist. If a double check valve assembly is installed below grade, there must remain adequate space for testing and repair of the device. Test cock plugs must be of non-ferrous material. Test cocks shall not be used as supply connections and must be plugged except when being tested.

(4) *Reduced pressure principle backflow prevention assemblies.* Reduced pressure principle assemblies are designed for water containing toxic or non-toxic substances and for back pressure and back siphonage. They must be installed 12 inches above grade in a location so as to insure that the device will not be submerged. In addition, adequate provisions must be made for any water which may be discharged through the assembly relief valve.

(5) *Air Gap.* An air gap, when used must be installed and maintained in accordance with the standards established in the American Waterworks Association M14 Manual on Cross Connection Control.

(d) Specific Conditions and Backflow Prevention Devices.

(1) An irrigation system that does not have associated with it any type of injection device and that is connected or capable of being connected only to a single source of water presents a low potential for contamination of the water supply and is, therefore, considered to be a "low hazard" installation. Such an irrigation system must be connected to the water supply through an industry-approved backflow prevention device, such as a double check valve assembly, air gap separation, reduced pressure principle assembly, pressure type vacuum breaker, or atmospheric vacuum breaker.

(2) An irrigation system which adds any chemical is considered to be a "high health hazard". Such an irrigation system must not be connected to any potable water supply except through a reduced pressure principle backflow prevention assembly. The backflow prevention assembly must be tested upon installation and, at least, annually, thereafter, in accordance with 30 TAC §290.44(h)(4) (relating to Water Distribution).

(3) An irrigation system that is installed on a property with an OSSF (septic system) is considered a High Health Hazard and is required to use a Reduced Pressure Principle Backflow Prevention Assembly.

3. **MINIMUM DESIGN STANDARDS.**

(a) Minimum standards for spacing.

(1) Irrigation systems using spray or rotary heads must be designed and installed not to exceed the manufacturer's maximum recommended head spacing for a specific nozzle operating at a specific pressure.

(2) Irrigation systems using spray or rotary heads with no recommended spacing provided by the manufacturer must be designed and installed in conformance with the average spacing specifications provided by a minimum of two other manufacturers of like equipment for the same size nozzle and the same pressure.

(3) Irrigation systems not using spray or rotary heads must be installed according to the manufacturer's recommended installation specifications.

(b) Minimum standards for water pressure. Irrigation systems using spray or rotary heads must be designed and installed according to the minimum head pressure required by the manufacturer for the nozzle and head spacing used.

(c) Minimum standards for wind derating.

(1) Irrigation systems using spray or rotary heads with no manufacturer recommended spacing duration provided must be designed and installed in conformance with the average spacing wind derating information provided by two other manufacturers of like equipment for that size nozzle and pressure.

(2) Irrigation systems using spray or rotary heads with no manufacturer recommended spacing duration provided must be designed and installed in conformance with the average spacing wind derating information provided by two other manufacturers of like equipment for that size nozzle and pressure.

(d) Minimum standards for precipitation rate. Landscape irrigation system using spray or rotary heads that are installed in precipitation zone #1, as defined in 30 TAC §344.1 of this title (relating to Definitions), must be designed and/or installed to provide a minimum

precipitation rate of 0.275 inches per hour for every hour that the landscape irrigation system is in operation.

(e) Minimum standards for depth coverage of piping. Irrigation using spray or rotary heads must be designed and/or installed according to the manufacturer recommended specifications for depth coverage of piping, unless one of the following circumstances is encountered.

(1) If the manufacturer has no recommended specifications for depth coverage of piping, the irrigation system must be designed and/or installed to provide a minimum of six inches of coverage over piping.

(2) If utilities, structures, or tree roots are encountered, the irrigation system must be designed and/or installed to provide a minimum of two inches of coverage over piping.

(f) Minimum standards for wiring irrigation systems.

(1) The wiring used in an irrigation system that connects section valves to controllers must be Underwriters Laboratories listed for direct underground burial.

(2) The wiring used in an irrigation system that connects section valves to controllers must be sized according to the manufacturer's recommendation.

(3) Direct burial wire splices used in an irrigation system must be waterproof as per manufacturer recommendation.

(g) Water Conservation Devices. An individual who installs an irrigation system should discuss with the purchaser of an irrigation system, including drip irrigation, water conservation devise and irrigation scheduling as a component of the design and installation of the irrigation system. All such components of an irrigation system shall be installed following the manufacturer's recommended practices for specific types of equipment.

(h) All design standards and installation shall conform to 30 TAC §344.

(i) If an existing irrigation system is relocated, extended or modified in any way, it must be permitted, brought up to code, and inspected. (When relocating, extending or modifying an existing system, a master valve is not required downstream of the backflow device.)

(j) New irrigation installations will be required to have a master valve no more than five (5) feet downstream of the backflow device.

(k) If an existing irrigation system is being repaired for a leak, it shall be exempt from the permitting process.

4. **PERMITTING.**

(a) All installers of irrigation systems must be licensed by TCEQ and obtain an Irrigation Permit from the District before installation of the irrigation system and get the required inspections completed. All irrigation systems must conform to the minimum standards and specifications for the design, installation and operation set forth by the TCEQ and this document.

(b) Irrigation System Permit Fees. This means that the minimum permit fee for a lawn irrigation system with one (1) backflow device will be $195.00 permit fee. All permit applications must be accompanied by an irrigation plan.

(1) Irrigation permit fee of $60.00.

(2) Plan review and inspection fee of $120.00.

(3) Backflow report fee of $15.00 (per device).

(c) With the implementation of this fee the registered irrigator will be required to submit an irrigation plan for review. The irrigation plan shall include the following information.

(1) Two (2) sets of irrigation drawings are required for submittal, One (1) set will be retained as part of inspection records, and one (1) set will be required for onsite inspection to be given to the property owner on completion of irrigation system. Submitted irrigation plans shall have a minimum font size of 3/32" and maximum drawing sheet size of 36"x48".

(2) Designed and installation shall conform to 30 TAC §344.62.

(3) All irrigation plans used for construction must be drawn to scale. The maximum scale for residential drawings should be one inch to 30 feet, for commercial and athletic field drawings the maximum scale should be one inch to 40 feet and for golf courses or comparable drawings the maximum scale should be one inch to 100 feet and now smaller than one inch equal to thirty feet and the plan must include the following information (see 30 TAC §344.61 (c)).

(A) the irrigator's seal, signature, and date of signing;

(B) all major physical features and the boundaries of the areas to be watered;

(C) an arrow indicating "north";

(D) a legend;

(E) the zone flow measurement for each zone;

(F) location and type of each: controller; connection;

(G) location, type, and size of each:

(i) water source, such as, but not limited to a water meter and points(s) of backflow prevention device;

(ii) required rain and freeze sensor;

(iii) water emission device, including, but not limited to, spray heads, rotary sprinkler heads, quick-couplers, bubblers, drip, or micro-sprays;

(iv) valve, including, but not limited to, zone valves, master valves, and isolation valves; Location of isolation valve (30 TAC §344.62(k)) and master control valve (30 TAC §344.62(h)) installation of these valves will require ready access.

(v) pressure regulation components;

(vi) main line and lateral piping.

(H) the scale used; and

(I) connection to potable water supply and the installation of a backflow device shall not be installed more than ten (10) feet from the water meter and installed on the property being served by the system. No backflow device will be installed in the parkway (between the sidewalk and the public right-of-way). Exception: use of atmospheric vacuum breakers may be installed in an accessible location.

(J) Irrigation permits will be valid for sixty (60) days from the permit issue date.

(K) Failure to have a permit before work begins will result in a fine of twice the permit fee.

5. **INSPECTION.**

(a) Substantial completion. An inspection of the irrigation system will be made by The District upon request of the irrigator. The irrigation system must be sufficiently complete so that all plant material can be sustained by the system and all valve boxes are properly installed. Contractor shall deliver complete "as-built" or "record" drawings to The District for review and comment prior to application of inspection.

(b) All design standards and installation shall conform to 30 TAC §344.

(c) The following items must be completed before an irrigation inspection will be scheduled:

(1) Appropriate backflow protection must be properly installed and tested by a TCEQ licensed backflow prevention assembly tester and submitted prior to inspection of the irrigation system.

(2) A final "walk through" with the irrigation system's owner or the owner's representative to explain the operation of the system must take place prior to the irrigation system inspection.

(3) The maintenance checklist on which the irrigator or irrigation technician shall obtain the signature of the irrigation system's owner or owner's representative and shall sign, date, and seal the checklist. If the irrigation system's owner or owner's representative is unwilling or unable to sign the maintenance checklist, the irrigator shall note the time and date of the refusal on the irrigation system's owner or owners representative's signature line. The irrigation system owner or owner's representative will be given the original maintenance checklist and a duplicate copy of the maintenance checklist shall be submitted to The District and maintained by the irrigator. The items on the maintenance checklist shall include but are not limited to:

(A) the manufacturer's manual for the automatic controller, if the system is automatic;

(B) a seasonal (spring, summer, fall, winter) water schedule based on either current/real time evapotranspiration or monthly historical reference evapotranspiration (historical ET) data, monthly effective rainfall estimates, plant landscape coefficient factors, and site factors;

(C) a list of components, such as the nozzle, or pump filters, and other such components; that require maintenance and the recommended frequency for the service; and

(D) the statement, "This irrigation system has been installed in accordance with all applicable state and local laws, ordinances, rules, regulations or orders. I have tested the system and determined that it has been installed according to the Irrigation Plan and is properly adjusted for the most efficient application of water at this time."

(E) A permanent sticker which contains the irrigator's name, license number, company name, telephone number and the dates of the warranty period shall be affixed to each automatic controller installed by the irrigator or irrigation technician. If the irrigation system is manual, the sticker shall be affixed to the original maintenance checklist. The information contained on the sticker must be printed with waterproof ink.

(4) Final Completion. The District, upon written request, will make an inspection of the irrigation system for Final Completion by the Contractor. Provide notification of at least two (2) working days before requested inspection date.

(5) Irrigator must have ALL heads and valves flagged for inspection or must be on site during the inspection process.

(6) Upon successful completion of the irrigation inspection, a certificate of completion will be issued.

(7) A successful completion of the irrigation inspection must be completed before the expiration of the irrigation permit. Failure to have all required paper work and/or inspections before the prior to the expiration date of the irrigation permit will result in disconnection of service.

6. **ENFORCEMENT.**

(a) Any customer failing to comply with the provisions of this landscape irrigation policy will be subject to discontinuance of water service for 24 hours by the District. All outstanding charges and any disconnect or reconnect charges must be paid in full before service will be restored. Each day a customer fails to comply with the landscape irrigation policy is a separate violation.

(b) The District may also enforce this this landscape irrigation policy under Section E.32 of this Rate Order.