

## CHAPTER IX – RECLAIMED WATER

### REFERENCES

1. **Reference Standards.** The following documents have been referenced in the preparation of the Reclaimed Water Treated Effluent Design & Performance Standards herein:

- a) NDEP WTS-1A: General Design Criteria for Reclaimed Water Irrigation Use
- b) NDEP WTS-1B: General Criteria for Preparing an Effluent Management Plan
- c) NDEP WTS-37: Guidance Document for Design of Wastewater Detention Basins
- d) NDEP WTS-4: Guidance Document for Design of Groundwater Monitoring Wells
- e) NDEP Discharge Permit application forms, DMR form, and Permit fees
- f) NAC 445A.275 – 445A.280, Use of Treated Effluent (Reuse Regulations)
- g) NAC 445A.6715 – 445A.67215, Water/Sewer System Separation Regulations
- h) TMWA Engineering & Construction Standard Sections 8 and 8a
- i) AWWA C600: Standard for Installation of Ductile Iron Water Mains and their Appurtenances
- j) AWWA C605: Standard for Underground Installation of PVC Pressure Pipe and Fittings for Water
- k) Standard Specifications for Public Works Construction, Latest Edition
- l) Uniform Plumbing Code, Latest Edition

### 2. Definitions

NDEP	Nevada Division of Environmental Protection Bureau of Water Pollution Control
NRS	Nevada Revised Statutes
NAC	Nevada Administrative Code
WTS	Water Technical Sheet
TMWA	Truckee Meadows Water Authority
AWWA	American Water Works Association
PWC	Public Works Construction
APWA	American Public Works Association
DIP	Ductile Iron Pipe
PVC	Polyvinyl Chloride
RJ-DIP	Restrained Joint Ductile Iron Pipe
PRV	Pressure Reducing Valve
AWG	American Wire Gage
DMR	Discharge Monitoring Report
SSPWC	Standard Specifications for Public Works Construction
HOA	Homeowner's Association
City of Reno	City of Reno (Public Works Department)
Service Provider	City of Reno (Public Works Department)
Customer	City Park or Golf Course, Business, HOA, Developer, or other entity utilizing reclaimed water treated effluent from the City of Reno
Design Engineer	Registered Professional Engineer in the State of Nevada hired by the Customer to provide design services

### Section 1 - DISTRIBUTION SYSTEM STANDARDS FOR RECLAIMED WATER TREATED EFFLUENT

#### 1. Design Standards

- a) All reclaimed water treated effluent systems shall be designed and constructed in accordance with all applicable federal, state and local laws and requirements including, but not limited to;
  - i) State of Nevada
  - ii) Nevada Division of Environmental Protection
  - iii) City of Reno

- iv) the applicable water purveyor
- b) All reclaimed water treated effluent reuse systems must be included in an Effluent Discharge Permit issued by NDEP.

## 2. **Hydraulic Analysis**

- a) A hydraulic analysis shall be provided for all proposed reclaimed water treated effluent distribution systems within public right-of-way to insure adequate flow and pressures at points of service. Two (2) copies of the hydraulic analysis report shall be submitted to the City of Reno for review and approval. The final report will also be provided electronically. At a minimum, the report submittal shall include the following:
  - i) Complete contact information for the Customer and the Design Engineer.
  - ii) Project description.
  - iii) Name and version of hydraulic modeling software.
  - iv) Site plan.
  - v) Assessor's parcel number and address.
  - vi) Hydraulic model input data.
  - vii) Hydraulic node map.
  - viii) Hydraulic model output data.
- b) All pump systems require coordination and approval from the City of Reno Public Works Department. If you are designing a system with pumps, tanks, etc., contact Public Works during the planning phase of the project.

## 3. **Design Pressure**

- a) Service point(s). As determined by the Design Engineer to accommodate irrigation system requirements.
- b) Mainline termination point(s). As required by the City of Reno.

## 4. **Pipe Material Type**

- a) PVC - PVC pipe shall be purple in color. Joints shall be bell and spigot type with gaskets designed for potable water service.
  - i) Sizes 4-inch to 12-inch shall meet all the dimensional, chemical, and physical requirements as outlined in AWWA C900.
    - (1) PVC pipe connected directly to the reclaimed water mainline distribution system with no PRV shall be Pressure Class 200 (DR-14).
    - (2) PVC pipe downstream of a PRV may be Pressure Class 150 (DR-18).
  - ii) Sizes 14-inch to 30-inch shall meet all the dimensional, chemical, and physical requirements as outlined in AWWA C905, cast iron O.D.
    - (1) PVC pipe connected directly to the reclaimed water mainline distribution system with no PRV shall be Pressure Class 200 (DR-21).
    - (2) PVC pipe downstream of a PRV may be Pressure Class 165 (DR-25).
  - iii) Sizes larger than 30-inch require special approval from the City of Reno.
- b) Restrained Joint PVC pipe and fittings.
  - i) Pipe – Bell Restraint Harness
    - (1) Sizes 4-inch to 12-inch (C900), Series 1600 Bell Restraint Harness as manufactured by Ebaa Iron, Inc. or City of Reno approved equal.
    - (2) Sizes 14-inch to 30-inch (C905), Series 2800 Bell Restraint Harness as manufactured by Ebaa Iron, Inc. or City of Reno approved equal.
  - ii) Fittings – Reference Section 4.c.viii(3) Restrained Joint Ductile Iron Fittings of this Section.
- c) Ductile Iron Pipe and Restrained Joint Ductile Iron Pipe (DIP and RJ-DIP) may be used **with prior approval of the City of Reno in consideration of soil corrosion issues. All DIP and RJ-DIP shall receive polyethylene pipe encasement per Section 17 of this Standard.**
  - i) All DIP and RJ-DIP shall meet the requirements of the following AWWA Standards:
    - (1) AWWA C151: Ductile-Iron Pipe, Centrifugally Cast, For Water
    - (2) AWWA C111: Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

- (3) AWWA C104: Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water
- (4) AWWA C105: Polyethylene Encasement for Ductile-Iron Pipe Systems
- ii) Pressure Classes for pipe sizes shall be as follows:
  - (1) Sizes 3-inch to 12-inch shall be Pressure Class 350.
  - (2) Sizes 14-inch to 20-inch shall be Pressure Class 250.
  - (3) Sizes 24-inch to 30-inch shall be Pressure Class 200.
  - (4) Sizes larger than 30-inch require special approval from the City of Reno.
- iii) Restrained Joint Ductile Iron Pipe (RJ-DIP) shall include:
  - (1) Push-on joint with standard gasket with interlocking segments inserted through a slot in the bell face, TR Flex as manufactured by U.S. Pipe or City of Reno approved equal.
  - (2) Push-on joint with restrained joint gasket, Field Lok Gasket for specified pipe size as manufactured by U.S. Pipe or City of Reno approved equal.
  - (3) Mechanical joint pipe with wedge style mechanical joint restraint, Megalug as manufactured by Ebaa Iron, Inc. or City of Reno approved equal.
- iv) Pipe Joint Deflection per AWWA C600, Table 3. Confirm manufacturer's recommended maximum deflection will provide radii and angle points required.
- v) Threaded Flanges, Ductile Iron per AWWA C115. DIP requiring threads for flanges shall not be less than that required by thickness Class 53, pressure class 350.
- vi) Flanges Bolts and Gaskets per AWWA C115, Appendix A
- vii) Ductile Iron Fittings and Restrained Joint Ductile Iron Fittings. AWWA C110, AWWA C104, Cement mortar lined and seal coated for potable water
- viii) Restrained Joint Ductile Iron Fittings shall include:
  - (1) Push-on joint with standard gasket with interlocking segments inserted through a slot in the bell face, TR Flex as manufactured by U.S. Pipe or City of Reno approved equal.
  - (2) Push-on joint with restrained joint gasket, Field Lok Gasket for specified pipe size as manufactured by U.S. Pipe or City of Reno approved equal.
  - (3) Mechanical joint fittings with wedge style mechanical joint restraint, Megalug as manufactured by Ebaa Iron, Inc. or City of Reno approved equal.
- d) Effluent Service Lateral Pipe (1-1/2 inch and 2-inch)
  - i) Service lateral is defined as the piping between the mainline and a meter box or meter vault.
  - ii) Minimum service size shall be 1-1/2 inch.
  - iii) Polyethylene (PE) pressure pipe per AWWA C901 for 1-1/2 inch and 2-inch service connections. Purple in color or purple striped, Pressure Class 200 (DR-9).
  - iv) Service Line Fittings per AWWA C800.

#### **5. Buried Warning and Identification Tape**

- a) Buried warning and identification tape shall be polyethylene plastic, metallic core detectable warning tape. AWWA, APWA, acid and alkali resistant, permanent marking, unaffected by moisture or soil, minimum five (5) mils thick by 3-inches wide. Warning tape shall be manufactured specifically for locating, warning, and identification of buried utility lines. APWA color coded PURPLE for reclaimed water with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read "CAUTION: BURIED RECLAIMED WATER LINE BELOW" or similar.

#### **6. Tracer Wire and Test Stations**

- a) Tracer wire shall be provided for all distribution reclaimed water lines and service laterals and shall be placed on top of pipe and attached with duct tape at 6 feet maximum intervals. At 500 feet intervals, tracer wire shall be extended into separate test stations consisting of risers and valve boxes (ref. City of Reno Reclaimed Water Treated Effluent Detail SR-3). Test lead wire shall be long enough to extend four (4) feet above ground level and shall terminate in test station box. Tracer wire shall be attached to service laterals with duct tape at 3 feet maximum intervals, and shall be long enough to extend four (4) feet above ground and shall terminate in meter box. Wire shall be #12 AWG, insulated, stranded copper, THHN 600V. Prior to acceptance of the reclaimed waterline(s) by the City of Reno, the contractor shall perform a continuity test after backfilling the trench to the satisfaction of the City of Reno Inspector and/or Engineer.

**7. Thrust Restraint**

- a) Mechanical joint fittings/pipe with wedge style mechanical joint restraint, Megalug as manufactured by Ebaa Iron, Inc. or City of Reno approved equal.
- b) Concrete Thrust Blocking per City of Reno Reclaimed Water Treated Effluent Detail SR-13.
- c) Restrained Joint Ductile Iron pipe (RJ-DIP), TR Flex as manufactured by U.S. Pipe or City of Reno approved equal.
- d) Ductile Iron pipe push-on joint with restrained joint gasket, Field Lok Gasket for specified pipe size as manufactured by U.S. Pipe or City of Reno approved equal.
- e) PVC Pipe Bell Restraint Harness as previously specified in Section 4.b of this Standard.
- f) For vertical deflections, thrust blocks are not allowed for thrust restraint.

**8. Depth of cover**

- a) Design depth of cover = 4 feet
  - i) Adjacent to existing water and gas, as required providing minimum separation requirements.
  - ii) Per NAC 445A.67145. Minimum depth of cover = 3 feet.
- b) Design depth of cover which exceeds 5 feet shall require approval by the City of Reno
- c) Restrained Joint Ductile Iron Pipe (RJ-DIP) shall be used for all crossings under ditches, existing pipelines, reinforced concrete boxes, and any other structure that will impede access for maintenance purposes.

**9. Pipe Deflection/Bending**

- a) PVC Pipe – per AWWA C605.
- b) DIP – per AWWA C600.
- c) Per pipe manufacturer's recommendation.

**10. Trench Backfill**

- a) Reference City of Reno Reclaimed Water Treated Effluent Detail SR-4.
- b) Reference SSPWC

**11. Buoyancy**

- a) As determined by the Design Engineer and approved by the City of Reno. Buoyancy parameters and concerns shall be discussed by the Design Engineer with City of Reno Public Works Engineering staff during the design phase of the project and shall be mitigated on a case by case basis.

**12. Surge Protection**

- a) As determined by the Design Engineer and approved by the City of Reno. Surge protection parameters and concerns shall be discussed by the Design Engineer with City of Reno Public Works Engineering staff during the design phase of the project and shall be mitigated on a case by case basis.

**13. Isolation Valves**

- a) Gate Valve, 3 to 12 inch, AWWA C500.
- b) Butterfly Valve, 14 to 30 inch, AWWA C504.
- c) As required for operation and maintenance of the system.
- d) As approved by the City of Reno.
  - i) In residential / commercial developed areas, 500 ft. maximum (as required in NAC 445A).
  - ii) Other areas, 1200 ft., maximum.

**14. Combination Air Vacuum and Air Release Valve Assemblies**

- a) Located at high points in the effluent mainline.
- b) As determined by the Design Engineer and approved by the City of Reno.
- c) Air release valve assembly materials and construction, including the valve, enclosure, and vent piping shall be per City of Reno Reclaimed Water Treated Effluent Details SR-12A and SR-12B.

**15. Mainline Blow Off**

- a) For mainlines greater than 20 inches in diameter.
- b) Located at low points in effluent mainline and approved by the City of Reno.
- c) 6 inch minimum pipe size for blow-off structure.
- d) Sized to provide minimum velocity of 2.5 fps in the main.

**16. Purple Coloration and Warning**

- a) All covers for meter boxes, valve boxes, flush valves, pressure reducing vaults, air/vac release assemblies, and all other appurtenances requiring vaults or boxes shall be purple in color (Pantone Color #512), labeled "RECLAIMED WATER" or "EFFLUENT", and have secured or locking lids. Purple coloration shall be obtained from the manufacturer or be applied by powder coating or epoxy paint. All appurtenances shall have a purple tag attached with the wording "WARNING RECYCLED/RECLAIMED WATER DO NOT DRINK" and "AVISO AGUA IMPURA NO TOMAR" (T. Christy Enterprises, MAXI valve identification tag, ID-MAX-P2-RC006 or City of Reno approved equal). A debris cap with purple coloration shall be installed inside all round boxes.
- b) All above ground piping shall be epoxy painted purple (Pantone Color #512) and have a purple tag attached with the wording "WARNING RECYCLED/RECLAIMED WATER DO NOT DRINK" and "AVISO AGUA IMPURA NO TOMAR" (T. Christy Enterprises, MAXI valve identification tag, ID-MAX-P2-RC006 or City of Reno approved equal).

**17. Corrosion Protection**

- a) As recommended by the pipe manufacturer for actual soil conditions, not less than the following:
- b) Polyethylene Pipe Encasement, AWWA C105, 8-mil minimum thickness. All buried DIP, fittings, and valves shall be encased with low-density, polyethylene film (min. 8-mils thick). The polyethylene film shall be in tube form and colored purple. The film shall be clearly marked "RECLAIMED WATER" or "EFFLUENT" in BLACK letters at regular intervals.
- c) Mastic shall be applied to all bolts and exposed steel.

**18. Sewer / Water Separation Standards**

- a) NAC 445A.6715 - 445A.67215
- b) TMWA Engineering & Construction Standard Sections 8 and 8a

**19. Direct Connections to Potable Water System**

- a) Direct connections between potable water piping and reclaimed water piping shall not exist under any condition, with or without backflow protection. Reference Section 603.3.5 of the Uniform Plumbing Code, Latest Edition.

**20. Effluent Service Connections (Public / Private Ownership and Maintenance)**

- a) Transitions from publicly owned facilities (City of Reno) to privately owned facilities (Customer) shall be clearly delineated. Typically, the meter at the point of connection shall serve as the point of transition, with facilities upstream of the meter being owned and maintained by the City of Reno, and facilities downstream of the meter being owned and maintained by the Customer. In cases where mainlines exist within public right-of-way downstream of a meter (typically a "master" meter), the transition between City owned and maintained facilities and Customer owned and maintained facilities shall be delineated by, and include an isolation valve and test station located as near possible to the boundary (property line) between public right-of-way and private property, if applicable.
- b) All piping and appurtenances located on private property shall be owned and maintained by the Customer, unless within a dedicated easement and approved in writing by the City of Reno.
- c) All reclaimed water mains less than 4-inch diameter shall be owned and maintained by the Customer, and will be considered irrigation piping.
- d) Publicly owned facilities (City of Reno) and privately owned facilities (Customer) shall be clearly delineated and labeled on the design drawings.

**21. Service Laterals**

- a) Sized to provide peak demand without excessive pressure loss through the meter and setter.
- b) Minimum service size is 1-1/2 inch.
- c) Service lateral shall be installed perpendicular to the water main and the meter, unless otherwise approved by the City of Reno.
- d) All services 3-inch and larger shall include a tee, gate valve and valve box.
- e) Maintain minimum separation between effluent and potable water per required separation standards (NDEP and TMWA).

**22. Meters**

- a) Meter manufacturer shall be BadgerMeter, Inc.
- b) Meter type shall be:
  - i) Recordall Turbo Series Meter with integral strainer (1-1/2 inch to 4-inch)
  - ii) Recordall Turbo Series Meter without integral strainer (6-inch and larger)
  - iii) Recordall Disc Meter (1-1/2 inch and 2-inch)
  - iv) Magnetoflow Mag Meter
- c) Meter shall be rated for reclaimed water use:
  - i) Purple colored register and lid.
  - ii) Non-potable water symbol on register lid.
  - iii) The word "RECLAIMED" is cast or engraved in the meter body, and printed on the register dial face and lid.
- d) For meters 6 inch and larger, provide upstream plate strainer.
- e) Minimum meter size shall be 1-1/2 inch.
- f) Meters shall be supplied by the City of Reno, unless otherwise stated in the Effluent Agreement with the City .
- g) Meter enclosure and setter with idler shall be constructed by the Customer, per the applicable City of Reno Reclaimed Water Treated Effluent detail.
- h) The meter shall be installed on the property served immediately adjacent to the public right-of-way.

**23. Flow Control Facilities (PRV)**

- a) Direct connections to the reclaimed water main line shall require a pressure reducing valve. Flow control facility requirements shall be as determined by the Design Engineer and approved by the City of Reno.
- b) Services 3-inch and larger shall install a pressure reducing/pressure sustaining valve. The valve will reduce the pressure from the main distribution system to the required irrigation distribution system pressure. The sustaining feature will close the valve in the event that the pressure in the main distribution system drops below a set point. Valve shall be a Cla-Val Model 92-01 Combination Pressure Reducing and Pressure Sustaining Valve or City of Reno approved equal. Size of valve shall be determined by the Design Engineer.
  - i) Valve body shall be fusion bonded epoxy coated ductile iron, globe configuration.
  - ii) Standard trim materials.
  - iii) Pressure class 250, flanged (150 lb. ANSI)
  - iv) Downstream adjustment range shall be determined by the Design Engineer based on the irrigation distribution system pressure requirements (30 to 300 psi is standard setting).
  - v) Upstream adjustment range shall be 20 to 200 psi (standard setting). Sustaining pressure shall be set per City of Reno requirements (site specific).
  - vi) Valve options shall include:
    - (1) brass opening and closing speed control valves
    - (2) bronze shutoff cock
    - (3) Y-strainer
  - vii) If the valve will be used as a shutoff valve, a solenoid control feature shall be added to the valve. Specify voltage, AC or DC power, and whether the valve shall be energized open (normally closed) or energized closed (normally open). Provide electrical service and conduit through vault wall. Grout wall penetrations.

- viii) If the valve will be used to control rate of flow, or if cavitation is possible downstream from the valve, specify orifice plate bore size per manufacturer's literature. Install orifice plate downstream from pressure reducing valve.
- c) 1-1/2 inch and 2-inch services shall install a pressure reducing valve. The valve will reduce the pressure flow from the main distribution system to the required irrigation distribution system pressure. Valve shall be a Cla-Val Model 90-01 Pressure Reducing Valve or City of Reno approved equal. Size of valve shall be determined by the Design Engineer.
  - i) Valve body shall be fusion bonded epoxy coated ductile iron, globe configuration.
  - ii) Standard trim materials.
  - iii) Pressure class 400, threaded (ANSI B2.1)
  - iv) Downstream adjustment range shall be determined by the Design Engineer based on the irrigation distribution system pressure requirements (30 to 300 psi is standard setting).
  - v) Valve options shall include:
    - (1) brass opening and closing speed control valves
    - (2) bronze shutoff cock
    - (3) Y-strainer
  - vi) If the valve will be used as a shutoff valve, a solenoid control feature shall be added to the valve. Specify voltage, AC or DC power, and whether the valve shall be energized open (normally closed) or energized closed (normally open). Provide electrical service and conduit through vault wall. Grout wall penetrations.

#### **24. Pressure Relief Valves**

- a) All services require a pressure relief valve downstream of a pressure reducing valve. The valve will release excess pressure to protect the irrigation system. Size of valve shall be approximately 1/3 (one-third) of pressure reducing valve size, to be determined by the Design Engineer. Set relief pressure above irrigation line operating pressure and below irrigation line maximum pressure. These set points shall be specified in the design drawings.
- b) Pressure relief valves 1-1/4 inch and larger shall be Cla-Val Model 50-01 Pressure Relief, Pressure Sustaining Valves or City of Reno approved equal. Size of valve shall be determined by the Design Engineer.
  - i) Valve body shall be fusion bonded epoxy coated ductile iron, globe configuration.
  - ii) Standard trim materials.
  - iii) Pressure class 250
  - iv) 4-inch and larger valves shall be flanged (150 lb. ANSI). 1-1/4 inch to 3-inch valves may be flanged (150 lb. ANSI) or threaded (specified in design drawings).
  - v) Discharge pressure adjustment range shall be 20 to 200 psi (standard setting).
  - vi) Valve options shall include:
    - (1) brass opening and closing speed control valves
    - (2) bronze shutoff cock
    - (3) Y-strainer
- c) Pressure relief valves smaller than 1-1/4 inch shall be Cla-Val model 55F Pressure Relief Valves or City of Reno approved equal.
  - i) Valve body shall be cast bronze.
  - ii) Standard trim materials.
  - iii) Pressure class 400
  - iv) Discharge pressure adjustment range shall be 20 to 200 psi.

#### **25. Pressure Gauges**

- a) Provide pressure gauges with 1/4 inch NPT stem.
- b) Gauges shall be liquid filled, 4-1/2 inch, 270-degree dial, with built-in or separate snubber.
- c) Provide polypropylene, aluminum, or stainless steel case with stainless steel internals.
- d) Provide dual gauge scale in psi and feet of water.
- e) Gauge shall have an accuracy of 1/2 to 1 percent of full range.
- f) Provide a brass isolation ball valve for each gauge assembly.
- g) Provide gauge ranges as follows:

- i) 0-200 psi on the supply (high pressure) side of the pressure reducing valve.
- ii) 0-150 psi on the discharge (low pressure) side of the pressure reducing valve.

### **26. Flush Valve Assembly**

- a) Provide Flush Valve Assembly on all dead end pipe runs.
- b) Sized to provide 2.5 fps in the main line.

## **Section 2 - IRRIGATION SYSTEM STANDARDS FOR RECLAIMED WATER TREATED EFFLUENT**

### **1. Design**

- a) The Reclaimed Water irrigation system shall be designed to standard potable water system requirements except as specified herein.
- b) The Reclaimed Water irrigation system shall meet distribution system requirements included herein.

### **2. Tracer Wire and Test Stations**

- a) Tracer wire shall be provided for all irrigation reclaimed water piping 3-inches diameter and larger, both within public right-of-way and private property, and shall be placed on top of pipe and attached with duct tape at 6 feet maximum intervals. Tracer wire shall be long enough to extend four (4) feet above ground and shall terminate in appropriate irrigation control/valve box at maximum 500 feet intervals. Wire shall be #12 AWG, insulated, stranded copper, THHN 600V. Prior to acceptance of the reclaimed waterline(s) by the City of Reno, the contractor shall perform a continuity test after backfilling the trench to the satisfaction of the City of Reno Inspector and/or Engineer.

### **3. Sleeves for Irrigation Piping**

- a) All irrigation piping under hardscaped public right-of-way improvements (roads, curb & gutter, sidewalk, etc.), that does not meet the requirements of Section 4 of the Distribution System Standards (i.e. SCH-40 PVC pipe), shall be placed inside sleeves.
- b) Sleeves shall be SDR-35 PVC pipe, colored purple or otherwise identified for reclaimed water per subsequent Section 7 of this Standard.
- c) Sleeves shall be sized by the Design Engineer to accommodate the irrigation piping, but in no case shall be less than 4-inch diameter.
- d) Sleeves shall extend a minimum of 3 feet beyond hardscaped public right-of-way improvements.
- e) Sleeves shall be installed per City of Reno Reclaimed Water Treated Effluent Typical Trench Section Detail SR-4. Design depth of cover = 4 feet.
- f) Tracer wire shall be installed on all sleeves per previous Section 2 of this Standard.

### **4. Filtration**

- a) Provide in-line filtration / strainer to insure proper operation of irrigation system.

### **5. Manual Drains**

- a) Provide gravel infiltration pit at manual reclaimed water treated effluent drains. Pit shall be adequately sized to prevent reclaimed water treated effluent runoff.

### **6. High Wind Shutdown**

- a) Provide anemometer and automatic system shutdown to prevent aerosol drift **IF** required per NDEP discharge permit.

### **7. Purple Coloration and Warning**

- a) All covers for meter boxes, valve boxes, flush valves, pressure reducing vaults, and all other appurtenances requiring vaults or boxes shall be purple in color (Pantone Color #512), labeled "RECLAIMED WATER" or "EFFLUENT", and have secured or locking lids. Purple coloration shall be obtained from the manufacturer or be applied by powder coating or epoxy paint. All



appurtenances shall have a purple tag attached with the wording "WARNING RECYCLED/RECLAIMED WATER DO NOT DRINK" and "AVISO AGUA IMPURA NO TOMAR" (T. Christy Enterprises, MAXI valve identification tag, ID-MAX-P2-RC006 or City of Reno approved equal). A debris cap with purple coloration shall be installed inside all round boxes.

- b) All above ground piping shall be epoxy painted purple (Pantone Color #512) and have a purple tag attached with the wording "WARNING RECYCLED/RECLAIMED WATER DO NOT DRINK" and "AVISO AGUA IMPURA NO TOMAR" (T. Christy Enterprises, MAXI valve identification tag, ID-MAX-P2-RC006 or City of Reno approved equal).
- c) All buried irrigation piping upstream of an electrical control valve shall be purple plastic pipe or be encased in purple polyethylene or bags labeled "CAUTION: BURIED RECLAIMED WATER LINE BELOW" at intervals no greater than 5 feet. For polyethylene (PE) service pipe, purple stripes are acceptable.
- d) All piping downstream of an electric control valve shall be purple plastic or have purple reclaimed warning tape placed on top of the pipe. This does not apply to flexible polyethylene tubing used in drip zones.

#### **8. Minimize Public Exposure**

- a) The effluent irrigation system shall be designed and operated to minimize effluent exposure to the public.
  - i) Irrigation time schedule:
    - (1) Irrigation may be scheduled seven days per week.
    - (2) Daily irrigation shall be scheduled to minimize public exposure. Typically, only drip irrigation will be allowed during daytime hours (4:00 A.M. to 8:00 P.M.), and spray irrigation will be allowed during nighttime hours (8:00 P.M. to 4:00 A.M.). Site specific irrigation hours will be established in the Effluent Agreement with the City of Reno.
  - ii) Maximize areas of drip irrigation in lieu of spray irrigation.
  - iii) Adjust spray irrigation heads to prevent aerosol drift toward public areas.
  - iv) Adjust irrigation duration to minimize reclaimed water treated effluent runoff.
  - v) Grade surface to minimize runoff to paved travel ways.

#### **9. Quick Couplers**

- a) All quick coupler valves shall have purple, lockable covers (Rain Bird 44NP or City of Reno approved equal).

#### **10. Irrigation Controllers**

- a) All irrigation controller enclosures shall be labeled inside and outside warning that the system uses reclaimed water (T. Christy Enterprises, Controller Marking Decal, Part Number #ID-4100, or City of Reno approved equal).

#### **11. Hose Bibs**

- a) Hose bibs shall not be installed on reclaimed water systems.

### **Section 3 - SITE STANDARDS FOR RECLAIMED WATER TREATED EFFLUENT**

#### **1. The following referenced documents shall serve as Site Standards**

- a) TMWA Engineering & Construction Standard Sections 8 and 8a
- b) Section 1620.0 of the Uniform Plumbing Code, Latest Edition (Cross-Connection testing)
- c) NDEP WTS-1A: General Design Criteria for Reclaimed Water Irrigation Use
- d) NDEP WTS-1B: General Criteria for Preparing an Effluent Management Plan
- e) NDEP WTS-37: Guidance Document for Design of Wastewater Detention Basins
- f) NAC 445A.275 – 445A.280, Use of Treated Effluent (Reuse Regulations)
- g) NAC 445A.6715 – 445A.67215, Water/Sewer System Separation Regulations