SECTION IV

DESIGN CRITERIA
FOR
RECYCLED WATER DISTRIBUTION SYSTEMS

SECTION IV
DESIGN CRITERIA
FOR
RECYCLED WATER DISTRIBUTION SYSTEMS

Recycled water system improvements proposed for inclusion into the District's Service Area shall be designed in accordance with all appropriate AWWA standards and the following criteria:

A. SYSTEM DEMAND CRITERIA

District staff reserves the right to determine criteria for each recycled water system or sub-system based upon conditions that may exist for that particular location, anticipated level of development, planned use, or other criteria. In general, water pipelines, tanks, pump stations, pressure reducing stations, and appurtenances shall be sized to handle the highest demand on the system within the sphere of influence and shall provide capacity for the maximum hourly flow and the maximum daily flow plus fire flow. Where landscape plans are prepared by a Landscape Architect, the demands shown thereon shall be used for system design. As a minimum, the following demands shall be utilized:

1. Recycled Water System Unit Demands

Average Day Demand (ADD) is the average amount of water needed by a classification of user and shall be defined as follows:

Land Use	Average Day Recycled Water Demand (ADD)
Single Family Units with Lots Less than 20,000 Square Feet	420 gpd
Single Family Units with Lots Equal to or Greater than 20,000 Square Feet	770 gpd
Light Commercial	400 gpd/acre
Industrial	800 gpd/acre
Schools and Parks	2,800 gpd/acre

gpd=gallons per day

2. Peaking Factors

Maximum Day Demand (MDD) shall equal 250 percent of the average day demand.

Peak Hour Demand (PHD) shall equal 667 percent of the average day demand.

Recycled water supplies shall be designed to produce 125 percent of the maximum day demand.

Recycled water pipelines to all Service Areas shall be looped to provide dual direction supply and system flexibility. Dead end transmission mains are undesirable, but will be considered on a case-by-case basis.

B. SYSTEM ANALYSIS

The proposed recycled water system shall be analyzed for the following two conditions:

1. Peak Hour Demands with Booster Pumping Plants On

For the peak hour demand flow analysis, the pressure shall be a minimum of 40 psi and a maximum of 125 psi at the proposed pad elevations. The maximum velocity in the pipelines shall be 8.0 feet per second (fps).

2. Minimum Hour Demands with Wells and Boosters On

For the minimum hour demand analysis, the maximum velocity in the pipelines shall be 5.0 fps and the maximum pressure at each node shall be 125 psi.

The Developer's engineer will be required to submit an analysis of anticipated flow demands and system pressures. The District shall accept or modify the submitted analysis.

C. RECYCLED WATER PIPELINE SIZING CRITERIA

Minimum size water pipeline is 4 inch inner diameter (I.D.).

For maximum hourly flow, pipeline shall be sized to provide a residual pressure of 40 psi and a maximum velocity of 8.0 fps.

The capacity of water mains shall be determined by using the Williams and Hazen Formula with a "C" factor of 120.

District staff reserves the right to specify sizing of any water pipeline. For master planning purposes, District staff may require a larger size pipeline than normally required for a particular project to satisfy the District's design standards for system distribution. The District's Board of Directors may authorize participation and payment of increased cost of such water pipeline in accordance with the District's criteria.

D. RECYCLED WATER PIPELINE LOCATION

Unless otherwise approved by District staff, all water pipelines shall be located on the northerly or easterly side of the street, 7.0 feet from curb face or berm. Location shall not interfere with other existing utilities.

The cover over the water pipeline shall be sufficient to provide protection of the water pipeline and for the operation of the appurtenances. The depth from the ground surface (pavement, graded travel way, or open ground) to the top of the water pipeline shall be 2.5 feet for 4 inch pipeline, 3.0 feet for 6 inch, 8 inch, and 12 inch pipe, and 3.5 feet for 14 inch or larger. District staff may increase or decrease this required depth as necessary to cover non-standard conditions. Minimum slope of water pipelines shall be 0.5 percent unless otherwise authorized by District staff. Where parallel pipelines are proposed (generally at pressure breaks), pipeline depths shall be staggered with the higher pressure pipeline being located above the lower pressure pipeline.

E. CURVE DATA

Water pipeline joints shall not be pulled more than 60 percent of the manufacturer's recommended offset. The minimum bending radius for water pipelines are as follows:

Pipe Diameter	Allowable Pipe Deflection	DIP (18' JTS) Min. Radius (ft)
4"	5º0'	200
6"	4º16'	240
8"	3º13'	320
12"	3º13'	320
16"	2º9'	480

Where a smaller radius of curvature is required, pipe stick lengths shall be reduced or fittings shall be used.

F. OTHER UTILITIES

Recycled water pipeline installation near potable water or sewer lines shall be in accordance with State of California, Regulations Related to Drinking Water, Title 22, Chapter 16, California Waterworks Standards or the District's criteria, whichever is most restrictive. In general, recycled water pipelines should cross perpendicular to sewer and water pipelines, a minimum of 1 foot below waterlines and 1 foot above sewer lines. If the recycled water pipeline crosses beneath the sewer or above the water pipeline, it shall comply with the State Regulations and plans shall be reviewed and approved by the California Department of Public Health. Recycled water pipelines parallel to sewer pipelines shall be located a minimum of 10 feet (outside to outside) from the pipelines. Recycled water pipelines parallel to potable water pipelines shall be located a minimum of 4 feet (outside to outside) from the pipelines.

When crossing other utilities, a minimum vertical clearance of 6 inches shall be provided (outside to outside).

G. RECYCLED WATER PIPELINE MATERIALS

Unless otherwise authorized by District staff, all recycled water pipelines shall be ductile iron pipe, Class 350 (Class 300 for 16 inch diameter and larger) in accordance with the District's standards, unless conditions dictate the use of CML/CMC welded steel pipe.

H. VALVES

1. Location

- Small water pipelines (12 inch diameter and smaller): To provide flexibility of operation, generally located on discharge side of pipeline connections; 1 at 90 degree bends, 3 at tees, 4 at crosses, and at beginning of dead end mains.
- Large water pipelines (14 inch diameter and larger): To be determined for each system to meet operational requirements.
- If one of the options above does not apply, valves shall be spaced at 1,000 foot maximum intervals or as directed by the District.

2. Type

- For 4 inch through 12 inch diameter pipelines, use full line size gate valves. For 14 inch and larger pipelines, use full line size butterfly valves.

Unless otherwise provided for, all valves 2 inches through 12 inches shall be resilient seat gate valves in accordance with AWWA Standard C509.

Valves shall be installed with valve can and cover as shown on the District's Standard Drawings.

Pressure class rating shall be minimum 250 psi.

I. COMBINATION AIR VACUUM AND AIR RELEASE VALVES

Combination air vacuum valves shall be located at all high points of water pipelines. Minimum size of air valves shall be 1 inch and shall be sized as follows:

Pipeline Diameter	Air Valve Size (Minimum)
4" through 12"	1"
16", 20", & 24"	2"

In phased tract development, air valves shall be located at the end of the pipeline as dictated by the phasing plan. When additional phases are constructed, the air valve shall be removed unless it is required by one of the criteria listed above. Air valve service runs shall be purple polyethylene (preferred), or encased in purple polyethylene bagging.

J. BLOWOFF VALVE ASSEMBLIES

Blowoffs shall be in accordance with the District's Standard Drawings, located behind the curb face at right angles to the water pipeline. Blowoffs shall be located at all low points of the pipeline, and at all dead-ends or terminal points.

Minimum size of permanent blowoffs shall be 4 inches for mainlines 12 inches or less, and 6 inches for mainlines larger than 12 inches. Minimum size of temporary blowoffs shall be 2 inches.

K. NON-POTABLE HYDRANTS

Non-potable hydrants shall be located where requested by the District and shall be in accordance with District Standard Drawing W-18. Hydrants shall be painted purple to match other District recycled facilities.

L. SERVICE INSTALLATIONS

Services shall be in accordance with the District's Standard Drawings unless otherwise approved in writing by District staff. One inch service runs shall be provided for 3/4 inch and 1 inch

meters, and 2 inch service runs shall be provided for 1-1/2 inch and 2 inch meters. One inch and 2 inch service runs shall be purple polyethylene (preferred), or encased in purple polyethylene bagging.

M. CORROSIVE SOIL AND PIPE IDENTIFICATION

Recycled water pipelines shall be encased in purple polyethylene bags.

N. BACKFLOW PREVENTION

All non-residential water services shall have a District approved backflow prevention device installed adjacent to meter.

O. RECYCLED WATER FOR ON-SITE NON-RESIDENTIAL SITES

The District has prepared a separate guideline for design and construction of privately owned onsite facilities. Said guideline is included at the back of this section as Exhibit IV-1.

P. RECYCLED WATER FOR ON-SITE RESIDENTIAL DUAL-PLUMBED HOMES

The District has prepared a separate guideline for design and construction of privately owned onsite facilities. Said guideline is included at the back of this section as Exhibit IV-2.

EXHIBIT IV-1

RECYCLED WATER ON-SITE DESIGN AND CONSTRUCTION STANDARDS FOR NON-RESIDENTIAL SITES

Yucaipa Valley Water District

12770 Second Street
P.O.Box 730
Yucaipa, CA 92399-0730

TABLE OF CONTENTS

SECTION **PAGE**

SECTION 1.0

INTRODUCTION AND GENERAL POLICIES

1.1 SCOPE

The design and construction of non-residential on-site recycled water facilities including, but not limited to: landscape irrigation systems, systems used for industrial processes, construction purposes, water features, recreational impoundment systems, and other approved uses shall comply with these standards set forth herein, and to any conditions, standards, and requirements set forth by Yucaipa Valley Water District in addition to these standard specifications.

1.2 INTERPRETATION

The District Engineer shall decide all questions of interpretation of "good engineering practice," guided by the various standards and manuals.

1.3 APPLICABLE CODES AND POLICIES

Ordinances, requirements, and applicable standards of governmental agencies having jurisdiction within the District's service area shall be observed in the design and construction of recycled water systems. Such requirements include but are not limited to current revisions of the following:

A. The Uniform Plumbing Code.

B. Municipal Codes of the counties of Riverside and San Bernardino, as applicable.

C. State of California, Department of Health Services, Title 22.

D. Regional Water Quality Control Board Regulations.

E. Regulations and Policy Statements as adopted and amended by the Board of Directors of the Yucaipa Valley Water District.

1.4 YUCAIPA VALLEY WATER DISTRICT JURISDICTION

The District is responsible for the approval of plans and inspection of all non-residential on-site recycled water systems within the District's service area. Where repairs or replacement of a service line on the upstream side of the meter is required, it shall be the responsibility of the District, unless it is a system upgrade, in which case the owner or customer will be billed for the work. Conversely, the cost of repairs or replacement of the on-site facilities shall be the responsibility of the property owner.

1.5 DEVELOPER'S ENGINEER/LANDSCAPE ARCHITECT RESPONSIBILITY

These standards establish uniform policies and procedures for the design and construction of on-site recycled water facilities. They are not intended to be a substitute for knowledge, judgment, or experience. The contained procedures shall be reviewed by the engineer/landscape architect and shall be applied as necessary to the project. Proposed deviations to these standards shall be submitted in writing in conjunction with the plan review submittal.

The plans shall be revised or supplemented at any time it is determined that the District's requirements have not been met.

Before design, the developer must obtain approval to use recycled water for the proposed system and verification of locations and size of proposed points of connection.

1.6 REFERENCE SPECIFICATIONS

References to standards such as the Standard Drawings of the District, AWWA, and ASTM shall refer to the latest edition or revision of such standards unless otherwise specified.

1.7 PROHIBITIONS AND LIMITATIONS

Design of on-site recycled water facilities shall conform to the following:

A. The recycled water system shall be separate and independent of any potable water system. Cross connections between potable water facilities and recycled water facilities are prohibited.

B. Hose bibs on recycled water facilities are prohibited. Where potable and recycled water is used on-site, potable water hose bibs must be attached to the building.

C. Drinking fountains shall be protected from the spray of recycled water in an approved manner prior to installation.

D. Overspray and run-off shall be limited or prevented.

E. Potable and recycled water lines must maintain required separation at all times.

F. Recycled water shall not be used for any purpose other than landscape irrigation and approved uses.

G. The system shall be designed to irrigate the on-site area within the allowable time periods.

1.8 BACKFLOW PREVENTION AND CROSS CONNECTION

Backflow prevention devices will normally not be required on the recycled water service using recycled water. However, in accordance with Section 2.10, Cross Connection Prevention, in the YVWD Rules and Regulations for Non-Potable Water Use and Distribution, backflow prevention devices will be required on the potable water service, when a parcel receives potable and recycled water service.

No connection between potable waterlines and recycled waterlines are allowed.

SECTION 2.0

CONVERSION OF WATER SYSTEMS

2.1 POTABLE TO RECYCLED WATER SYSTEM

In general, all irrigation facilities converting from a potable to a recycled water supply shall conform to the District's Design and Construction specifications. The District will notify the required state agencies of the intent to convert and solicit their involvement through out the process. The facilities to be converted shall be investigated in detail including review of any record drawings, potholing of existing facilities, and determinations by the District of measures necessary to bring the system into full compliance with these standard specifications. The applicant, owner, or customer shall pay all costs to convert the system.

2.2 RECYCLED TO POTABLE WATER SYSTEM

If due to any system failure, use violations, or other reasons as determined by the District, it becomes necessary to convert from a recycled water supply to a potable water supply, it shall be the responsibility of the owner, applicant, or customer to pay all costs for such conversion. After notifying state and county health agencies of the intent of the conversion, the recycled water service shall be removed and plugged at the District main or abandoned in a manner approved by the District and State or Local Agencies. The on-site non-residential facilities shall be modified, as required by the District, Local and State Agencies, for use as a potable water system.

SECTION 3.0

PLAN PREPARATION AND REVIEW

3.1 GENERAL

Completed construction drawings for all on-site non-residential recycled water systems must be submitted to the District for plan checking and approval before construction. Fifteen (15) working days should typically be allowed for plan check. Two (2) blueprints of the plans, either 24" x 36" or 30" x 42", and two sets of the specifications (only the portion regarding the recycled water system) must be submitted. If there are potable water systems within the design area, one set of blueprints showing the potable water system and recycled water system facilities together shall also be submitted. The District will review the plans and will return one set with any comments. After all revisions have been incorporated into the plans and specifications, two (2) sets of the plans must be submitted to the District. Minor changes to the system will be reviewed by the District. If major changes are made to the irrigation system, the owner, applicant, or customer shall provide new blueprints.

3.2 SUBMITTAL

The submittal of improvement plans for plan checking is to ensure that the proposed use of recycled water conforms to the approved uses as set forth in the YVWD Rules and Regulations for Non-Potable Water Use and Distribution.

3.3 AGREEMENTS

Before recycled water can be supplied to a site, a Standard Agreement for Use of Recycled Water must be signed and recorded. The Agreement sets forth the requirements for service.

3.4 DATA REQUIRED ON PLANS

Specific information is required to be included in the plan set as described below.

A. General On-Site Recycled Water Notes - On-site recycled water notes are to be shown on all on-site non-residential recycled water system construction plans. The notes shall be as shown in the Standard Details.

B. Meter Data - The following information shall be provided and shown at each meter location desired:

1. The meter location and size (inches).
2. The peak flow through the meter (gpm).
3. The (static) design pressure at the meter (psi).
4. The total area served through the irrigation meter (acres).
5. An estimate of the yearly water requirement through the meter (acre-feet) by zone showing area (acres).

C. Irrigation Equipment Legend - For irrigation systems, a legend showing the pertinent data for the materials used in the system shall be recorded on the plans. The legend shall include a pipe schedule listing pipe sizes and materials of construction, a listing of valve types and quick couplers, and the following information for each type of sprinkler head:

1. Manufacturer name and model number
2. Sprinkler radius range (feet)
3. Sprinkler pattern

For each valve, the following information is required:

1. Controller station number
2. Flow through the valve (gpm)
3. Control valve size (inches)

D. Sheets to be Included - The following sheets shall be included in the set:

1. Cover sheet showing project location and overall irrigation plan.
2. Composite sheet showing on-site potable waterlines if applicable.

3.5 DRINKING FOUNTAINS AND WATER FEATURES

Exterior drinking fountains and water features such as pools, spas, ponds, fountains, etc., must be shown and called out on the plans. If no exterior drinking fountains or water features are present in the design area, it must be specifically stated on the plans that none exist. The potable water line supplying the drinking fountain and/or water feature must be copper, have a continuous blue warning tape and maintain proper separation from recycled water lines. Drinking fountains and water features must be protected from the direct spray of recycled water either by proper placement within the design area or the use of shields or a covered drinking fountain approved for this purpose.

3.6 APPROVAL FOR CONSTRUCTION

Upon receipt of two (2) sets of the approved construction plans, a pre-construction meeting may be scheduled. A pre-construction meeting may be scheduled by contacting the Yucaipa Valley Water District at (909) 797-5119 two (2) working days in advance.

SECTION 4.0

DESIGN AND CONSTRUCTION REQUIREMENTS

4.1 PIPE SELECTION

All buried on-site piping in the recycled water system shall be purple PVC pipe with stenciling identifying it as recycled water in accordance with the AWWA Guidelines for the Distribution of Non-potable Water. Stenciling shall include; CAUTION RECYCLED OR RECLAIMED WATER - DO NOT DRINK; nominal pipe size; PVC-1120; pressure rating in pounds per square inch at 73 degrees; and ASTM designations such as 1785, 2241, 2672, or 3139. Stenciling shall be placed continuous on two sides of the pipe.

All on-site recycled water piping shall be installed in accordance with the Uniform Plumbing Code and all other local governing codes, rules, and regulations.

PVC constant pressure main line piping, 2 inches and larger, shall be rubber-ring joint, PVC Class 160, or solvent weld joint, PVC Class 315.

PVC constant pressure main line piping, 1-1/2 inches and smaller, shall be solvent weld joint, PVC Schedule 40.

The potable water line from the meter/backflow device to the building and any potable lines to water features or drinking fountains shall be copper.

4.2 PIPE AND FITTINGS

PVC plastic pipe fittings shall conform to the following:

A. PVC plastic pipe fittings shall be installed below grade.

B. All PVC plastic pipe fittings shall be rigid PVC virgin Type I, minimum Schedule 40, with working pressure no higher than that of the pipe. Sockets shall be tapered to conform to the outside diameter of the pipe, as recommended by the pipe manufacturer. All Schedule 40 fittings shall conform to ASTM D 2466. Schedule 80 fittings shall conform to ASTM D 2464 and D 2467.

C. PVC fittings shall be Schedule 40 solvent weld and factory manufactured, or Schedule 40 with rubber-ring joint.

4.3 DEPTH OF PIPING

For on-site non-residential recycled water piping, the minimum depth from finished grade to top of pipe (minimum cover) shall be twelve (12) inches below the potable waterline or twelve (12) inches below subgrade.

4.4 SEPARATION REQUIREMENTS

All new buried piping, whether for a new system or an existing facility converting to recycled water use, must be installed in accordance with the pipe separation requirements indicated below.

A. Horizontal Separation

A.1 Buried Recycled and Potable Water Pipelines

Constant Pressure Lines - A minimum ten (10) foot separation between parallel buried constant pressure recycled and potable water pipelines must be maintained.

If separation cannot be maintained, then a special construction detail to minimize cross connections and contamination potential must be included with the plans and is subject to approval by the District. Potable and recycled water pipelines shall not be installed in the same trench.

All "crossings" between constant pressure potable and recycled water piping shall be at or as near as possible to a ninety (90) degree angle. Where ninety degree crossing angle cannot be maintained, sleeving will be required to extend to a point where it reaches a minimum of 5' of horizontal separation on both sides of the potable piping.

A.2 Buried Recycled Water and Sewer Pipelines

A minimum of one (1) foot separation between buried recycled water and sewer pipelines must be maintained. If a (1) one foot separation cannot be maintained, then a special construction detail to minimize contamination potential must be included with the plans and is subject to approval by the District. Sewer and recycled water pipelines shall not be installed in the same trench.

B. Vertical Separation

B.1 Buried Recycled and Potable Water Pipelines

Recycled water pipelines must be located a minimum of one (1) foot below the potable water pipelines.

B.2 Buried Recycled Water and Sewer Pipelines

A minimum of one (1) foot separation between buried recycled water and sewer pipelines must be maintained. If a (1) one foot separation cannot be maintained, then a special construction detail to minimize contamination potential must be included with the plans and is subject to approval by the District. Sewer and recycled water pipelines shall not be installed in the same trench.

4.5 WARNING TAPE

A. General - Warning tape shall be installed 3-inches above the top of pipe center and shall run continuously for the entire length of all main line piping. This is applicable to both on-site non-residential recycled and potable waterlines.

B. Recycled Water - Warning tape shall be purple plastic with black printing having the words "CAUTION: RECYCLED OR RECLAIMED WATER – DO NOT DRINK" imprinted in minimum 1-inch high letters. Imprinting shall be continuous and permanent. The overall width shall be a minimum of 3-inches.

C. Potable Water - Warning tape shall be blue plastic with black printing having the words "CAUTION BURIED WATER LINE BELOW" imprinted in minimum 1-inch high letters. Imprinting shall be continuous and permanent. The overall width shall be a minimum of 3-inches.

4.6 SPRINKLERS

Sprinklers shall be easily recognized as being used in a recycled water system. All sprinklers shall have purple identification.

4.7 QUICK-COUPLERS

Hose bibs are prohibited on the recycled water system. Quick-couplers may be used in recycled water systems and shall conform to the following:

A. Quick-couplers shall be constructed of brass with a purple snap-on cover and shall have a ¾ or 1-inch inlet. All recycled water quick-couplers shall be installed below grade in a round box designed for irrigation use.

B. The cover shall have a warning with the following information: "RECYCLED OR RECLAIMED WATER – DO NOT DRINK" in English and Spanish and shall be permanently stamped or molded into the cover. Locking covers may be required where accessible by the public.

4.8 WARNING LABELS

The District may require warning labels, as approved by the District, to be installed on facilities, such as controller panels, water trucks, and temporary construction connections where designated by the District. The labels will notify the public that the system contains recycled water that is unsafe to drink. Warning labels shall be constructed of a purple weatherproof material with the warning permanently stamped or molded into the label. The warning shall contain the following information: "RECYCLED OR RECLAIMED WATER – DO NOT DRINK" and the international "Do Not Drink" symbol, such as a glass of water with a slash through it.

4.9 VALVE BOXES

All sprinkler valves shall be buried below ground automatic control valves and shall be housed in an approved lockable purple valve box. A label reading "CAUTION: RECYCLED OR RECLAIMED WATER – DO NOT DRINK" shall be installed on or molded into the box, as approved by the District.
All gate valves, manual control valves, electrical control valves, and pressure reducing valves for on-site non-residential recycled water systems shall be installed below grade in a purple valve box. Electrical and manual control valve boxes shall have a warning label permanently molded into or affixed onto the lid with rivets, bolts, etc.

4.10 WARNING TAGS

Tags shall be weatherproof plastic, 3" by 4", purple in color, with the words "WARNING - RECYCLED OR RECLAIMED WATER - DO NOT DRINK". Imprinting shall be permanent and black in color. Use tags manufactured by T. Christy Enterprises or approved equal.

All recycled water sprinkler control valves, pressure regulators, quick couplers, and isolation valves shall be tagged with purple warning tags.

One tag shall be attached to each appurtenance in one of the following manners:

A. Attach to valve stem directly with plastic tie wrap, or

B. Attach to solenoid wire directly with plastic tie wrap, or

C. Attach to the body of the relative appurtenance with a plastic tie wrap.

4.11 SIGNAGE

All areas where recycled water is used shall be posted with conspicuous signs in a size no less than 4-inches high by 8-inches wide that includes the following wording: "RECYCLED OR RECLAIMED WATER - DO NOT DRINK ". Each sign shall also display the international “DO NOT DRINK” symbol, such as a glass of water with a slash through it. Locations of signs shall have prior approval by the District.

4.12 RECYCLED WATER FACILITIES WITH TEMP. POTABLE WATER SERVICE

As set forth in the Yucaipa Valley Water District Rules and Regulations, where recycled water is not immediately available for use when the site is ready for construction, and if the District has determined that recycled water will be supplied in the future, the on-site facilities shall be designed to use recycled water. Provisions shall be made as directed by the District and these specifications, to allow for connection to the recycled water facilities when they become available. In the interim, potable water will be supplied to

the recycled water facilities through a temporary potable water connection. Until recycled water is available, potable water rates will be charged as set forth in the Schedule of Rates and Charges in the District Rules and Regulations. A backflow prevention device will be required as long as the on-site facilities are connected to potable water. The backflow prevention device shall be downstream of the meter and a part of the on-site facilities. When recycled water becomes available, the backflow prevention device will be removed and the on-site non-residential facility disconnected from the potable waterline and connected to the recycled water meter at the owner's expense.

4.13 CONTROL OF RUNOFF AND APPLICATION AREAS

On-site recycled water facilities shall be designed to prevent discharge onto areas not under control of the user.

The design of the on-site non-residential recycled water facilities shall provide for use during the periods of minimal access by the public. This time of day is 9:00pm through 6:00AM unless approved by the District. Consideration shall be given to allow a maximum dry out time before the area will be used by the public.

Recycled water shall be applied at a rate that does not exceed the infiltration rate of the soil. Where varying soil types are present, the design of the recycled water facilities shall be compatible with the lowest infiltration rate present. Copies of the developer's soils test reports shall be made available to the District upon request.

Spray heads shall be adjusted to minimize overspray onto areas not under the control of the customer, i.e. pool decks, private patios, streets, and sidewalks.

SECTION 5.0

INSPECTION AND TESTING REQUIREMENTS

5.1 GENERAL

The District will inspect the construction of on-site non-residential facilities and shall be notified two working days in advance of construction by the applicant, owner, or customer. The District Office shall be called at (909) 797-5118. In no case shall irrigation lines be backfilled before inspection by the District.

If the on-site non-residential system is installed prior to plan approval and/or inspection, all or any portion of the system must be exposed and corrected as directed by the District in accordance with these standard specifications. Failure to comply may result in termination of service as provided for in the District Rules and Regulations.

Subsequent to plan approval, field conditions may dictate modifications to the on-site non-residential system either in material or in intended use. If directed by the District the owner, applicant, or customer shall perform all changes or modify the on-site non-residential system to fully comply with these standards and with the District Rules and Regulations.

5.2 DISTRICT ACCEPTANCE

Upon completion of construction, final inspection by the District, submission of record drawings, signing of a recycled water agreement, training, and payment of any outstanding monies, the project shall be accepted by the District. At that time, service connection to the recycled water line may be made. The on-site facilities shall be owned, operated, and maintained by the Owner.

5.3 COVERAGE TEST

The owner, applicant, or customer is responsible for controlling overspray and runoff of recycled water irrigation systems. To ensure the limitation of overspray and runoff is in limited to the maximum extent possible, an inspection of the completed on-site facilities by the District is required. When the sprinkler system is completed and the planting installed, the owner or owner's representative shall contact the District at (909) 797-5118 and arrange for a coverage test walk through. The owner or owner's representative must be in attendance and have persons capable of making system adjustments. If modifications to the system are required, other than minor adjustments, the owner will be notified in writing of the changes required. To avoid termination of service, the modifications must be made in a timely manner. All modifications to the system are the responsibility of the owner, applicant, or customer and said owner, applicant, or customer shall pay all costs associated with such modifications.

5.4 RECORD DRAWINGS

Record drawings shall be prepared and show all changes in the work constituting departures from the original drawings. All conceptual or major design changes, including any changes that may be affected by the requirements of these standard specifications, shall be approved by the District before implementing the change in the construction contract. Failure to receive prior approval may result in termination of service.

The applicant, owner, or customer shall provide a complete set of "RECORD DRAWINGS" to the District upon completion of construction. Failure to provide record drawings may result in termination of service.

5.5 FAILURE TO COMPLY

Failure to comply with any or all of the standards herein is a violation of the District Policies and Regulations and may result in termination of service until the appropriate corrective steps have been taken.

ON-SITE NON-POTABLE WATER NOTES FOR NON-RESIDENTIAL SITES

1. The installation of the non-potable water system shall be accomplished under the approval, inspection, and to the satisfaction of the Yucaipa Valley Water District (YVWD).

2. Contractor shall schedule a pre-construction meeting with YVWD at (909) 797-5118 two (2) working days in advance of starting work. Construction shall begin no later than five (5) days after the pre-construction meeting. YVWD shall be notified of each workday thereafter until completion of the project.

3. The property owner shall be responsible for providing access to and cooperation with the District Inspector to perform all inspections and testing.

4. Connections to existing non-potable water facilities shall be performed by a licensed contractor in accordance with YVWD tie-in procedures.

5. There shall **never** be any direct or indirect connections between potable and non-potable water systems.

6. Non-potable water shall not be used for any purpose other than landscape irrigation and approved uses such as industrial uses or impoundments.

7. Hose bibs are prohibited on the non-potable water system.

8. Water used in hose bibs shall be potable water and all hose bibs shall be affixed to the building.

9. The potable water system shall be protected by an approved backflow prevention device. The non-potable water service will normally not require backflow protection (at YVWD discretion).

10. A minimum of ten (10) feet horizontal separation must be maintained at all times between constant pressure potable and non-potable water lines. A minimum of one (1) foot vertical separation must be maintained at all times between the potable and non-potable water lines with the non-potable waterline below the potable.

11. All crossings between potable and non-potable water lines shall be as near to perpendicular as possible and the non-potable water lines shall be sleeved a minimum of five (5) feet on both sides of the potable water line.

12. Service lines for the on-site potable system and fill lines for water features connected to the potable water system shall be constructed using copper pipe.

YUCAIPA VALLEY WATER DISTRICT

RECYCLED WATER NOTES FOR NON-RESIDENTIAL SITES

REVISIONS NO.	BY	DATE	APPROVED

DRAWN: --
CHECKED: --
DATE: 10/16/03
NOT TO SCALE

APPROVED BY ENGINEERING DEPARTMENT

ENGINEER _____ DATE XX/XX/XX

ADOPTED BY BOARD OF DIRECTORS

PRESIDENT _____ DATE XX/XX/XX

YVWD

W-41

SHEET 1 OF 2

14. Continuous PURPLE warning tape shall be placed over the pipe in all trenches carrying recycled water.

15. Recycled water piping shall be purple and identified as recycled water by continuous marking on both sides. The markings shall include the following: "WARNING RECYCLED WATER - DO NOT DRINK", nominal pipe size, pressure rating, and ASTM designations.

16. Recycled water isolation and control valve boxes shall be weatherproof purple plastic and marked "RECYCLED WATER". Note* all control valves shall be buried below grade automatic control valves operated by a programmable controller. Above ground anti-siphon control valves are not allowed.

17. All recycled water irrigation system control valves, isolation valves, quick couplers, regulators, and appurtenances shall be tagged. Identification shall be weatherproof purple plastic, 3-inches by 4- inches and imprinted with "WARNING RECYCLED WATER - DO NOT DRINK". Use tags manufactured by T. Christy Enterprises or approved equal.

18. All areas where recycled water is used shall be posted with approved signage. Each sign shall state "RECYCLED WATER - DO NOT DRINK" and display the international "Do Not Drink" symbol.

19. Before activation of the potable water service the backflow device shall be tested and approved by a licensed backflow tester. Arrangements with YVWD must be made at least two (2) working days in advance to turn on the potable service to allow testing of the device. Potable water service will not be activated until the backflow device passes inspection.

20. Before activation of the recycled water service, a cross connection test and final inspection and approval of the irrigation system shall be performed. The property owner or contractor shall arrange with the District for an irrigation coverage test and make any modifications or adjustments deemed required before final approval.

21. All spray heads shall be adjusted to eliminate overspray and runoff onto adjacent hardscapes, drinking fountains or water features, and outdoor furniture such as picnic tables, etc.

22. Recycled water irrigation systems shall only be operated between the hours of 9:00PM and 6:00AM.

23. Failure to comply with any of the Yucaipa Valley Water District Standards may result in termination of recycled water and/or potable water service.

YUCAIPA VALLEY WATER DISTRICT

RECYCLED WATER NOTES FOR NON–RESIDENTIAL SITES

REVISIONS NO.	BY	DATE	APPROVED	DRAWN	APPROVED BY ENGINEERING DEPARTMENT		
				––			
				CHECKED ––	ENGINEER	XX/XX/XX DATE	YVWD
				DATE 10/16/03	ADOPTED BY BOARD OF DIRECTORS		W–41
				NOT TO SCALE	PRESIDENT	XX/XX/XX DATE	SHEET 2 OF 2

EXHIBIT IV-2

RECYCLED WATER ON-SITE DESIGN AND CONSTRUCTION STANDARDS FOR RESIDENTIAL DUAL PLUMBED HOMES

Yucaipa Valley Water District

12770 Second Street
Yucaipa, California

TABLE OF CONTENTS

SECTION 1.0

INTRODUCTION AND GENERAL POLICIES

1.1 SCOPE

The design and construction of residential dual plumbed home on-site recycled water facilities for landscape irrigation systems shall comply with these standards set forth herein, the Engineer's Report, and to any conditions, standards, and requirements set forth by the Yucaipa Valley Water District (District or YVWD)in addition to these standard specifications.

1.2 INTERPRETATION

The District shall decide all questions of interpretation of "good engineering practice", guided by the various standards and manuals.

1.3 APPLICABLE CODES AND POLICIES

Ordinances, requirements, and applicable standards of governmental agencies having jurisdiction within the District's service area shall be observed in the design and construction of on-site recycled water systems. Such requirements include but are not limited to current revisions of the following:

A. The Uniform Plumbing Code as amended by the Counties of Riverside and San Bernardino.

B. Municipal Code of the Counties of Riverside and San Bernardino, as applicable.

C. State of California, Department of Public Health (CDPH), Title 22.

D. Regional Water Quality Control Board Regulations.

E. Regulations and Policy Statements, as adopted and amended by the Board of Directors of the Yucaipa Valley Water District.

1.4 YUCAIPA VALLEY WATER DISTRICT JURISDICTION

The District is responsible for the approval of plans and inspection of all residential dual plumbed home on-site recycled water systems within the District's service area. Where repairs or replacement of a service line on the upstream side of the meter is required, it shall be the responsibility of the District, unless it is a system upgrade, in which case the owner or customer will be billed for the work. Conversely, the cost of repairs or replacement of the on-site facilities shall be the responsibility of the property owner.

1.5 DEVELOPER'S ENGINEER/LANDSCAPE ARCHITECT RESPONSIBILITY

These standards establish uniform policies and procedures for the design and construction of dual plumbed home on-site recycled water facilities. They are not intended to be a substitute for knowledge, judgment, or experience. The contained procedures shall be reviewed by the engineer/landscape architect and shall be applied as necessary to the project. Proposed deviations to these standards shall be submitted in writing in conjunction with the plan review submittal.

The plans shall be revised or supplemented at any time it is determined that the District's requirements have not been met.

Before design, the developer must obtain approval to use recycled water for the proposed system and verification of locations and size of proposed points of connection.

1.6 PROHIBITIONS AND LIMITATIONS

Design of dual plumbed home on-site recycled water facilities shall conform to the following:

A. The recycled water system shall be separate and independent of any potable water system. Cross connections between potable water facilities and recycled water facilities are prohibited.

B. Hose bibs on recycled water facilities are prohibited. Where potable and recycled water is used on-site, potable water hose bibs **must** be attached to the house.

C. Patios, swimming pools, and spas, etc. shall be protected from the spray of recycled water.

D. Overspray and run-off shall be limited or prevented.

E. Potable and recycled water lines must maintain required separation at all times.

F. Recycled water shall not be used for any purpose other than landscape irrigation.

G. The system shall be designed to irrigate the on-site area within the hours of 9:00 p.m. and 6:00 a.m.

1.7 BACKFLOW PREVENTION AND CROSS CONNECTION

Backflow prevention devices will generally not be required on the recycled water service using recycled water. However, in accordance with Section 7, Cross Connection Control and Protective Measures,, in the YVWD Rules and Regulations for Non-Potable Water Service, backflow prevention devices **will** be required at the potable water meter when a parcel receives potable and recycled water service. No connection between the recycled waterline and the potable waterline is allowed.

SECTION 2.0

PLAN PREPARATION AND REVIEW

2.1 GENERAL

Completed construction drawings for all dual plumbed home on-site recycled water systems must be submitted to the District for plan checking and approval before construction. Fifteen (15) working days should typically be allowed for plan check. Two (2) blueprints of the plans (landscape sheets only), 24" x 36" or 30" x 42", must be submitted. The plans must show the potable water system and recycled water system facilities together. The District will review the plans and will return one set with any comments. After all revisions have been incorporated into the plans, two (2) sets of the plans must be submitted to the District for inspection use. Minor changes to the system will be reviewed by the District. If major changes are made to the irrigation system, the owner, applicant, or customer shall provide new blueprints.

2.2 SUBMITTAL

The submittal of landscape irrigation plans for plan checking is to ensure that the proposed use of recycled water conforms to the approved uses as set forth in the Engineer's Report.

2.3 AGREEMENTS

Before recycled water can be supplied to a residential site, a Standard Agreement for Use of Recycled Water must be signed and recorded. The Agreement sets forth the requirements for service.

In a residential dual plumbed subdivision, all homes are required to use recycled water for landscape irrigation. **Deed restrictions are detailed in the documents: "Declaration of Restrictions Regarding the Use of Recycled Water for Landscape Irrigation".**

2.4 DATA REQUIRED ON PLANS

Specific information is required to be included in the plan set as described below.

A. General On-Site Recycled Water Notes - On-site recycled water notes are to be shown on all on-site residential recycled water system construction plans.

B. Irrigation Equipment Legend - For irrigation systems, a legend showing the pertinent data for the materials used in the system shall be recorded on the plans. The legend shall include a pipe schedule listing pipe sizes and materials of construction, a listing of valve types and sizes, drip irrigation information and all pertinent equipment, and the following information for each type of sprinkler head:

1. Manufacturer name and model number.
2. Sprinkler radius (feet).
3. Operating pressure (psi).
4. Flow (gpm).
5. Sprinkler pattern.

C. Irrigation Valves - The following information for each valve shall be provided:

1. Manufacturer name and model number
2. Flow (15 gpm maximum)

All sprinkler valves shall be buried below grade automatic control valves, and operated by a programmable controller with a battery backup. Anti-siphon control valves will **NOT** be allowed.

D. Sheets to be Included - The following sheets shall be included in the set:

1. Cover sheet showing project location and all recycled and potable on-site water lines.
2. Irrigation details..

2.5 APPROVAL FOR CONSTRUCTION

Upon receipt of two (2) sets of the approved on-site irrigation plans, a pre-inspection meeting may be scheduled by contacting the Yucaipa Valley Water District at (909) 797-5118 two (2) working days in advance.

SECTION 3.0

DESIGN AND CONSTRUCTION REQUIREMENTS

3.1 RECYCLED WATER SYSTEM DESIGN GUIDELINES FOR FRONT AND BACK YARDS - **GENERAL REQUIREMENTS:**

Recycled water service and domestic potable water service for each residential lot will be provided by the subdivision developer. The recycled water service is typically provided at the property line, in pairs whenever possible. The potable service and backflow prevention device will typically be located in the driveway for each property.

Recycled water will not be used for any other purpose except for irrigation. Recycled water lines may not enter the house.

The piping system for the recycled water irrigation system will be constructed and maintained to be easily differentiated from the potable water piping system. The recycled water system piping will be purple plastic pipe. See section 3.4 and 3.5 of this document for more information on recycled water irrigation system materials.

All pressure main line piping from the recycled water system shall be installed to maintain 10 feet minimum horizontal separation from all potable water piping. Where recycled and potable water pressure main line piping cross, the recycled water piping shall be installed below the potable water piping in a purple-colored PVC sleeve which extends a minimum of 5 feet on either side of the potable water piping. All crossings shall be at a 90 degree angle unless prior approval is received. Provide a minimum vertical clearance of 12 inches.

The use of overhead sprinkler and/or rotor irrigation systems are required for lawn areas.

Drip irrigation systems are required for shrub plantings and some groundcover plantings. The use of drip systems within the dripline of the canopy of existing oak trees is required. Environmental factors such as evaporation and wind tend to have the least effect on this type of irrigation system. Physical maintenance of this type of system is usually higher. Additionally, drip irrigation systems contribute minimally to soil erosion problems on sloped planting areas.

It is recommended to install purple irrigation PVC sleeves beneath driveways, walkways or other paved areas. Install the necessary number of sleeves, properly sized, to accommodate the irrigation system mainline, lateral lines, and controller wiring.

Sprinkler heads and spray patterns shall be contained within the home lot property line and shall not overlap or overspray into the adjacent property. Adjust sprinkler heads and spray patterns to minimize overspray onto adjacent hardscapes, patios, decks, pools, fences, etc.

Space and install sprinklers and turf rotors no more than 80% of the manufacturer's recommended radius listing for that particular head. Ensure head to head coverage of the spray pattern with no dry spots.

The maximum flow for each valve system shall not exceed 15 gallons per minute, nor shall operating flows exceed 15 gallons per minute at any one time.

For drip irrigation systems, install an in-line pressure reducing valve down stream of the remote control valve. The pressure reducing valve shall be placed below grade in a plastic valve box and adjusted to the proper operating pressure for the drip system.

For drip irrigation systems, install an in-line Wye filter down stream of the remote control valve and upstream of the pressure reducing valve. The filter shall be placed below grade in a plastic valve box. Install drip tubing a minimum of four inches below grade.

A backflow device is generally not required on recycled water service, however the District may require such a device if it is determined that chemicals or other substances that may degrade or contaminate the recycled water system are used in the on-site recycled water system.

Hose bibs and quick coupling valves are **PROHIBITED** on the residential recycled water system.

No white PVC piping will be allowed for recycled water irrigation system mainlines and laterals.

The irrigation system for turf will be operated between the hours of 9:00 p.m. and 6:00 a.m. Drip irrigation systems will be allowed to be operated at anytime.

Monitor and maintain the system to minimize equipment and material failure. Broken sprinkler heads, leaks, unreliable valves, etc., shall be repaired as soon as they become apparent.

Recycled water is not potable water and therefore not suitable for human consumption.

Recycled water is highly treated domestic wastewater and its clarity to the human eye is indistinguishable from domestic water. The standards imposed for treatment of recycled water quality are established by various governmental regulatory agencies, including the State of California Department of Health Services, California Code of Regulations, Title 22, and these standards may change from time to time.

Irrigate in a manner that will minimize runoff, pooling, and ponding. The application rate will not exceed the infiltration rate of the soil. Timers will be adjusted so as to be compatible with the lowest soil infiltration rate present. This procedure may be facilitated by the efficient scheduling of the automatic control clocks (i.e., employing the repeat function to break up the total irrigation time into cycles that will promote maximum soil absorption). When using any type of irrigation system, care will be exercised by controlling the delivery rate of water so as not to overcome the soil's water absorption rate. Overwhelming the soil absorption rate may cause water run-off and soil erosion. Proper programming of the automatic irrigation controller, knowing the plant material's water needs, familiarity with the soil's water absorption characteristics and slope aspects are necessary for responsible water resource management and good irrigation practice.

Remote Control Valves: Buried below grade remote control valves are required. Anti-siphon control valves will **NOT** be allowed.

Educate all maintenance personnel, family members, and guests, on a continuous basis, of the presence of recycled water and that it is not approved for drinking purposes.

Obtain prior approval for all proposed changes and modifications to any on-site facilities. Such changes must be submitted to, and approved, by the District and designed in accordance with these standards.

3.2 POTABLE WATER SYSTEM DESIGN GUIDELINES – GENERAL REQUIREMENTS

The potable water service and the recycled water service for each residential dual plumbed home will be provided by the homebuilder's underground contractor.

All underground potable service lines downstream of the meter shall be copper.

The potable water system will be protected by an appropriate and approved backflow prevention device at the potable water meter when recycled water will be used for irrigation. Generally, a double check backflow device will be required on residential dual plumbed potable services. Assemblies will be installed downstream of, but immediately next to, the potable water meter.

The double check backflow device will be installed below grade in a rectangular box so that the top of the assembly is a maximum of ten inches clear of the box lid. The backflow device will be centered in the box and the box will be clean of mud and other debris to a point of six inches below the bottom of the assembly. Do not disturb the backflow device or modify the grade around the assembly when landscaping the front yard. Backflow devices that do not meet the District standards will be corrected at the owner's expense. Neither the owner nor their contractor may remove or modify the water meter or the backflow device.

The water used within the residence and outside in the yard(s) through hose bibs will be potable water. **All hose bibs shall be connected to the house.**

Fill lines for pools and/or water features of any kind are **Prohibited** on the recycled water system. These uses shall be connected to the potable water system. Copper pipe will be used for all potable lines. The location of the copper lines shall be indicated on the plans. **The inspection of the installation prior to the covering of the pipe is required by the District.**

All pressure main line piping from the recycled water system shall be installed to maintain 10 feet minimum horizontal separation from all potable water piping. Where recycled and potable water pressure main line piping cross, the recycled water piping shall be installed **below** the potable water piping in a Class 200 purple-colored PVC sleeve which extends a minimum of 5 feet on either side of the potable water piping. All crossings shall be at a ninety (90) degree angle and provide a minimum vertical clearance of 12 inches.

3.3 IRRIGATION SYSTEM MATERIALS FOR RECYCLED WATER

Irrigation systems for residential landscapes shall be designed and constructed with proven name-brand equipment, materials and automatic controllers. All materials and equipment shall be listed and indicated on the irrigation plan submittal for approval by the District.

3.4 PIPE SELECTION

All buried on-site piping in the recycled water system shall be purple PVC pipe with stenciling identifying it as recycled water in accordance with the AWWA Guidelines for the Distribution of Non-Potable Water. Stenciling shall include; CAUTION RECYCLED WATER - DO NOT DRINK; nominal pipe size; PVC-1120; pressure rating in pounds per square inch at 73 degrees; and ASTM designations such as 1785, 2241, 2672, or 3139. Stenciling shall be placed continuous on two sides of the pipe.

All on-site recycled water piping shall be installed in accordance with the Uniform Plumbing Code and all other local governing codes, rules, and regulations.

PVC constant pressure main line piping, 2 inches and larger, shall be rubber-ring joint, PVC Class 160, or solvent weld joint, PVC Class 315.

PVC constant pressure main line piping, 1-1/2 inches and smaller, shall be solvent weld joint, PVC Schedule 40.

The potable water line from the meter to the house shall be copper. All other potable water lines in landscapes shall be copper lines. Examples of potable water uses are a pool, water feature, or other uses not designated as acceptable for recycled water.

3.5 VALVES AND FITTINGS

All remote control valves shall be buried, below grade, control valves. **Anti-siphon control valves will not be allowed**

PVC plastic pipe fittings shall be installed below grade.

All PVC plastic pipe fittings shall be rigid PVC virgin Type I, minimum Schedule 40, with working pressure no higher than that of the pipe. Sockets shall be tapered to conform to the outside diameter of the pipe, as recommended by the pipe manufacturer. All Schedule 40 fittings shall conform to ASTM D 2466. Schedule 80 fittings shall conform to ASTM D 2464 and D 2467.

PVC fittings shall be Schedule 40 solvent weld and factory manufactured, or Schedule 40 with rubber-ring joint.

3.6 DEPTH OF PIPING

For on-site residential recycled water piping, the minimum depth from finished grade to top of pipe (minimum cover) shall be twelve (12) inches below sub-grade or twelve (12) inches below the potable waterline.

3.7 SEPARATION REQUIREMENTS

All new buried piping must be installed in accordance with the pipe separation requirements indicated below.

A. Horizontal Separation

A.1 Buried Recycled and Potable Water Pipelines

Constant Pressure Lines - A minimum ten (10) foot separation between parallel buried constant pressure recycled and potable

water pipelines must be maintained. Intermittent Pressure Lines – A Minimum of (1) one foot separation between parallel buried intermittent pressure recycled and potable water pipelines must be maintained.

If separation cannot be maintained, then a special construction detail to minimize cross connections and contamination potential (such as sleeving) must be included with the plans and is subject to approval by the District. Potable and recycled water pipelines shall not be installed in the same trench.

A.2 Buried Recycled Water and Sewer Pipelines

A minimum of one (1) foot separation between buried recycled water and sewer pipelines must be maintained. If a (1) one foot separation cannot be maintained, then a special construction detail to minimize contamination potential must be included with the plans and is subject to approval by the District. Sewer and recycled water pipelines shall not be installed in the same trench.

B. Vertical Separation

B.1 Buried Recycled and Potable Water Pipelines

Constant pressure recycled water pipelines must be located a minimum of one (1) foot below the potable water pipelines when crossing or if the 10' separation requirement cannot be maintained. Where recycled and potable pressure main line piping cross and/or the minimum 10' horizontal separation cannot be maintained, the recycled water piping shall be installed below the potable piping in a class 200 purple PVC sleeve that extends a minimum of 5' on both sides of the potable piping.

All "crossings" between constant pressure potable and recycled water piping shall be at or as near as possible to a ninety (90) degree angle. Where ninety degree crossing angle cannot be maintained, sleeving will be required to extend to a point where it reaches a minimum of 5' of horizontal separation on both sides of the potable piping.

On irrigation systems where intermittently pressurized recycled water lines (laterals) serve sprinkler heads, the potable water line(s) may be placed under the recycled water laterals. No special construction requirements are necessary provided that one (1) foot vertical separation is maintained.

B.2 Buried Recycled Water and Sewer Pipelines

A minimum of one (1) foot separation between buried recycled water and sewer pipelines must be maintained. If a (1) one foot

separation cannot be maintained, then a special construction detail to minimize contamination potential must be included with the Recycled Water Service plans and is subject to approval by the District. Sewer and recycled water pipelines shall not be installed in the same trench.

3.8 WARNING TAPE

A. General - Warning tape shall be installed 3-inches above the top of pipe center and shall run continuously for the entire length of all main line piping. This is applicable to both recycled and potable waterlines.

B. Recycled Water - Warning tape shall be purple plastic with black printing having the words "CAUTION: RECYCLED WATER – DO NOT DRINK" imprinted in minimum 1-inch high letters. Imprinting shall be continuous and permanent. The overall width shall be a minimum of 3-inches.

C. Potable Water - Warning tape shall be blue plastic with black printing having the words "CAUTION BURIED WATER LINE BELOW" imprinted in minimum 1-inch high letters. Imprinting shall be continuous and permanent. The overall width shall be a minimum of 3-inches.

3.9 WARNING LABELS

The District may require warning labels, as approved by the District, to be installed on facilities, such as controller panels. Warning labels shall be constructed of a purple weatherproof material with the warning permanently stamped or molded into the label. The warning shall contain the following information: "RECYCLED WATER – DO NOT DRINK" and the international "Do Not Drink" symbol, such as a glass of water with a slash through it.

Controller marking sticker No. 4100 shall read in English "ATTENTION – CONTROLLER UNIT FOR RECYCLED WATER." Attach inside controller cabinet door.

3.10 VALVE BOXES

Valves, both above and below grade, shall be housed in an approved lockable purple valve box. A tag reading "CAUTION: RECYCLED WATER – DO NOT DRINK" shall be installed, as approved by the District.

All gate valves, manual control valves, electrical control valves, and pressure reducing valves for on-site non-residential recycled water systems shall be installed below grade in a purple valve box. Electrical and manual control valve boxes shall have a warning label permanently molded into or affixed onto the lid with rivets, bolts, etc.

3.11 WARNING TAGS

Tags shall be weatherproof plastic, 3" by 4", purple in color, with the words "WARNING - RECYCLED WATER - DO NOT DRINK". Imprinting shall be permanent and black in color. Use tags manufactured by T. Christy Enterprises or approved equal.

All recycled water sprinkler control valves, pressure regulators, quick couplers, and isolation valves shall be tagged with purple warning tags.

One tag shall be attached to each appurtenance in one of the following manners:

A. Attach to valve stem directly with plastic tie wrap, or

B. Attach to solenoid wire directly with plastic tie wrap, or

C. Attach to the body of the relative appurtenance with a plastic tie wrap.

3.12 SIGNAGE

All subdivisions where recycled water is used shall be posted with conspicuous signs in a size no less than 4-inches high by 8-inches wide, which include the following wording: "RECYCLED WATER - DO NOT DRINK". Each sign shall also display the international “DO NOT DRINK” symbol, such as a glass of water with a slash through it.

3.13 CONTROL OF RUNOFF AND APPLICATION AREAS

On-site recycled water facilities shall be designed to prevent discharge onto areas not under control of the user.

Recycled water shall be applied at a rate that does not exceed the infiltration rate of the soil. Where varying soil types are present, the design of the recycled water facilities shall be compatible with the lowest infiltration rate present. Copies of the developer’s soils test reports shall be made available to the District upon request.

Spray heads shall be adjusted to minimize overspray onto areas not under the control of the customer, i.e. pool decks, private patios, streets and sidewalks.

SECTION 4.0

INSPECTION AND TESTING REQUIREMENTS

4.1 GENERAL

The District will inspect the construction of residential dual plumbed on-site irrigation facilities and shall be notified two working days in advance of installation by the applicant, owner, or customer. The District Office shall be called at (909) 797-5117. In no case shall irrigation lines be backfilled before inspection by the District.

If the residential dual plumbed on-site irrigation system is installed prior to plan approval and/or inspection, all or any portion of the system must be exposed and corrected as directed by the District in accordance with these standard specifications. Failure to comply may result in termination of service as provided for in sections 2.14 and 2.15 of the District Rules and Regulations.

Subsequent to plan approval, field conditions may dictate modifications to the residential dual plumbed on-site irrigation system either in material or in intended use. If directed by the District the owner, applicant, or customer shall perform all changes or modify the on-site non-residential system to fully comply with these standards and with the District Rules and Regulations.

4.2 SELECTING A CONTRACTOR

A. The District maintains a list of "Authorized Contractors" who have completed an orientation class on recycled water use.

B. If hiring a contractor to design, install, modify or repair a recycled water irrigation system, only "Authorized Contractors" are allowed to work on the systems. Please check with the District for the most current list of "Authorized Contractors".

4.3 INSPECTION AND TESTING

A. Testing and inspection of water systems in dual plumbed homes receiving recycled water will be in accordance with the Yucaipa Valley Water District's Recycled Water Manual: Design, Review and Inspection Procedures. Random inspections may also occur.

B. Initially, before activation of recycled water service, and annually thereafter, YVWD will inspect both the exterior potable and full yard recycled water irrigation systems on the site. YVWD will perform a cross connection shutdown test initially, once every four years, and at changes of ownership. Additional cross-connection tests may be performed by YVWD where, when, and if needed.

C. Backflow prevention assemblies require annual testing. The test and any repair shall be performed by YVWD personnel, and at the Districts discretion may be performed by a certified outside contractor. The District shall notify the customer in writing prior to the annual test.

D. For single-family residences receiving recycled water, the owner shall be responsible for providing access and cooperation to the District representative, to perform cross-connection inspection or other system inspections that the District requires. This inspection shall include a visual check of the entire system to verify that no cross-connections have been made. The owner will be responsible for correcting any work, at their sole expense, which violates the District regulations

4.4 COVERAGE TEST

The owner, applicant, or customer is responsible for controlling overspray and runoff of the system. To eliminate or minimize overspray and runoff, an inspection of the completed on-site irrigation system by the District is required. When the sprinkler system is completed and the planting installed, the owner or owner's representative shall contact the District at (909) 797-5117 and arrange for a coverage test. The owner or owner's representative must be in attendance and have persons capable of making system adjustments. If modifications to the system are required, other than minor adjustments, the owner will be notified in writing of the changes required. To avoid termination of service, the modifications must be made in a timely manner. All modifications to the system are the responsibility of the owner, applicant, or customer and said owner, applicant, and customer shall pay all costs associated with such modifications.

4.5 DISTRICT ACCEPTANCE

Upon completion of construction, final inspection by the District, submission of record drawings, signing of a recycled water agreement, training, and payment of any outstanding monies, the irrigation system shall be accepted by the District. **At that time, service connection to the recycled water line may be made.** The on-site facilities shall be owned, operated, and maintained by the Owner.

4.6 RECORD DRAWINGS

Record drawings shall be prepared and show all changes in the work constituting departures from the original drawings. All conceptual or major design changes, including any changes that may be affected by the requirements of these standard specifications, shall be approved by the District before implementing the change in the construction contract. Failure to receive prior approval may result in termination of service.

The applicant, owner, or customer shall provide a complete set of "RECORD DRAWINGS" to the District upon completion of construction. Failure to provide record drawings may result in termination of service.

4.7 FAILURE TO COMPLY

Failure to comply with any or all of the standards herein is a violation of the District Policies and Regulations and may result in termination of service until the appropriate corrective steps have been taken.