

STANDARDS, CONDITIONS & SPECIFICATIONS

for

RESIDENTIAL IRRIGATION DISTRIBUTION SYSTEMS

Lake Chelan Reclamation District

I. GENERAL:

A. The items herein contained are the Standards, Conditions, and Specifications of Lake Chelan Reclamation District. These are minimums only and may be increased or altered to fit particular situations.

B. Definitions:

1. District - Lake Chelan Reclamation District, a quasi-municipal corporation organized and operating pursuant to Title 87, Laws of the State of Washington.
2. Developer(s) - The landowner, land developer, or agent responsible for installation of the water distribution system.
3. Water Main - A pipe designed to convey water to more than two users.
4. Water user - Any person, firm, or corporation having a water right within the District; this also includes the holders of title or evidence of title to land to which water service is furnished.
5. Water Service Line - The pipe, valves, and necessary accessories designed to convey water from the water main to each lot.
6. Water Distribution System - The collection of water mains and water service lines required to provide water service to each customer in a development.

II. STANDARDS AND CONDITIONS:

A. A water plan shall be prepared for all irrigation distribution systems. Drawings shall be produced on reproducible copy. A place shall be provided for an approval signature of the District.

B. The District may require, as a condition of approval of irrigation distribution systems, that a licensed Professional Engineer certify the design and/or construction meets or exceeds the applicable standards set forth herein.

C. Obtaining necessary permits shall be the responsibility of the Developer.

D. Where franchises, easements, or deeds to property are required it shall be the responsibility of the Developer to provide same and submit appropriate documentation to the District.

E. The Developer shall supply an "as-built" drawing on reproducible copy of the completed system.

F. All subdivisions in existing developed agricultural lands may use existing irrigation distribution facilities if the existing system can be modified to provide independent operation to each lot. The subdivisions must be four lots or less and not incorporated with adjacent short subdivisions.

G. An Agreement for Installation of New Irrigation Distribution System and Plat Covenant between the District and the Developer shall be executed prior to plat approval by the District, unless qualifying for exemption outlined in paragraph F.

H. The District may require the Developer to supply a maintenance bond for an amount fixed by the District covering materials and workmanship for a period of one year after the date of acceptance by Lake Chelan Reclamation District for operation and maintenance.

I. Connections between the District's existing system and the new irrigation distribution system shall be made by the District at the expense of the Developer as calculated by the District.

J. All main lines must be designed to provide for proper circulation of water to all lands served by that point of delivery, as determined by the District. This requirement may make it necessary for the Developer to extend lines beyond the required service risers to the plat or subdivision boundary.

K. Pressure and leakage testing shall be accomplished before completion of back filling, with the pipe joints accessible for examination. Sufficient backfill material shall be placed over the pipe barrel between the joints to prevent movement.

L. Final acceptance shall not constitute acceptance of any unauthorized or defective work or material. The District shall not be barred from requiring the Developer to reimburse the District for the removal, adjustment, replacement, repair or disposal of any unauthorized or defective work or material or from recovering for any such work or material.

III. SPECIFICATIONS:

A. **SYSTEM CAPACITY:** Allocation of system capacity is 6.9 gpm (3.0 acre-feet per year) per irrigable acre. The system shall be sized to deliver 150% of the total allotment to any group of consecutive service risers or at a rate of 20 gpm per single service riser with negligible headloss along the lateral.

B. **PIPELINE CONSTRUCTION:**

1. Materials:

a. Pipe: All pipe shall be polyvinyl chloride (PVC) Class 200, SDR 21 or better.

1. Pipe three inches (3") and smaller shall be solvent welded.

2. Pipe four inches (4") and larger shall be ring gasketed joints.

b. Fittings: PVC pipe fittings

1. Fittings three inches (3") and smaller shall be solvent welded. Solvent weld fittings must be Schedule 40 or better and meet or exceed the pressure rating of the pipe. Threaded PVC fittings shall be Schedule 80.

Fittings larger than three inches (3") shall be cast iron. Cast iron fittings must meet current AWWA requirements.

c. Valves:

1. Gate Valves: Valves three inches (3") and smaller shall be gate valves. All valves will have a non-rising stem. The operator will be a cast iron square nut for buried valves. The working pressure will be 150 psi or greater.

2. Butterfly Valves: Valves larger than three inches (3") shall be butterfly type. Butterfly valves must be rubber seated and tight closing with a pressure rating of 150 psi or greater. Valve operator shall be of the square nut type, sealed, gasketed and permanently lubricated for underground service. Minimum number of turns required for complete closure of the valve shall be fifteen. Valve operator shall be constructed to the standards of the valve manufacturer to withstand all anticipated operating torques.

d. Valve Boxes: Valve boxes shall be installed on all buried valves.

Valve boxes shall be cast iron, two-piece slip type standard design with a base corresponding to the total size of the valve. The box shall be protected with coal tar or other approved coatings, applied by the manufacturer. Valve boxes shall be Rich Series 940 or equal.

e. Thrust Blocking: Thrust blocks are required at tees, bends and dead ends, except tees leading to single service risers. Concrete thrust blocks are to be poured against undisturbed earth. Thrust blocks shall have a bearing area sized to resist design pressures with a minimum of 1.0 square feet.

f. Identifying Tape: Identifying tape shall be installed twenty-four inches (24") below finished grade over all irrigation pipelines. Pipe locator ribbon shall be two inches (2") wide, plastic coated aluminum and shall be clearly marked, "CAUTION BURIED WATER LINE" continuously along the length of the ribbon with minimum 1- ½ inch letters. The ribbon shall be blue in color.

2. Pipe Installation:

General: All PVC pipe shall be assembled and installed in accordance with the pipe manufacturer's recommendations. Thrust blocks shall be placed at locations described in Section III.B.1.e. of this document and shown in the standard details. Thrust blocks shall be placed such that accessibility to the pipe and the fittings is not impaired.

Pipe Installation, Outside Street Right-Of-Ways:

a. Excavation: All pipe shall have a minimum of thirty inches (30") of cover. Utilities encountered in the pipe zone shall be crossed below.

b. Pipe Base And Pipe Zone Backfill Material: Pipe base and zone shall include the full width of the trench from four inches (4") below the bottom of the pipe to six inches (6") above the top of the pipe. Backfill material may be excavated native material containing no rock, organic matter, or materials larger than ½ inches. Where the volume or quality of native excavated materials is inadequate, sand will be used for pipe base and pipe zone backfill. The backfill material shall be placed in two lifts and compacted sufficiently to preclude future settlement.

Trench Backfill Above Pipe Zone: Native material not larger than six inches (6") may be used.

Pipe Installation, Within Street Right-Of-Ways:

a. Excavation: All pipe shall have a minimum of thirty inches (30") of cover. The state or county may require a greater depth in some instances. Utilities encountered in the pipe zone shall be crossed below.

b. Pipe Base And Pipe Zone Materials And Placement: Pipe base and pipe zone shall include the full width of the trench from four inches (4") below the bottom of the pipe to six inches (6") above the top of the pipe. Pipe base and pipe zone shall be backfilled with a clean, round, granular sand or gravel of which 100% will pass the U.S. Standard ¾-inch opening. The bedding shall be free of humus, organic matter, frozen material or debris. Bedding shall be placed in lifts, not to exceed six inches (6"), except for the initial lift, which shall be four inches (4"). All bedding shall be compacted to 95% of maximum density in accordance with a modified Proctor standard by means of mechanical compaction. A minimum three-inch (3") sand cushion shall be

installed between the irrigation pipe and any existing pipes or conduits encountered.

c. Backfill Above Pipe Zone: Backfill above the pipe zone and road surfacing shall be done according to the requirements of the agency in whose right-of-way the pipe is being installed.

All work within public road right-of-ways shall meet these specifications, those of the agency having jurisdiction over the road right-of-way, and current APWA specifications. The plans will be reviewed by the Chelan County Engineer prior to approval of the Water Plan by the District.

C. SERVICE RISERS:

1. Materials:

a. Pipe: Pipe shall be galvanized steel, Schedule 40. Joint compound shall be used on all threads.

b. Fittings: Threaded, galvanized, malleable iron fittings shall be used with all steel pipe.

c. Valves: Valves shall conform with Section III.B.1.c. of this document.

d. Treated Post: Post shall be pressure treated with pentachlorophenol.

e. Service Box: Boxes for service risers located in front yards (Type B) shall be Carson series "Standard" or equal. Service boxes shall be constructed of reinforced fiberglass. All service boxes shall be installed flush with the finished ground surface.

2. Construction: Service risers are to be constructed in conformance with the Standard Details. Service risers located along property lines adjacent to public roads shall be Type B, all others shall be Type A. Lateral pipelines extending to the service riser shall be two inch (2") pipe meeting the requirements of Section III.B.1.a. of this document.

D. BLOW-OFFS:

1. Materials:

a. Pipe: Pipe shall be Schedule 40, galvanized steel. Joint compound shall be used on all threads.

b. Fittings:

1. PVC fittings shall conform to Section IIIB.1.b. of this document.

2. Fittings for galvanized steel pipe shall conform to Section III.C.1.b. of this document.

3. Valves: Valves shall conform, to Section III.B.1.c. of this document.

4. Valve Boxes: Valve boxes shall conform to Section III.B.d. of this document.

c. Construction: Blow-offs are to be constructed in conformance with the Standard Details. Blow-offs shall be installed at the end of all pipelines serving more than two (2) service risers.

E. ADDITIONAL REQUIREMENTS:

1. Piping shall be designed from the Lake Chelan Reclamation District's designated delivery point for the area.

2. Isolation valves shall be installed on all laterals and turnouts. The number and location of valves shall be arranged to minimize service disruptions. Valve boxes for service riser shall have locking lids.

3. As-constructed reproducible drawings detailing pipe, service riser and isolation valve locations and pipe depths to be provided to the Lake Chelan Reclamation District.

3/24/06