SANIBEL/CAPTIVA FIRE CONTROL DISTRICTS

FIRE HYDRANT

SPECIFICATIONS

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FIRE HYDRANT INSTALLATION

1.1 SCOPE OF WORK
Contractor shall install fire hydrants and all associated fittings and concrete work in accordance with these specifications. The general location and number of fire hydrants will be specified by the Fire Chief.

1.2 NOTIFICATION
Immediately prior to the start of the installation of a fire hydrant, the contractor shall notify the Fire Chief.

The contractor shall obtain the permission of The Island Water Association prior to making any connections to an existing water main.

It shall be the responsibility of the contractor to notify the power company, telephone company, cablevision or any other underground utility to determine the underground location of lines.

1.3 BOUNDARIES OF WORK
All work will be done in the utilities right-of-way. The contractor will be responsible for all local city permits. No hydrants will be placed on private property without the permission of the Fire Chief.

1.4 PLACEMENT OF FIRE HYDRANTS
Fire hydrants shall be installed within 10 feet from the edge of the road edge. Contact the Fire Chief for field location of fire hydrant. The steamer nozzle shall face the roadway.

1.5 HYDRANT ZONE REQUIREMENTS
A zone surrounding each hydrant four feet behind, 10 feet to each side and in front to the roadway, shall be clear of vegetation (except grass), buildings and other obstructions (see Detail 2).

MATERIALS

2.1 VALVES
All gate valves shall be resilient seated, manufactured to meet or exceed the requirements of AWWA C509 or latest revision and in accordance with the following specifications.

A. All valves shall be Mechanical Joint (MJ) by MJ with the exception of tapping valves which shall be flat flange by MJ. The valves shall be manufactured by Mueller. There will be no exception as to manufacturer of the valves without written permission from the Fire Chief.

B. All valves shall have an unobstructed waterway equal to or greater than the full nominal diameter of the valve.

C. All valves are to be non-rising stem with the stem made of case, forged or rolled bronze as shown in AWWA C509. Two stem steals shall be provided and shall be of the O-ring type, with one above and one below the thrust collar.

D. The stem nut, made of bronze, shall be independent of the gate.

E. The valve body, bonnet and bonnet cover shall be of cast iron as established by ASTM A 126, Class B. All ferrous surfaces inside and outside shall have a fusion-bonded epoxy coating.

F. All bonnet, body, stem clamp nut or bolt, and head bolts and nuts shall be of 304 stainless steel or better. These required stainless steel nuts and bolts shall be installed on the valve prior to delivery to project site and shall be inspected by IWA personnel prior to installation.

G. A 2" operating nut shall be provided and installed on the valve, for operating the valve.

H. The sealing mechanisms shall consist of a cast iron gate having a vulcanized synthetic rubber coating. The resilient sealing mechanism shall provide zero leakage with the full working pressure on either side of the gate and zero pressure on the opposite side.

I. All valves are to be tested in accordance with AWWA C509.

2.2 VALVE BOX

Valve boxes shall be manufactured by the Mueller Co., Decatur, IL, model #416A; or an approved equivalent may be substituted. The boxes shall be rounded head roadway boxes, cast iron slide extension type with a flared base having a minimum shaft diameter of 5¼" and a drop cover. The word "water" shall be cast in the cover.

2.3 FIRE HYDRANTS

Hydrants shall be manufactured by the Mueller Co., Decatur, IL, model #A423 or an approved equivalent may be substituted, provided that all parts, including repair kits, are interchangeable with Mueller #A423. Hydrants shall be dry barrel type designed for a working pressure of 150 psi conforming to AWWA C502 with valve opening at least 4½" in diameter. Hydrants shall have a six-inch flange and hub joints with an auxiliary valve, two 2½" hose connections and one 4½" pumper connection. Outlets shall have National Standard fire-hose coupling thread. All working parts shall be bronze. Hydrants shall be the latest stock patterns produced by the manufacturer. Hydrants shall open counter-clockwise. The hose connection threads and performance characteristics shall conform to the requirements of the fire department. The interior shall be fusion-bonded epoxy coated. All bolts and nuts shall be 304 stainless steel or better. No substitutes will be permitted.

2.4 TAPPING SLEEVES

Tapping sleeves shall be Ford "Fast" series or Romac "SST" Series, or an approved equivalent may be substituted. The main line shall be tapped with a six-inch tapping tool producing a 5 5/8" diameter hole.

2.5 PIPE

Pipe shall be manufactured by Johns Manville "Blue Brute" series, conforming to AWWA specifications A-C900-SDR-18; or an approved equivalent may be substituted.

2.6 FITTINGS
Fittings shall be cast iron, cement-mortar lined, mechanical joint ends conforming to AWWA C-110 and AWWA C-104-74. Equivalent fitting may be substituted only by the approval of the Fire Chief.

2.7 ALTERNATE MATERIALS & METHODS
The provision of these specifications are not intended to prevent the use of any materials or methods provided any such alternate has been approved, and its use authorized by the Fire Chief.

INSTALLATION

3.1 CONCRETE
Concrete shall have a 7-day compressive strength of at least 2,300 psi and a 28-day compressive strength of at least 3,500 psi. Concrete shall be mixed to give the required strength with not more than six gallons of clean water per bag of cement. The slumps shall be not less than two inches and not greater than four inches, tested in accordance with ASTM DES: C143.

3.2 THRUST BLOCKS
Thrust blocks shall be installed at all bends, tees, etc., and shall be of the dimensions shown on the drawing. Thrust blocks shall be of concrete (see Details 1 and 3) and shall be placed against undisturbed earth. The blocks shall be placed so that the pipe and fitting joints will be accessible for repair. Direct contact between the concrete and fittings shall be prevented by wrapping the fitting with plastic or coating it with grease prior to concrete placement.

3.3 TRENCHING
Trenching must be made to the widths and depths necessary for the correct installation of the pipe. Trenches may be machine dug, but the pipe must be laid in undisturbed soil or well compacted borrow fill, free of rocks, roots, sticks and other debris. If borrow fill is used it will be compacted in place with a hand-operated vibratory compactor.

3.4 DISINFECTION
The tapping sleeve and hydrant valve must be thoroughly cleaned and properly disinfected immediately prior to installation. Disinfection shall consist of soaking in a strong solution (50 ppm) of calcium hypochlorite (HTH) for a minimum of two hours or in accordance with Island Water Association specifications.

3.5 REMOVAL OF WATER
At all times during the excavation period and until completion and acceptance of the work at final inspection, ample means and equipment shall be provided with which to remove promptly and dispose of properly, all water entering any excavation or other parts of the work. The excavation shall be kept dry. No water shall be allowed to rise over concrete until the concrete has attained a set (minimum 12 hours). Water pumped or drained from the work hereunder shall be disposed of in a suitable manner without damage to adjacent property or to other work under construction. Water shall not be discharged onto streets without adequate protection of the surface at the point of discharge. No water shall be discharged into sanitary sewers. No water

containing settleable solids shall be discharged into storm sewers. Any and all damage caused by dewatering the work shall be promptly repaired by the contractor.

3.6 PIPE LAYING

Each section of pipe shall rest solidly upon the pipe bed with recesses excavated to accommodate the joints. The interior of the pipe shall be cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations by means of plugs or other approved methods. The pipe shall not be laid in water. Water shall be kept out of the trench until the jointing is completed. When work is not in progress, open ends of the pipe shall be closed so that earth or other deleterious substances will not enter the pipe.

3.7 PADS

A concrete pad shall surround every fire hydrant and fire hydrant gate valve. The hydrant pad shall be 36" x 36" x 6", with the top of the pad no closer than 2" from the bottom of the breakaway bolts. The gate valve pad shall be 36” x 36” x 6" and shall have 4" x 4" wire mesh reinforcement in the concrete. A single continuous pad shall be acceptable. Precast 30” x 30” x 6” shall be an acceptable gate valve pad substitute. All pads shall be square and level and finished off in a good workmanship manner.

INSPECTIONS

4.1 TESTING & INSPECTIONS

All thrust blocks must be inspected by the Sanibel or Captiva Fire Control District's authorized representative prior to backfill. After the thrust blocks have been inspected, the trench may be partially backfilled to prevent any movement of the pipe. All joints must be left exposed for examination. After the concrete has set for a minimum of seven days, the pipe shall be filled with water in such a manner as to expel all air and subjected to existing line pressure. The contractor shall maintain a dry trench during the entire inspection. All exposed joints, fittings, etc., shall be examined by the Sanibel Fire Control District's authorized representative during the open trench test. Any leaking joints shall be corrected by the contractor. The tapping sleeve shall be pressure tested prior to the tapping of the main.

4.2 FLUSHING

Following satisfactory completion of the leakage test, the hydrant shall be thoroughly flushed at a rate of flow sufficient to produce a minimum velocity of 2.5 feet per second for a period of one minute.

BACKFILLING

5.1 BACKFILLING & EMBANKMENT

All excavation shall be backfilled to the original surface of the ground or to such other grades as may be shown or directed. In all backfilling, all compressible and destructible rubbish and refuse which might cause later settlement and all lumber and braces shall be removed from the excavated space before backfilling is started. Backfilling shall be dome with sound materials, free from waste, objectionable organic matter, rubbish, boggy or other unsuitable materials. The backfilling around pipes shall be carefully done by hand and similarly tamped to 12" above the top of the pipe. The backfill material shall be placed in layers approximately 6" thick, each layer

being thoroughly tamped and compacted in place. No stone fragments shall be placed in the backfill nearer than 2' from any pipe.

5.2 GRADING

Upon completion of the installation work, the work area is to be thoroughly cleaned of all sticks, roots, pipe shards, nuts, bolts and other rubbish and the surface of land regraded to its original contours. The surface shall be thoroughly raked by hand upon completion.

ACCEPTANCE BY THE FIRE DISTRICT

6.1 FINAL INSPECTION

Upon completion of the installation of a fire hydrant, the contractor shall then notify the Fire Chief for a final inspection.

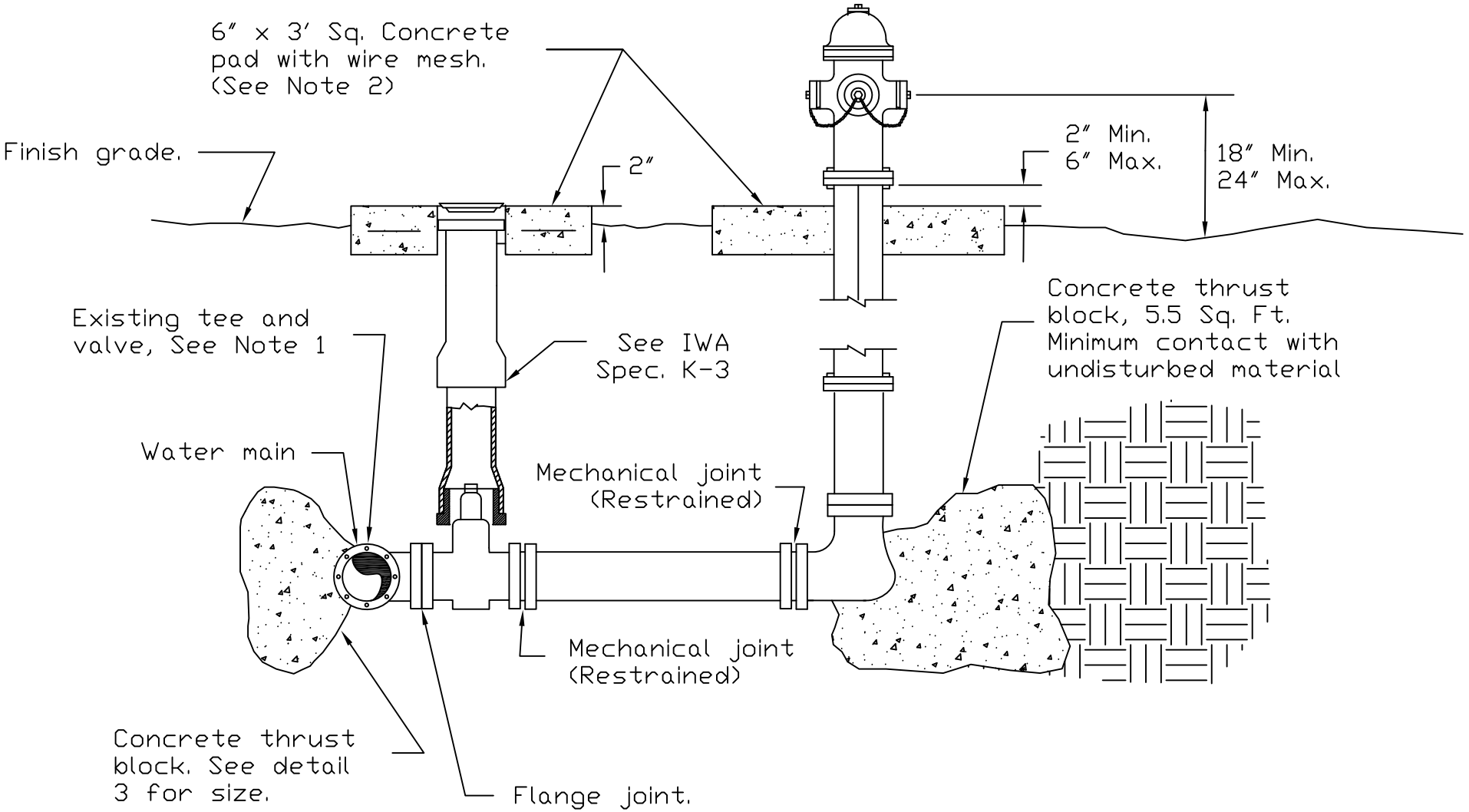
6.2 LEE COUNTY HEALTH DEPARTMENT

Prior to the acceptance of a fire hydrant by the Fire Control District, the contractor shall present to the Fire Chief a letter of approval from the Lee County Health Department.

6.3 THE ISLAND WATER ASSOCIATION, INC.

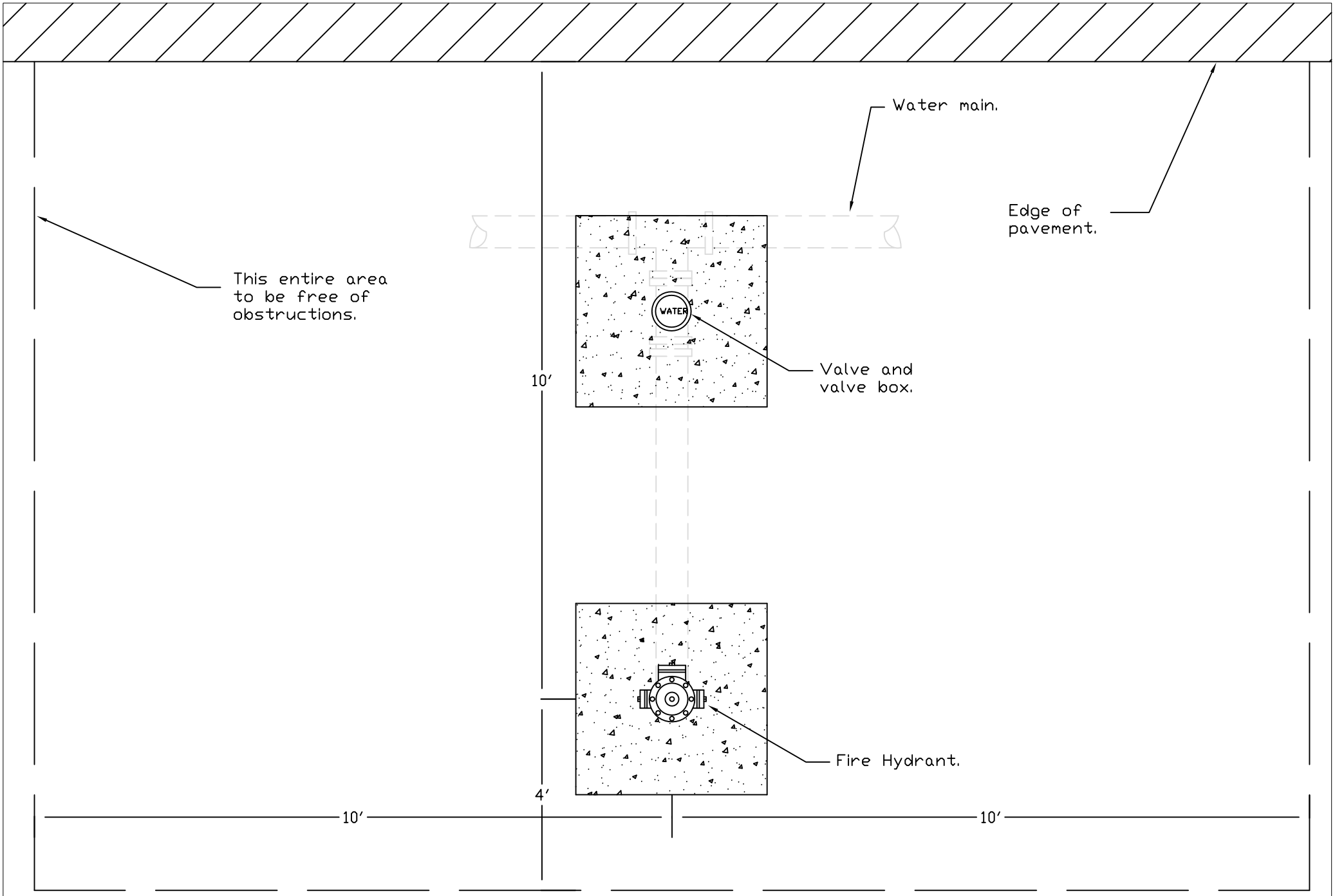
The Island Water Association shall approve all fire hydrant connections to its water main prior to the acceptance by the Fire District.

Notes:
1. Tapping sleeve will be installed by the contractor in location without hydrant tees.
2. A single continuous pad shall be acceptable. Precast 30″ x 6″ pads with wire mesh shall be an acceptable valve pad substitute.
3. Hydrant shall be installed plumb.
4. When setting fire hydrants due regard should be given to the final grade line.

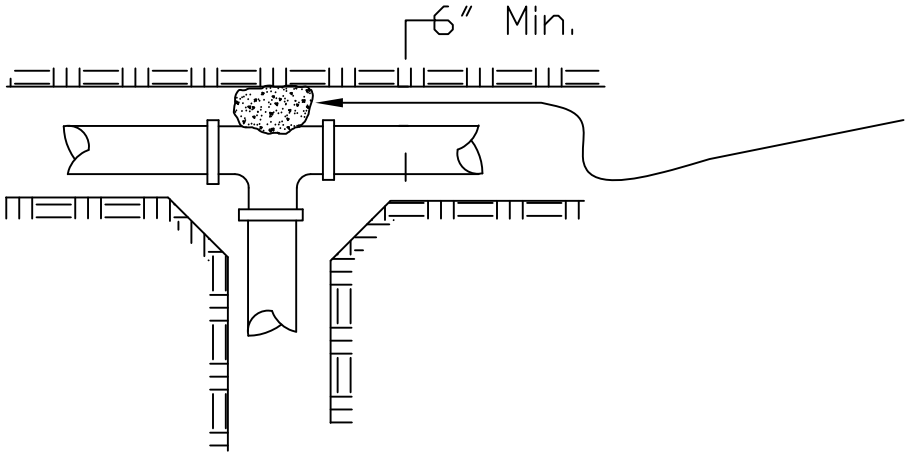


Detail 1

Typical Piping



Detail 2
Typical Placement



Water Main Dia.	Min area in Sq Ft.
6″	4.0
8″	7.0
10″	10.0
12″	15.0

Detail 3

Thrust Blocks