City of La Quinta Public Works Department – Public Water Review Checklist

WATER PIPE SIZING

□ Main Line Sizes: 8-inch, 12-inch (minimum size for residential, industrial, and commercial areas), 16-inch, 18-inch, 24-inch, 30-inch, 36-inch or 42-inch. If piping will serve additional areas, then sizing of minimum 12-inch lines may be increased.

□ Hard copy of Fire Department approval of water system provided and confirms pipe sizing from hydraulic analysis and modeling. Fire Flow/Hydraulic Analysis/Modeling dictate pipe size. Provide water line for maximum proposed building size if future building architecture is not fully defined.

□ Hydraulic Analysis/Modeling utilizes C Value = 120 for CML/CMC or DI per Hazen-William formula and C Value = 150 for PVC Piping.

□ Pipeline looped for dual direction and flexibility, as possible.

□ Service Line Minimum Size = 1-inch. It shall be sized in accordance with Section 1009 of the Uniform Plumbing Code. Meter sizes as follows: ¾-inch meter with 1-inch service line and fitting, 1-inch meter with 1½ inch service line and fitting, 1½-inch meter with 2-inch service line and fitting or 2-inch meter with 2-inch service line and fitting.

WATER PIPELINE REQUIREMENTS PER CVWD

□ 18-inch pipe minimum-all frontage.

□ Minimum pressure (static) = 60 psi (max pressure per pipe & valve manufacturer, or <100 psi).

□ Minimum pressure (fire) = 20 psi (at fire hydrant).

□ Maximum Velocity:
  □ 12-inch and smaller = 5 ft/sec
  □ Cul-de-Sac/dead end pipelines = 10 ft/sec

□ Maximum Head loss:
  □ 18-inch and greater = 2.31ft / 1000 LF

□ Pipe shall have a minimum cover of 36 inches. If not possible, pipe strengthening is required

□ Polyethylene Encasement is required south of Hwy 111 and east of Washington

WATER PIPING SCHEDULE PER GENERALIZED CVWD SPECIFICATIONS – SEE CVWD FOR MORE DETAILS

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Material Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 8-inch</td>
<td>DIP</td>
</tr>
<tr>
<td></td>
<td>PVC</td>
</tr>
<tr>
<td></td>
<td>Copper (typ. 2-inch diameter or less)</td>
</tr>
<tr>
<td>8-inch &amp; 12-inch</td>
<td>DIP</td>
</tr>
<tr>
<td></td>
<td>CML/CMC</td>
</tr>
<tr>
<td>16-inch</td>
<td>DIP</td>
</tr>
<tr>
<td></td>
<td>CML/CMC</td>
</tr>
<tr>
<td>18-inch to 42-inch</td>
<td>DIP</td>
</tr>
<tr>
<td></td>
<td>CML/CMC</td>
</tr>
</tbody>
</table>

DIP - Ductile iron pipe (polyethylene wrapped in corrosive locations)
CML/CMC – Cement mortar lined & coated steel pipe (non corrosive locations)
PVC – Polyvinyl chloride pressure pipe

WATER PIPE LOCATIONS

□ Waterline is 1 ft or more above sewer line when crossing or encase.

□ Waterline is 11 ft per Coachella Valley Water District (CVWD) or more away from sewer line when running parallel.

□ Waterline is a minimum of 5 ft or more away from storm drain or other wet utilities when running parallel.

□ Other Separation Zones per State of California Department of Health Services (See CVWD Std W-1 and W-2)

□ Provide elevations at all crossings; sewer, water and storm drains.
WATER VALVES
- Small Mains (12-inches or less)
  - Full Line Size Gate Valves
  - Resilient Seat
  - Ductile Iron
  - Epoxy Coated
  - Lined in accordance with American Water Works Association (AWWA) C509
- Large Mains (16-inches and greater)
  - Full Line Size Butterfly Valves
  - Epoxy Lined and Coated
  - Ductile Iron Flanged Butterfly Valves
  - Class 150B in accordance with AWWA C504
- Maximum Spacing for main line valves does not exceed 1000 ft or as directed by the City.
- Valves Located on Discharge Side of Connections (idea is to isolate minimum effected area during repair)
  - Minimum 3 at Crossings
  - Minimum 2 at Tees
  - Always at beginning of Dead End Mains
  - City require additional valves at critical sections
  - Additional valves when more than 3 valves required for isolating a pipeline section.
- Isolation Valves flanged to Cross or Tee within Street Intersection
- Isolation Valves direct buried.

WATER BACKFLOW PREVENTION
- Backflow prevention found on all Domestic Water Service & Irrigation Connections for all Commercial and Industrial Buildings.
- Backflow prevention found on domestic water service connections where recycle water is used on the property.
- Backflow prevention found on domestic services where water from other sources may become cross-connected. Also see Title 17, Drinking Water Supplies, of the California Administration Code.

CORROSIVE SOIL DESIGN
- Cathodic test stations provided when corrosive soils are encountered. City requires cathodic protection for transmission mains and major pipelines regardless of soil conditions.
- Testing shall evaluate PH, Redox, Sulfide, Resistivity and Sulfate per Field and Laboratory testing.
- Special protective coatings for pipe and fittings provided, as applicable
- Test stations installed behind existing or proposed curbs to allow safe access to personnel.
- Test stations installed at 1000 ft intervals or as per City Engineer.

SERVICE INSTALLATIONS
- Services shall not be connected to 18 inch or larger mains without City Approval.
- Arterial Roadway Medians and Private Projects Landscape Easements shall utilize separate meters.

FIRE HYDRANTS
- Set fire hydrants behind curb 7 ft 6 inches behind FL, per City Std 636 and per CVWD Standard.
- Installed at 300 ft increments except on Arterial Roads
- 500 ft Separations on Arterials. Alternate sides of Roadway.
- 5 ft Minimum Separation from Driveways, Street Light, Power Pole, Sign, Fence, Walls, Etc.
- 12 inches behind sidewalk when sidewalk is adjacent to curb
- 20 inches behind curb face when sidewalk is not adjacent to curb (must have break-off check valve).
- Piping shall be the same as the mains and include break-off check valve.

BLOW-OFFS

<table>
<thead>
<tr>
<th>Main Size</th>
<th>Blow-Off Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-inch to 16-inch</td>
<td>4-inch</td>
</tr>
<tr>
<td>18-inch to 24-inch</td>
<td>6-inch</td>
</tr>
<tr>
<td>&gt; 24-inch</td>
<td>8-inch</td>
</tr>
</tbody>
</table>
- Located at all low points and all dead ends.
- Located at all upstream sides of mainline pipelines 16-inches in diameter or greater.
- Located as near to storm drain catch basins as possible.
- On Arterial streets, located prior to curb radius with service line perpendicular with mainline.
COMBINATION AIR/VACUUM RELEASE VALVES
- Located at all high points.
- Located at all dead ends.
- Located at all downstream sides of mainline pipelines 16-inches in diameter or greater.
- On Arterial streets, located prior to curb radius with service line perpendicular with main line.
- Air Vac sizing shall be based on APCO APSLIDE Model or Engineering Calculations.

TEMPORARY END OF LINE APPURTEANCES
- 4-inch blow off installed at each end of line segment for future use.
- Install an air vacuum if the end of line creates a high point.

TRACER WIRE
- Install tracer wire on all PVC waterlines.
- Locator wire shall be brought to the surface of all appurtenances (i.e. fire hydrants, water services...etc).

DUCTILE IRON FITTINGS FOR PVC C900
- Fittings shall be Cast Iron push on or mechanical joint with exceptions.
- Exceptions: with Valves shall be push-on or mechanical joint by flange.
- Unless specified, line w/cement motor (double thickness) & seal w/bituminous coating per ANSI A21.6 or ANSI 21.51.
- Shall be encased by polyethylene per AWWA C105 at time of installation.

RESTRAINED SYSTEM – USE ON SLOPES, ETC.
- PVC – Use Uni-flange or Mega-Lug
- DIP – Field lock gaskets or TR-Flex Joints
- CML & CMC Steel Pipe – Welded joints
- Water working pressure equal to full rating with a minimum 2:1 safety factor.
- All devices shall provide 360 degree of support around the circumference of the pipe.
- Restrained on each side of bends, tees, reducers & other fittings to be determined by EOR or manufacturer.