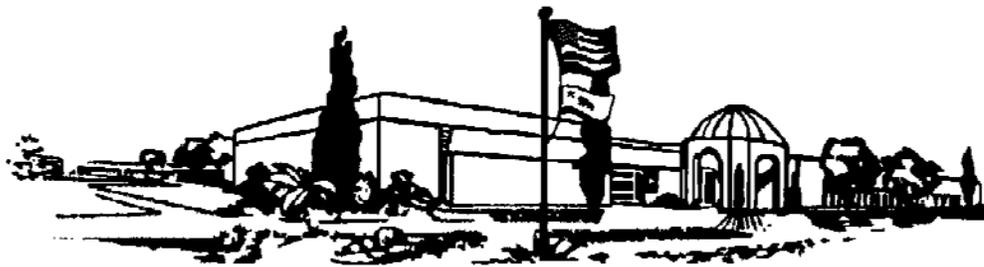


DEVELOPMENT SPECIFICATIONS FOR PUBLIC WATER SYSTEM EXTENSIONS



ALAMEDA COUNTY WATER DISTRICT
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APRIL 2013

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REVISIONS

Users of the District's Development Specifications for Public Water System Extensions shall be responsible to confirm they are using the most recent versions. To confirm the most recent versions of the Development Specifications for Public Water System Extensions, please contact the District Engineering Department at (510) 668-4499 or visit the District website at www.acwd.org.

REV. NO.	DATE	DESCRIPTION
0	04/01/2013	Issued for Distribution
1	05/22/2013	Updated Table of Contents; corrected typographical errors; revised Sections 7.9, 7.10, and 7.12; added Section 7.13.
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3	05/01/2019	Updated Table of Contents; revised Sections 2.1.2, 2.1.2.1, 2.1.2.3, 2.1.4, 4.2.4.f, 4.3.2, 9, 11, and 12; deleted previous Section 2.1.2.4; revised Appendix I;

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DEVELOPMENT SPECIFICATIONS **FOR PUBLIC WATER SYSTEM EXTENSIONS**

1 DEFINITIONS AND TERMS

Where the words “as shown,” “as detailed,” “as indicated” or words of like import are used, reference is to the project drawings unless the context clearly indicates a different meaning. Where the words “required,” “approve,” “satisfactory,” “suitable,” “determined,” “acceptable” or words of like import are used in the project drawings or project specification, action by District is indicated unless the context clearly indicates otherwise. Such action, or failure to act, shall not relieve the Developer of its responsibilities to perform the work in accordance with the requirements of the project.

Agreement

The Public Water System Extension Agreement made and entered into between District and Developer setting forth the terms and conditions under which District will furnish water to the development.

Annexation

The inclusion of property within District boundaries by proper legal and administrative procedures.

Applicant

An individual, company, agency, or other entity applying for new or modified water service. For projects requiring a public water system extension, the Applicant shall be the “Developer.”

Approved Plans

Plans that have been signed by District Engineer.

Auxiliary Water System Facilities

Water storage, treatment, pressure regulation, pumping, or other such water system facilities, excluding water mains.

Backfill

That portion of the trench backfill which is above the bedding of the water main (above a point six inches over the top of the water main).

Bedding, Pipe Zone, or Pipe Envelope

That portion of the trench backfill which is under, around, and to six (6) inches over the water main.

Board of Directors

The Board of Directors of Alameda County Water District, the governing body of District.

<u>Caltrans</u>	See definition of “Department of Transportation.”
<u>City</u>	The word “City” when used herein shall mean the city of Fremont, Newark or Union City, Alameda County, California, and shall refer to the above city having jurisdiction, unless otherwise specifically stated.
<u>Closure Connection</u>	The installation of the permanent connection between the existing public water system (e.g., “Tie-In”) and the new public water system extension, or portion thereof, installed by Developer, after the new public water system extension has been conditionally accepted by District in accordance with Section 11.
<u>Contractor</u>	The individual or individuals, firm, partnership, corporation, joint venture or combination thereof, acting as an independent Contractor in performing work, hired or employed by Developer for the installation of the water system for the development.
<u>County</u>	Alameda County, State of California.
<u>Customer</u>	An individual, company, agency, or other entity requesting or receiving water service from the District via one or more water service devices.
<u>Cut Sheets</u>	Sheets of tabulated data on the construction staking of the new water facilities to be installed in accordance with the Approved Plans. Cut sheets for all public water system extensions shall be prepared using District furnished cut sheet forms.
<u>Days</u>	Calendar days, unless otherwise designated.
<u>Department of Transportation</u>	State of California, Business, Transportation and Housing Agency, Department of Transportation.
<u>Developer</u>	Developer shall mean any individual, firm, association, syndicate, co-partnership, corporation, trust or any other legal entity affecting a development of land within District boundaries or Sphere of Influence. See also “Applicant.”

<u>Developer’s Engineer</u>	An Engineer licensed by the State of California as a Civil Engineer, under whose direction plans, profiles and details for the work are prepared and submitted to District for review and approval.
<u>Developer’s Surveyor</u>	A Land Surveyor duly licensed in the State of California, or a professional Civil Engineer duly licensed in the State of California having a license number below C33966.
<u>Development</u>	Any subdivision, tract, commercial, industrial, school, residential or other use of land which requires an extension of District’s water system or on behalf of which an application for water service is made.
<u>Development Policy</u>	District’s “Policy Governing Water Services and the Extension and Improvement of the Water Distribution System and Facilities of the Alameda County Water District,” current version in effect at the time of execution of the Public Water System Extension Agreement.
<u>District</u>	The Alameda County Water District (ACWD).
<u>District Engineer</u>	District’s Assistant General Manager - Engineering or Engineering Manager of the Alameda County Water District, acting either directly or through properly authorized employees or agents, such employees or agents acting within the scope of the particular duties entrusted to them.
<u>Drawings</u>	See definition of “Plans.”
<u>Easements</u>	Right-of-way dedicated through the use of District approved legal instruments to the general public or to District in which District’s facilities may be located.
<u>Highway Specifications</u>	The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, current revision.
<u>Inspector</u>	A field representative of District, acting within the scope of the particular duties entrusted to him/her.

Offsite Main

A public water main extension installed outside the boundaries of the premises to be developed or served.

Onsite Main

A public water main extension installed within the boundaries of the premises to be developed or served.

Overtime Work

Overtime work is all work performed on Saturdays, Sundays, District holidays, or on weekdays before 7:30 a.m. or after 4:00 p.m.

Alameda County Water District Holidays

- a. New Year’s Day.....January 1
- b. Martin Luther King, Jr.’s Birthday3rd Monday in January
- c. Washington’s Birthday3rd Monday in February
- d. Memorial DayLast Monday of May
- e. Independence Day.....July 4
- f. Labor Day1st Monday in September
- g. Veterans’ DayNovember 11
- h. Thanksgiving Day.....4th Thursday in November
- i. Day After Thanksgiving4th Friday in November
- j. Christmas Eve DayDecember 24
- k. Christmas Day.....December 25

When a District Holiday falls on Sunday, the following Monday will be observed. When a District Holiday falls on Saturday, the preceding Friday will be observed.

Paragraph

Any reference to a paragraph which is not accompanied by further reference other than a letter and number or a number, refers to a paragraph of the Development Specifications.

Paved Surface

Any form of pavement used in street, sidewalk or other areas composed of concrete, asphalt, oil, brick or treated crushed rock or any combination of above forms of pavement having a dense, cohesive, stable surface.

Permit for Public Water System Construction

Permit issued by District to Developer’s Contractor which authorizes public water system construction work.

Permits or Licenses

Clearances from other agencies to perform specific work under specific conditions at specific locations.

Pipe Types

- ACP - Asbestos Cement Pipe
- CMP - Corrugated Metal Pipe
- DIP - Ductile Iron Pipe
- GIP - Galvanized Iron Pipe
- HDPE - High Density Polyethylene Pipe
- ML & CT - Mortar Lined and Coal Tar Coated Steel Pipe
- ML & DC - Mortar Lined and Dielectric Coated Steel Cylinder Pipe
- ML & MC - Mortar Lined and Mortar Coated Steel Pipe
- PVC - Polyvinyl Chloride Pipe

Plans (Drawings)

Those parts of the improvement plans which show the locations, configuration, character, dimensions, and details of the work to be done.

Premises

The property or area, including improvements thereon, to which water service is, or will be, provided.

Project

See definition of “Work.”

Public Water System Extension

The pipe and appurtenances laid or to be laid along any street, alley or right-of-way for the distribution and transmission of water, including but not limited to water mains, service connections, meter boxes, fire hydrants, air valves, electrolysis control, marker posts, curb markings and valve boxes, which will, upon Final Acceptance, become operated and maintained by District.

Right-of-Way

All land or interest therein which by deed, conveyance, agreement, easement, implication, dedication, usage or process of law is reserved for or dedicated to the use of the general public or to District within which District has the right to install, maintain and operate its facilities.

Roadway

All of a right-of-way dedicated, granted, used or to be used, for vehicle movement.

Section or Subsection

Any reference to a section or subsection which is not accompanied by further reference other than a

number refers to a section or subsection of the Development Specifications.

Service Connection or Service Line

The public pipeline laid or to be laid from the public water main to the meter or other water service device, together with the fittings and appurtenances necessary to connect said pipe to the water main and to the meter or other water service device.

Secondary Water Main

The second water main installed within the same portion of street, highway, public or private right-of-way as another water main.

Shop Drawings

Drawings produced by the steel pipe fabricator for the purpose of showing details, dimensions, sizes of material, joints and all information and data necessary for the fabrication of the metal work.

Sphere of Influence

The boundary, designed for planning purposes, outside of District's existing service boundary, as determined by the Local Agency Formation Commission of Alameda County.

Standard Drawings

District's Standard Drawings and all subsequent additions, deletions, revisions or addenda, current version in effect at the time District signs the Approved Plans which shall be considered a part of these specifications.

Standard Specifications

District's Standard Specifications for Water Main Installation and all subsequent additions, deletions, revisions or addenda, current version in effect at the time District signs the Approved Plans.

State

The State of California.

State Standard Specifications

See "Highway Specifications."

Subcontractor

The individual or individuals, firm, partnership, corporation, or combination thereof, who will perform work for the Contractor. Any Subcontractor shall have a valid State of California license pertaining to its field of operation and shall be subject to the same District terms, conditions and requirements as the Contractor.

Superintendent The executive representative of Contractor, present on the work at all times during performance of work, authorized to receive and fulfill instructions of District.

Tie-In The tap, tee, valve and/or pipe installed on the existing in-service public water system as the point of connection for a new public water system extension where the closure connection will be made. See “Closure Connection.”

Water Main Water distribution or transmission pipelines, owned by the District, located in streets, highways, public ways, or private rights-of-way which are used to serve the general public, together with all integral appurtenances such as line valves, blow offs, and air valves and excluding fire hydrants, fire hydrant laterals, service lines, and water service devices. Water mains may be used for distribution or transmission of either potable or non-potable water.

Water Meter or Meter The device for measuring and recording the quantity of water flowing through the service line.

Water Service Device Those appurtenances through which water service is provided, including water meters and detector check valves, which serve as the point of connection between the public water system and the applicant’s private plumbing. Each point of connection involves only one water service device, which is owned by the District.

Work The required work of physical improvement shown and defined by the Approved Plans, including all written changes thereto. The work is “public works” as defined by statute.

Working Day Any calendar day, excluding Saturdays, Sundays, and District holidays. See “Overtime Work.”

2 GENERAL POLICIES

A general knowledge of the District’s policies as currently embodied in the District’s “Policy Governing Water Services and the Extension and Improvement of the Water Distribution System and Facilities of the Alameda County Water District,” as amended, and as established by the District Engineering Department is essential to the orderly extensions of the District’s water

system. The following is a brief outline of the major requirements of the District and must be interpreted as such. For more detailed information concerning these requirements, it is suggested that the District Engineering Staff be consulted.

2.1 Development Policy

The District's "Policy Governing Water Services and the Extension and Improvement of the Water Distribution System and Facilities of the Alameda County Water District" (the "Development Policy") sets forth the principles governing the extension and improvements of the public water system within the District. Briefly, the Development Policy and the District's Rate and Fee Schedule provide for the following:

2.1.1 Provision of Water Service and Extensions of Public Water System

The District provides water service for domestic, fire, or irrigation water demands. Water service may be provided from the public water system through the installation of new water services or the modification of existing water services. Where the existing public water system is sized or located to provide for new or modified water service without the need for significant extensions of the water mains, the work shall be done by District forces at the Developer's expense. Reference Section 2.1.3 for more information about work by District forces. Extensions of the public water system and the installation of new water mains within or to provide service to a development, including service connections, fire hydrants, and other appurtenances shall be installed by, and at the expense of, the Developer.

2.1.2 Fees and Charges

The extension of the public water system, the provision of new or modified water service, and the continuation of existing water service will be conditioned on the payment of all applicable charges such as:

- Annexation Fee
- Public Water System Extension Engineering Fee
- Facilities Connection Charge
- Meter Installation Charge
- Special Service Area Connection Charges
- Additional Labor and Materials Costs or Estimated Cost for Miscellaneous Work by District Forces

Other charges may from time to time be established by the Board of Directors. The calculation of the exact amount of these charges will be made by the District Engineering Department after approval of the engineering plans for the proposed water system. These charges must be paid by the Developer to the District in accordance with the public water system extension agreement, but no later than prior to the installation of water meters by the District.

The Developer will be required to pay all applicable development fees and charges as a condition of water service to the development. Explanation of District fees and when they are due are

shown below. For fee amounts, refer to the District's current Schedule of Development Fees and Charges, which is available on the Development Services section of the District's website (www.acwd.org) or at the offices of the Development Services Division of the District Engineering Department.

2.1.2.1 Annexation Fee

The Annexation Fee applies to sites that are not currently within the District boundary. To verify whether a site is within the current District boundary, contact the Development Services Division of the District Engineering Department.

The Annexation Fee, if applicable, shall be paid by the Developer requesting annexation of territory into the District. Developer shall deposit with the District an amount equal to the estimated total cost of District services related to the annexation including any necessary third party and/or legal costs. Supplemental deposits may be required as needed to maintain sufficient funding as a condition of the District providing continued services related to the annexation project. Final billings to the Developer will be based upon actual total District cost. If final actual costs are less than the total deposited, the District will refund the amount of the unused deposit. If final actual costs are greater than the total deposited, the Developer will be invoiced in the amount of the overage.

2.1.2.2 Public Water System Extension Engineering Fee

The Public Water System Extension Engineering Fee is assessed to any project in which the Developer's Contractor is required to install a new public water main. The District has determined that, in order to defray District cost for work performed by District in conjunction with the design and construction of water facilities installed by Developers in the development of lands within the District, a Public Water System Extension Engineering Fee will be charged to Developer installing the water facilities.

The amount of the Public Water System Extension Engineering Fee will be determined on an actual cost basis for the work performed by the District. Such costs include but are not limited to improvement plan review, public water system extension agreement preparation and administration, easement preparation, water system construction inspection, water quality sampling and analysis, and preparation of related documents. Costs for District work in support of tie-ins, water service connections and meters, fire service connections, fire hydrants, detector check valves, relocation or abandonment of existing District facilities and any other such work performed by District forces (referenced in Section 2.1.3) are not included in District's Public Water System Extension Engineering Fee but are the responsibility of the Developer and will be invoiced and billed separately.

An initial deposit for the Public Water System Extension Engineering Fee will be estimated on the Application for Public Water System Extension and will be due with receipt of the Application for Public Water System Extension and prior to District review of the project improvement plans. If, at any point during the District's work in support of the Developer's project, the District determines a public water system extension is not required for the proposed project, the District will stop accruing charges against the Public Water System Extension Engineering Fee deposit, and any remaining deposit amounts will be refunded. The District may

require supplemental deposits over the course of the project in order to ensure adequate funding for the work. Failure of Developer to make such supplemental deposits within the time period required may result in discontinuance of District work in support of the project. The final Public Water System Extension Engineering Fee amount will be the actual cost of the work performed by the District. If final actual costs are less than the total deposited, the District will refund the amount of the unused deposit. If final actual costs are greater than the total deposited, the Developer will be invoiced in the amount of the overage.

2.1.2.3 Facilities Connection Charge

The Facilities Connection Charge (FCC) is made up of two components: the incremental cost component and the equity buy-in component. The incremental cost component is assessed per residential dwelling unit or per non-residential meter and funds growth related District capital improvement projects through the District's Facilities Improvement Fund. The equity buy-in component is assessed to establish an equity position between new and existing customers of the system and funds capital projects that refurbish and replace existing water system facilities through the District's Facilities Renewal Fund.

An FCC will be assessed for every new residential dwelling unit to be served and for every new non-residential meter to be installed. For a project on a property previously served by the District, credit may be applied for previous water service to the site, as determined by the District.

An FCC will be due and payable at the time of Conditional Acceptance. Payment prior to Conditional Acceptance is prohibited. Payment shall be made prior to and as a condition of water meter installation, or, when no new water meters are being installed, prior to dwelling unit occupancy. If, following FCC payment, the Developer delays the physical installation of any meter(s) beyond one year from the date of payment, then any incremental cost increase in the FCC in effect at the time the Developer requests physical installation of meters will be applicable. The Developer will be required to pay any incremental increase between the amounts previously paid for these charges and the amount due at the time of installation of the meter(s).

2.1.2.4 Meter Installation Charge

The Residential Meter Set Charge, as shown on the current Rate and Fee Schedule, is a flat rate meter installation charge which covers the installation cost for the installation of domestic water meters for individually metered residential units. The Residential Meter Set Charge applies only to residential meters that will be installed on existing service connections that were previously installed under a public water system extension agreement for the subject development.

Estimates for Budgeting Purposes, as shown on District's current Schedule of Development Fees and Charges, are rough estimates of labor and material costs for water service connections and/or water meters to be installed by District on an existing water main. The costs labeled as "meter set only" are rough estimates of labor and material costs for meter installations that are either: a) non-residential meters to be installed on existing service connections, or b) residential meters to

be installed on existing service connections not installed under a public water system extension agreement or that are not properly configured (i.e., no meter box installed, no fire sprinkler connection installed, etc.).

The flat rate Residential Meter Set Charge will be due and payable prior to and as a condition of water meter installation. If, following payment of the charge, the Developer delays the physical installation of any meter(s) beyond one year from the date of payment, then the flat rate Residential Meter Set Charge in effect at the time the Developer requests physical installation of meters will be applicable. The Developer will be required to pay the difference between the amounts previously paid for these charges and the amount due at the time of installation of the meter(s).

2.1.2.5 Special Service Area Connection Charge

A Special Service Area Connection Charge is a special charge that funds reimbursement accounts for specific developer-installed improvements, as set forth in the development agreements for those improvements. To determine whether your project is subject to this charge, contact the Development Services Division of the District Engineering Department.

The Special Service Area Connection Charge will be due and payable as required by the District and in accordance with the specified development agreements.

2.1.3 Work by District Forces

The District's costs to estimate, design, administer and construct tie-ins, water service connections and meters, fire service connections, fire hydrants, detector check valves, relocation or abandonment of existing District facilities and any other work performed by District forces are the responsibility of the Developer but are not included on District's Schedule of Development Charges and Fees, as such work is performed by the District on an actual cost basis. The cost of such work can vary dramatically between locations and is individually estimated for each project in accordance with the process described below.

Work by District forces is requested by submitting a **Customer Work Request Application**. For more information, refer to the informational document, entitled "Customer Work Request Application Overview and Instructions." The application and the information document are available from the Development Services section of the District's website (www.acwd.org) or at the offices of the Development Services Division of the District Engineering Department.

After receipt of a satisfactorily-completed Customer Work Request Application, the District will prepare a detailed design and an estimate for the total cost of the work requested. The applicant will be required to deposit with the District an amount equal to the total estimated cost of the work prior to commencement of the work by the District. The final cost of the Work by District forces will be the actual cost of the work performed by the District. If final actual costs are less than the amount deposited, the District will refund the amount of the unused deposit. If final actual costs are greater than the amount deposited, the applicant will be invoiced in the amount of the overage.

By signing the Customer Work Request Application, the applicant expressly agrees to pay all District costs incurred associated with the request, regardless as to whether the requested work is completed or not. If any Customer Work Request is cancelled, either by the applicant or by the District, the applicant will be required to pay all District costs incurred in support of the requested customer work (including, but not limited to, estimating, designing, field/site visits, surveys, customer coordination, meetings, administration, and other costs).

2.1.4 Potential Reimbursements

In accordance with the Development Policy, when public water system facilities are installed by the Developer which provide service to property other than that owned by the Developer, the Developer may be eligible for potential reimbursements as set forth in the Developer's Public Water System Extension Agreement with the District. Moneys from the Installer's Reimbursement Account are paid on a pro-rata basis to each Developer eligible for reimbursement from the account, up to an annual limit of twenty percent of the Developer's eligible reimbursement amount. A Developer shall be eligible for reimbursement from the Installer's Reimbursement Account until full reimbursement of the Developer's eligible reimbursement amount is made or until the Developer has been eligible to receive ten annual payments by the District, whichever occurs first.

2.1.4.1 Potential Offsite Main Reimbursements

All or portions of the offsite mains along the frontage of the Developer's premises shall not be eligible for reimbursement. No mains required to be installed for the sole benefit of the Developer, as determined by District, shall be eligible for reimbursement.

2.1.4.2 Potential Oversize Reimbursement

In the event the District requires installation of water main(s) larger than that needed to provide adequate service to the premises of the Developer, and in the event such water main(s) exceed twelve (12) inches in nominal diameter, the Developer may be eligible for potential reimbursement for the difference between the installation cost of a twelve (12) inch water main and the installation cost of the water main or water mains actually installed; provided further, however, that if the Developer requires a water main or water mains in excess of twelve (12) inches, then the Developer's potential reimbursement shall be limited to the difference in the cost between the water main or water mains required by District and the water main or water mains required to service the Developer's premises, as determined by the District.

In the event the District requires installation of auxiliary water system facilities which are larger than needed to provide adequate service to the premises of the Developer, the Developer may be eligible for potential reimbursement for the difference between the installation cost of the size or capacity of the auxiliary water system facilities installed and the size or capacity of auxiliary water system facilities necessary to serve the Developer's premises, as determined by the District.

2.1.5 Refunds

Within the provisions of the Development Policy, when public water system facilities are installed by the Developer which provide service to property other than that owned by the Developer and said public water system facilities are part of the District's Capital Improvement Program, the Developer may be eligible to receive from the District's Facilities Improvement Fund a refund as set forth in the Developer's Public Water System Extension Agreement with the District. Moneys for the Facilities Improvement Fund are collected from Facilities Connection Charges. Refunds from the Facilities Improvement Fund are paid to the eligible Developer upon completion of the installation of the public water system and the Developer's submission of, and District's approval of, necessary documentation of the installation cost.

2.1.5.1 Public Water System Facilities Eligible for Refunds

If the Developer is required by the District to install secondary water main (the second water main installed within the same portion of the street, highway, public or private right-of-way as another water main) or auxiliary water system facilities (including water storage, treatment, pressure regulation, pumping or other such water system facilities, excluding water mains), which are part of the District's Capital Improvement Program and are not required to serve the Developer's premises, then the Developer may be eligible for a refund equal to the total cost of installation of said secondary water main or said auxiliary water system facilities.

In the event the District requires installation of onsite non-potable water main which is larger than that needed to provide adequate service to the premises of the Developer, as determined by the District, and the onsite non-potable water main is part of the District's approved Capital Improvement Program, the Developer may be eligible for a refund equal to the incremental cost difference, if any, between the installation cost of the onsite non-potable water main installed and the onsite non-potable water main required to service the Developer's premises.

If the Developer installs water main or auxiliary water system facilities that are eligible for potential reimbursement, as determined by the District and generally described above in Section 2.1.4, and said water main or auxiliary water system facilities are part of the District's Capital Improvement Program, then the District may provide the potential reimbursement for those portions of the public water system as a refund from the Facilities Improvement Fund in accordance with Section 2.1.5.

2.1.6 Agreement

As a condition of water service to a development requiring a public water system extension, the Developer is required to execute a public water system extension agreement prior to application for a District Permit for Public Water System Construction.

The District will prepare the public water system extension agreement after it has received:

- two (2) copies of the approved plans, as specified below, and
- one (1) electronic copy of the approved Exhibit "A" drawing, as specified below.

The agreement will incorporate the various applicable provisions of the Development Policy and will incorporate any special conditions that may be required by the public water system extension. No District Permit for Public Water System Construction will be issued to the Developer's Contractor until after the agreement is fully and properly executed by the Developer and submitted to the District.

2.2 Other District Policies

2.2.1 Annexation to District

Water service will not be extended to areas outside the District's boundaries. Areas so located must be annexed to the District prior to the installation of public water mains and connection to the District's water system.

After its initial review of the project plans, the District will notify the Developer if annexation is required. However, annexation to the District is a lengthy and complex procedure. To avoid potentially significant project delays, the Developer should determine if an annexation is required during the planning stage of the project.

To determine whether or not annexation is required, or for further information on the annexation procedure, contact the Development Services Division of the District Engineering Department.

2.2.2 Wells

In order to protect the underground water basin which constitutes a primary source of the water supply for the area, those existing wells within a development which, in the opinion of the District, require sealing shall be sealed by the Developer at the Developer's expense in accordance with the District's specifications prior to initiation of water service.

All wells within the development must be brought into compliance with the District's Well Ordinance (Ordinance No. 2010-01 as amended or current version). Any monitoring wells within the development boundary must either be protected or properly destroyed prior to or during development.

To determine if any wells are on the project site or for more information on required action, contact the Groundwater Resources Division of the District Engineering Department.

2.2.3 Easements

Water line easements are required for all public water facilities located outside of the public right-of-way or outside of a public utility easement abutting the public right-of-way. For any project in which water line easements are required, Developer shall submit the following for review by the District:

- Subdivision map for the development with all easements to be granted to the District shown. If there is not a subdivision map or if the easements are outside the

- boundaries of the map, submit a written metes and bounds description and scale drawings of the easements, prepared by either (1) a land surveyor licensed in the State of California, or (2) pursuant to Business and Professions Code Section 8731, a professional civil engineer licensed in the State of California before January 1, 1982 (who would have a license number below C33966), and qualified to prepare such documents, in a form acceptable to the District.
- Current title report(s) which shows the land owner(s) who will be executing easement documents.

Upon completion of review of the above information, District will notify the Developer of any required modifications. The subdivision map, if applicable, should be submitted to the County for recordation only after notification from District that the above information is satisfactory.

The recorded subdivision tract map and the current title report(s) must be submitted to the District within fifteen (15) days after the District's issuance of a Permit for Public Water System Construction. Upon receipt of the recorded subdivision map or approved written description and scale drawings of the easements and a copy of the current title report, District will prepare easement documents for execution by the property owner. It is the responsibility of the Developer to secure property owner execution of all easement documents.

Reference Appendix VI for additional information about District water line easement guidelines and standards.

2.2.3.1 Easements Required Prior to Scheduling of Closure Connection

Closure connections will not be scheduled nor will water service be provided until after any required easements have been granted by the property owner and are reviewed and deemed acceptable by the District.

2.2.3.2 Easement Limits

Easements for water mains and service manifolds four (4) inches and larger shall be a minimum of fifteen (15) feet in width and extend a minimum of five (5) feet around the outside of any public water facilities within the easement area.

Easements for water mains in undeveloped areas or other areas for which the easement must be relied upon for access shall be a minimum of thirty (30) feet in width.

Easements for transmission mains sized sixteen (16) inches and larger shall be a minimum of twenty (20) feet in width and extend a minimum of five (5) feet around the outside of any public water facilities within the easement area.

Easements for water service devices, air valves, fire hydrants and other appurtenances shall extend a minimum of five (5) feet around the outside edge of the appurtenance.

The District shall determine the easement area required for all public water system facilities and the District's determination shall be final.

Reference Appendix VI of these Development Specifications and Standard Drawing CL-5-08 for additional information and requirements.

2.2.4 Standard Specifications

All public water system extensions must comply with the District's Standard Specifications for Water Main Installation, current version.

2.2.5 Backflow and Cross-Connection Control

Any water service connections from the public water system shall conform to the District's Backflow and Cross-Connection Control requirements, as set forth within the District's Cross-Connection Control Ordinance (Ordinance No. 1999-01 as amended, or current version).

Public water system design must include the necessary backflow prevention devices and otherwise satisfy the requirements of:

- District Standard Specifications and Standard Drawings, and
- Water Plans and Profile requirements as specified in Section 4.3.6.

3 RESPONSIBILITY OF DEVELOPER'S ENGINEER

Developer's Engineer shall submit to District for review and approval two (2) complete sets of drawings of the proposed water system for the development required by District in accordance with the procedures and requirements set forth herein. Additionally, Developer's Engineer shall submit to District for review and approval one (1) electronic copy and two (2) hard copies of the Exhibit "A" drawing as specified herein.

4 ENGINEERING POLICIES

The following District engineering policies governing design, plan preparation, plan approval, and Exhibit "A" preparation have been established to provide for an orderly development of the water system within the District. Changes may be made in these policies from time to time. It shall be the responsibility of everyone engaged in work involving the District's facilities to keep informed of any changes made. All water system configurations shall be as determined by the District, and the District's determination shall be final.

Typically, water main size is governed by the capacity required to meet fire flow requirements. The District requires the Developer to determine the water main sizes needed to serve their Development and to secure review and approval from the local fire jurisdiction. The District will determine minimum water main sizes required in order to provide adequate integration into the surrounding public water system and to ensure other requirements are met. The District will not determine water main size required for fire flow or other service requirements for the

Developer's project.

When required by the District, water mains shall be installed from the nearest adequate source(s) to the development. The minimum size, location and extent of the water mains required shall be as determined by the District Engineering Department. The District's determination shall be final.

4.1 District Information for Design

Prior to the preparation of design plans for the water system to be installed within a development, the Developer's Engineer should obtain from the District a copy of the District's 1" = 200' scale water system drawing for the area in which the development is located. A form for requesting this information is available from the Development Services section of the District's website (www.acwd.org) or at the offices of the Development Services Division of the District Engineering Department.

The Developer's Engineer should also arrange to meet with District Engineering personnel to discuss the planning, design, field staking, and/or construction of the proposed water system and water service to the Developer's premises.

4.2 Design Standards

The following design standards are to be used by the Developer's Engineer for the water system layout. The District Engineering Department will review each proposed water system layout for adequacy and conformity with the District's Water Distribution System Master Plan. All changes required by the District Engineering Department in the proposed layout shall be made by the Developer's Engineer prior to approval of the plans by the District. Notwithstanding the above, the District will apply whatever additional design criteria it deems appropriate for the proposed water system and any or all of its components.

4.2.1 Location and Alignment

1. Water mains shall be located seven (7) feet off the face of curb on the north and east side of streets. In some cases when approved by the District, water mains may be located five (5) feet off the face of curb in narrow ("private") streets where parking is not allowed. Reference is made to District Standard Drawing CL-1-08.
2. The location of water mains on frontage roads, divided roads, or roads one hundred (100) feet or wider will be determined by District.
3. A minimum horizontal clearance of five (5) feet (outside edge to outside edge) between horizontal projections of the District's facilities and other facilities. A minimum vertical clearance of twelve (12) inches shall be provided between buried District facilities and any other underground facility, structure or utility. Reference is made to District Standard Drawings CL-1-08 through CL-5-08.

4. Water mains shall maintain a minimum horizontal clearance of eight (8) feet from any horizontal projection of a building or any other permanent structure, including foundations or any horizontal projections within twenty-three (23) feet above finished grade. Reference is made to District Standard Drawing CL-1-08.
5. Appurtenances shall be located in accordance with District Standard Specifications for Water Main Installation and District Standard Drawings, and as directed by the District.
6. The Developer and the Developer’s Engineer assume all responsibility to cause the water system to conform to all applicable, State, federal, and local laws, regulations, codes, rules, and other requirements, including those established by the District.

4.2.2 Sizing

1. All extensions of public water mains shall be of the same nominal size and capacity as the public water main being extended, unless otherwise required by the District.
2. No public water main shall be smaller than six (6) inches in diameter.
3. A well-gridded water system shall be comprised of a network of looped public water mains that are at least eight (8) inches nominal diameter in lower density residential areas, and at least twelve (12) inches nominal diameter in high density and non-residential areas.
4. Water main sizing should be based on providing not less than the required fire flow with not more than ten (10) psi pressure loss from the nearest twelve (12) inches or larger public water main.
5. No fire hydrant shall be installed off a dead-end six (6) inch nominal diameter public water main.
6. The District’s determination of the minimum size and configuration of all public water mains, appurtenances, and other facilities shall be final.

4.2.3 Minimum Cover

The minimum depth of cover listed below shall be provided between the top of the water main and the undisturbed subgrade or finished grade whichever provides the greater cover.

	Undisturbed Subgrade	Finished Grade
6" and 8" Diameter	2' 0"	3' 0"
10" and 12" Diameter	2' 6"	3' 6"
14" and Larger	3' 0"	4' 0"

Developer’s Engineer shall indicate on the plans the distance from finished pavement or road surface grade to the bottom of the undisturbed subgrade.

4.2.4 Standards for Water System Design and Redundancy

- a. Individual water meters shall be provided for individual residential, commercial or industrial units.
- b. All water service configurations, except those for individually metered residential applications, shall consist of separate meters/water service devices for fire, domestic, and irrigation uses.
- c. Water service devices, including meters, shall front the water main and be located within the parcel or premises which it serves.
- d. No water service shall be provided from transmission mains.
- e. Residential domestic water service to each building containing at least 50 residential units shall be served from two (2) or more redundant master metered service connections. Each of the redundant service connections shall be served from separate water mains.
- f. Privately owned and maintained domestic sub-meters shall be installed for each residential, commercial or industrial unit receiving domestic service via master metered service connection(s). For sub-meters under the jurisdiction of the California Department of Food and Agriculture, Division of Measurement Standards (CDFA DMS), Developer should contact CDFA DMS regarding any applicable requirements.
- g. If more than 15 residential units are served from a “dead-end” public water main, at least two (2) line valves shall be installed at the nearest tee fitting (or at least three (3) line valves shall be installed at the nearest cross fitting) where that dead-end public water main connects to the nearest adjacent water main such that the dead-end main could be served from at least two (2) directions.
- h. No more than 25 residential units shall be served from a dead-end public water main.
- i. The design of a new onsite public water system shall provide a minimum of two connections to the surrounding public water system to provide for system looping, continuous flow-through of water, and a well-gridded, redundant water system.
- j. Offsite water main extensions and/or easements shall be provided to cross-tie water mains in cul-de-sacs or other dead-end configurations that are 500 feet or longer in length, serve more than 25 customers, or as may be required by the District.
- k. No water main should be used on runs longer than 1,000 feet without reinforcement or looping, such as tee installations or cross installations to other gridded water mains.
- l. All Developers should review their project with the District Engineering Department prior to preparing improvement plans.

4.2.5 Appurtenances

4.2.5.1 Valves

- a. Unless otherwise required by the District, all line valves twelve (12) inches or smaller shall be resilient-seated gate valves; all line valves fourteen (14) inches or larger shall be butterfly valves. Reference is made to the District's Standard Specification for Water Main Installation and Approved Materials List.
- b. Valves are to be arranged so as to provide minimum disruption of service in case of a water main break or water main service outage.
- c. At least three (3) valves are to be installed at each cross.
- d. At least two (2) valves are to be installed at each tee.
- e. The distance between line valves shall be as required by the District but not more than 800 feet on six (6) inch and eight (8) inch mains and 500 feet on twelve (12) inch and larger water mains.

4.2.5.2 Fire Hydrants

The type or style and location of fire hydrants shall be determined by the fire department having jurisdiction over the development. Prior to submitting improvement plans to the District, the Developer's Engineer shall secure the type and location of all fire hydrants within the development from the controlling fire department. No changes in fire hydrant type or location shall be made without approval of the controlling fire department.

4.2.5.3 Blowoffs

- a. Permanent blowoffs are to be provided at all dead-ends and at all low points as determined by the District.
- b. Temporary blowoffs shall be provided as necessary to pressure test and chlorinate water mains and water service laterals of nominally diameter three (3) inches and larger.
- c. Where practical, fire hydrants near the end of a permanent dead-end water main should be connected to the end of the main in lieu of a permanent blowoff.

4.2.5.4 Air and Vacuum and Air Release Valves

Combination air and vacuum and air release valves ("air valves") are to be installed at all summits in the water mains and where directed by the District. Unless otherwise required by the District, air valves shall be one (1) inch in size or larger.

4.2.5.5 Water Service Device and Service Connection Standards

Service connections shall be sized to satisfy the flow requirements of the customer. The minimum size service connection shall be one (1) inch in diameter.

Service connections to individually-metered residences shall be a minimum of one and one-half (1-1/2) inches nominal diameter, except in the case that the residences are served from a separate fire service connection, where the minimum service connection shall be a minimum of one (1) inch nominal diameter.

Applications for meters larger than two (2) inches nominal diameter must be accompanied by American Water Works Association calculations to support the requested meter size.

In no case shall the nominal size of the water service device be larger than the nominal size of the service line serving that water service device.

Water meter boxes, meter idlers and fire sprinkler connections shall be installed in accordance with District Standard Drawings. Standard installation locations for water meters and other water service devices are behind the back of curb or sidewalk. Water meters and other water service devices are not permitted within driveways. Water meters and other water service devices are not permitted within sidewalks, unless the sidewalk is both integral with the curb and greater than ten (10) feet in width. Water meter and other water service device locations must provide adequate space for access and clearance. Reference District Standard Drawings CL-1-08 through CL-5-08.

Backflow prevention devices, as required under Section 2.2.5, must be located behind the water service device and immediately behind the property line and shall conform to District installation standards. Reference District Standard Drawings BP-1-08 through BP-3-08.

4.2.5.6 Miscellaneous Appurtenances

Miscellaneous appurtenances such as cross-connection control devices, pressure regulators, detector check valves, etc., will be required as dictated by specific needs. These appurtenances shall be noted on the plans as required by the District.

4.3 Plan Presentation

4.3.1 General Water Notes

The following General Water Notes are to appear on the civil drawings of any project which includes the construction of a new public water main:

1. The water system to serve the development shall be designed and installed at Developer's expense in accordance with the latest ACWD Standard Specifications.

2. Prior to the start of public water system construction, public water system Contractor shall obtain from ACWD a permit for such work. Public water system Contractor shall possess a valid Class A or C-34 contractor license issued by the California Contractors State License Board at the time the permit is issued.
3. All ACWD work required shall be at Developer's expense unless otherwise noted. Existing ACWD facilities requiring relocation and that ACWD will agree to relocate shall be relocated by ACWD at Developer's expense.
4. All wells located within the development requiring sealing shall be sealed at Developer's expense and in accordance with ACWD well sealing specifications. Such wells must be properly sealed prior to conditional approval of the water system by ACWD.
5. ACWD shall be notified at least two (2) working days and at least 48 hours in advance of the start of public water system construction so that inspection may be provided.
6. All water discharged during flushing of new water system to be dechlorinated in accordance with AWWA C-651, Section 4.5.2. Contractor shall submit a dechlorination plan to ACWD within 15 days after start of construction of the public water system.
7. Unless otherwise noted, 4" through 10" steel pipe shall be Schedule 40, primed and double tape wrapped with 1/4" mortar lining. All joints are to be fully welded, and pipe is to be cathodically protected with anodes. Unless otherwise noted, joints shall be butt weld in accordance with ACWD Standard Drawing WSP-1-08.
8. Install 1" air and vacuum release valves at high points of the water main as indicated on the drawings or as directed by ACWD.
9. Water service lines shall be 5' minimum from edge of sanitary sewer house lateral and edge of driveway, unless otherwise specified on ACWD Standard Drawing CL-5-08.
10. Contractor shall install meter boxes and meter idlers on all water service lines through 2" in diameter. Meter boxes and idlers for irrigation meters and non-residential domestic meters through 2" in diameter shall be constructed in accordance with ACWD Standard Drawing S-2-08 or S-3-08, as appropriate. Meter boxes and idlers for 2" fire service lines shall be constructed in accordance with ACWD Standard Drawing S-10-08. Meter boxes and idlers for residential meters through 1-1/2" in diameter shall be constructed in accordance with ACWD Standard Drawing S-2-08, S-3-08, S-4-08, S-5-08, or S-6-08, as indicated on the plans.
11. Sufficient 3/4" service outlets shall be installed on water mains for pressure testing and chlorinating as directed by ACWD.
12. Temporary jumper connections between Contractor's water system and ACWD's water system shall conform to ACWD Standard Drawing JP-1-08, unless otherwise approved by ACWD.

the water meter and the District Standard Drawing (S-3-08, S-4-08, S-5-08, or S-6-08) applicable for services to individually-metered residential units.

3. Any additional project-specific water notes required for the development.

4.3.4 System Map

A map of the proposed public water system shall be shown on the Civil improvement plans. The system map shall be drawn at a standard scale (1" = 100', 1" = 60', etc.) and shall be large enough to be legible. If practical, the map should fit within an area 11"x17" or smaller. The system map shall show the following:

1. All properties to be serviced by the water system, clearly indicating the area of the development.
2. Property boundary line.
3. Lot lines and lot numbers (if applicable).
4. New water mains labeled with size and type (PVC or steel).
5. All distances along the new water mains between all crosses and tees except those serving appurtenances.
6. New valves, blowoffs, and fire hydrants.
7. New domestic water service connections, irrigation service connections, fire service connections, and air valves, labeled with their sizes and type.
8. New Backflow Prevention Devices labeled with size and type.
9. New onsite streets and adjacent existing streets labeled with the street name.
10. All existing wells within the boundary of the development or affected by the development.
11. All existing public water facilities on, in front of, or adjacent to the site.
12. All other information as may be required to adequately portray the general plan of the proposed water system.

The water system map may also be used to show the plan location of sanitary sewer and storm drain.

4.3.5 Details

The detail sheet of the development drawings shall show the following details and any additional

details that may be required by the District.

1. Typical fire hydrant detail showing the location of the hydrant in relation to curb and sidewalk in accordance with District Standard Drawing FH-2-08.
2. Utility trench detail showing the size and location of water services in relation to curb, sidewalk, joint utility trench, and other utilities.
3. Typical cross-sections of the proposed street structural section for the development showing the depth from the finished grade to the bottom of the subgrade.
4. All of the following District Standard Drawings that are applicable to the project: S-3-08, S-4-08, S-5-08, S-6-08 and S-10-08.

4.3.6 Water Plans and Profile

The Water Plan, to a scale of 1" = 10', 1" = 20', 1" = 30' or 1" = 40' shall show the location of the water system. The drawing shall show the horizontal location of the water mains, valves, fire hydrants, blowoffs, water service connections, air valves and other appurtenances in reference to the face of curb, edge of pavement or property line, as appropriate.

The drawing shall show the location of all driveways and front property corners as well as the location of all water services, fire hydrants, and other appurtenances in relation to the front property corners and/or driveways. Water service lines shall be five (5) feet minimum from edge of sanitary sewer house lateral and shall meet the minimum clearance requirements from the edge of driveway specified on District Standard Drawing CL-5-08.

The Water Plan shall show the location and size of all proposed backflow prevention devices, public and private, and shall distinguish between devices to be installed by the District and devices to be installed by the Developer's Contractor. All backflow prevention devices shall be labeled as such, shown to scale, designed and located in accordance with District Standard Drawings BP-01-08 through BP-3-08, as applicable.

The Water Plan shall show the location, size and alignment of all other utilities, appurtenances and improvements proposed to be constructed or installed with the development as well as any existing utilities, appurtenances or improvements not being removed as part of the development. Such other utilities, appurtenance and improvements include, but are not limited to, storm drainage, treatment and retention facilities, sanitary sewer facilities, gas transmission and distribution facilities, joint trench and appurtenances including boxes, vaults, and poles, irrigation system facilities, street lighting, traffic signaling facilities, trees and tree boxes. The Water Plan shall show the footprint of existing and proposed buildings, including any foundations or horizontal projections extending beyond the limits of the building footprint.

Stationing shall be indicated for all water system tees, crosses, bends, blowoffs, air valves, changes of grade, and service lines sized 2" or smaller except those service lines to individually metered residences.

Profiles shall be shown for all water mains. Vertical scale of water profiles shall be a standard scale between 1"=1' and 1" = 10'. Unless otherwise approved by the District, horizontal scale of water profiles shall match the scale of the plan view. Unless otherwise required by the District, profiles for water mains shall be stationed along the street centerline. Where practical, water profile shall be shown on the same sheet as the plan view.

The following shall be included on the water profile:

1. Grid with station marks at 100' intervals and elevation marks at even intervals not less than 1' or more than 10'.
2. Station and invert elevations for all tees, crosses, reducers, vertical grade breaks, changes in pipe material and all line valves not bolted to another fitting.
3. Station, invert and angle of all horizontal and vertical elbows.
4. Station and invert of end of water pipe and station of blowoff riser.
5. Station and invert of water main at all air valve connection points.
6. Station and invert of beginning and end of District tie-ins.
7. Linear footage of water pipe between all changes in size or type of water pipe material and between all crosses and tees except those serving appurtenances.
8. A dimension showing the minimum cover between the top of water main and the profile's reference line (typically top of curb or finished grade at centerline of street).
9. All line valves.
10. Existing water facilities.
11. All utilities crossing over or under the water main or those within 10' of any proposed public water facility.
12. Where possible, existing and proposed sanitary sewer and storm drain shall be shown on the same profile as the water main.

4.3.7 Standard Drawings

Reference to District Standard Drawings shall be made where applicable.

4.4 Plan Submittal

The size of plans submitted to District shall be either 22" by 34" or 24" by 36". Two (2) sets of plans, prepared as specified herein for the proposed water system, shall be submitted to the District for each review. In addition, two (2) sets of the preliminary parcel map or preliminary tract map, if applicable, shall be submitted to the District for each review. If the development is a tract, two (2) prints of the preliminary tract map shall also be submitted. Complete plan sets must be submitted for review. After review by the District, the plans will be stamped as indicated hereinafter and one (1) set will be returned to the Developer's Engineer.

After the original drawings have been signed by the District, and all other controlling agencies, the Developer shall furnish to the District two (2) sets of prints of the signed drawings. If the development includes a new tract or parcel map, two (2) prints of the recorded tract map or parcel map shall also be furnished with the above plans.

4.5 Plan Approval

Plan approval is accomplished in four stages:

1. Tentative Water System Approval
2. Preliminary Water System Approval
3. Approval for Signature
4. Plan Approval or Approved Plans

4.5.1 Tentative Water System Approval

“Tentative Water System Approval” is approval given to the general water system layout shown on the tentative plan for the development. Drawings so approved will be stamped “Tentative Water System Approval.” This approval will remain in effect for sixty (60) days from the date indicated thereon.

The tentative plan shall show the overall development proposed including the streets, lots, easements, building and other pertinent information concerning the development. District will review the tentative plan and will indicate thereon the general nature of the on-site and/or off-site public water system required to serve the development.

In the event no further action is taken on the development within the time period provided, the approval will expire and the tentative water system layout may be subject to further review by the District.

4.5.2 Preliminary Water System Approval

“Preliminary Water System Approval” is approval given to the design of the water system proposed for a specific development. Drawings so approved will be stamped “Preliminary Water System Approval.” This approval will remain in effect for sixty (60) days from the date indicated thereon.

“Preliminary Water System Approval” implies that engineering drawings have been prepared to near final design. District will review the preliminary drawings and will indicate thereon any addition and/or correction necessary to finalize the design.

In the event that no additions or corrections are required, the plans will be stamped “Approval for Signature” as indicated below.

If no action is taken on the development within the time period provided, the approval will expire and the preliminary water system layout may be subject to further review by District.

4.5.3 Approval for Signature

“Approval for Signature” is approval given to the final design of the water system for a specific development. Designs so approved will be stamped “Approval for Signature.” This approval

will remain in effect for thirty (30) days from the date indicated thereon.

“Approval for Signature” will not be given until all additions and/or corrections indicated by District on the “Preliminary Water System Approval” have been made. If, upon review, it is noted that all of the additions or corrections have not been made, the correction will be noted, and the plans restamped “Preliminary Water System Approval,” and returned to Developer’s Engineer. Resubmittal of the plans for additional review will be required.

No changes shall be made in the water system design after the plans are stamped “Approval for Signature” unless approved by the District. Plans so changed must be resubmitted for review.

Upon receipt of the plans stamped “Approval for Signature,” Developer’s Engineer should contact the District Engineering Department within the thirty (30) day period for an appointment prior to submitting the original drawings for signature by District.

In the event the original drawings are not signed by the District within the thirty (30) day period, the “Approval for Signature” will expire and the water system design may be subject to further review by the District.

4.5.4 Plan Approval or Approved Plans

“Plan Approval” or “Approved Plans” are plans that have been signed by the District Engineer. No changes in the water system design will be permitted after the plans have been approved unless approval is given by the District. Plans so changed must be resubmitted to the District for review. Changes made in the water design without approval by the District may result in revocation of the “Plan Approval” and refusal by the District to accept any portion of the water system installed.

In the event that construction within the development is not started within the one hundred twenty (120) day time period provided, the “Plan Approval” will expire and the water system design may be subject to a further review by the District.

4.5.5 Changes to the Approved Plans After “Plan Approval”

If, during the construction of the approved water system, changes in the water system are required due to field conditions, District Engineering Department will, after providing the change, advise Developer’s Engineer as to whether or not the approved change is to be made on the Approved Plans and resubmitted to District.

If the change is to be made on the Approved Plans, the change shall be shown as a revision on the applicable plan sheet(s) and noted in a revision block. Upon District approval of the plan revision(s), the signature page shall be replaced with the District providing a new signature or, if acceptable to other approving agencies, the District may change the approved date of the District’s signature and initial the change.

4.6 Preparation of Exhibit “A” Drawing

The Developer’s Engineer shall be responsible for creating an Exhibit “A” drawing that will be incorporated into the public water system extension agreement required under Section 2.1.6. To avoid potentially significant delays in the preparation of the public water system extension agreement, the Developer’s Engineer must prepare the Exhibit “A” drawing during the improvement plan preparation and review process.

Prior to the first plan submittal, the Developer’s Engineer should contact the District’s Engineering Department to request the current electronic files for the Exhibit “A” drawing templates. Reference Appendices I through III for District standards for the Exhibit “A” drawing. Concurrent with each plan submittal, the Developer’s Engineer shall prepare and submit an electronic copy and two (2) hard copies of an Exhibit “A” drawing.

After review by the District, one (1) hard copy of the Exhibit “A” drawing will be returned along with the plans to the Developer’s Engineer. Developer’s Engineer shall make any necessary corrections to the Exhibit “A” drawing and submit an electronic copy and two (2) hard copies of the revised Exhibit “A” drawing concurrent with the subsequent plan submittal. Upon District approval of the Exhibit “A” drawing, Developer’s Engineer shall provide the District with an electronic copy of the approved Exhibit “A” drawing.

No design of the water system shall receive “Approval for Signature” unless and until the Exhibit “A” drawing has been prepared, approved, and submitted as specified herein.

5 RESPONSIBILITY OF DEVELOPER’S SURVEYOR

Developer’s Surveyor shall submit to District for review and approval cut sheets on District furnished cut sheet form for the proposed water system for the development and shall perform the necessary field staking required by District in accordance with the procedures and requirements set forth herein.

6 CONSTRUCTION STAKING

Control staking for the installation of the approved water system shall be provided as outlined below for installation of the public water system under two conditions of construction: prior to installation of curbs and gutters, and after the installation of curbs and gutters.

6.1 Control Staking Prior to the Installation of Curbs and Gutters

6.1.1 Drawings

Unless otherwise required by the District, two sets of Approved Plans that also have received required signatures of approval from all other public agencies having jurisdiction over the project shall be provided to the District Engineer prior to the start of construction of the water system.

6.1.2 Rough Grading

The portions of the development which are between property lines in the roadway area of proposed dedicated streets and in water line easements shall be rough graded to approximate subgrade prior to setting horizontal and vertical control survey stakes for water line construction.

6.1.3 Horizontal and Vertical Control Stakes

Before starting construction of the water system, line and grade stakes consisting of a hub and marker stake shall be placed and maintained by the Engineer not less than five (5) feet nor more than eight (8) feet from the centerline of the main. The stakes shall be stationed and marked with the cut from the hub to the flow line (invert) of the pipe. A clear line of sight shall be maintained between all stakes and the centerline of the mains directly opposite the stakes.

All construction staking shall be at 50 foot intervals except on curvilinear streets having a centerline radius of 600 feet or less, then stakes will be set at 25 foot intervals or as directed by the District. All change of grade points shall be staked and the marker stakes so noted.

6.1.4 Fire Hydrants, Services and Other Appurtenances

The locations of fire hydrants, services and other appurtenances shall each be referenced with two offset stakes. These stakes shall be located parallel to the main, at right angles to the lateral line serving the appurtenance and five (5) feet on either side of the centerline of the appurtenance. The stakes shall indicate the appurtenance and the cut to the flow line of the pipe and the elevation of the top of the curb nearest the appurtenance.

If the District finds that services or other appurtenances are improperly installed as a result of a subsequent change in driveway or sidewalk location, errors by the Contractor or errors by the Engineer, these services and/or laterals shall be abandoned at the water main and new services and/or laterals installed. The installation of union connectors on service lines will not be permitted.

6.1.5 Cut Sheets

Two (2) sets of "cut sheets" for stakes placed pursuant to Sections 6.1.3 and 6.1.4 shall be provided to the District Engineer for approval by the District prior to start of construction work by the Contractor. The Engineer/Surveyor shall provide at least one (1) set of approved cut sheets to the water main Contractor prior to the start of construction of the water mains and appurtenances. The sheets shall indicate the elevation of the hub, proposed subgrade and existing grade at pipe centerline, the invert of the pipe and the difference in elevation between each hub and the invert of the pipe, as well as the appropriate stationing. Reference Appendices IV and V for District standard cut sheet form and an example of a completed cut sheet form.

Cut sheets shall be submitted to District for approval. No District Permit for Public Water System Construction nor District inspection shall be provided unless and until cut sheets have

been reviewed and approved by District. A minimum of ten (10) working days shall be allowed for District review of each cut sheet submittal.

6.2 Control Staking After Installation of Curbs and Gutters

6.2.1 Drawings

As required in Section 6.1.1 above.

6.2.2 Rough Grading

As required in Section 6.1.2 above.

6.2.3 Horizontal and Vertical Control Stakes

Horizontal and vertical control stakes are required as indicated in Section 6.1.3 except that the face of curb may be used as horizontal control and the top of curb may be used as a hub. Marker stakes or removable markers on the top of curb will be required indicating the stationing along the water line. All change of grade points shall be staked or marked and so indicated.

Where the water line to be installed is located a constant distance below the top of curb, marker stakes or removable markers on the top of the curb shall be set at intervals of no more than 100 feet.

Where the water line to be installed has a grade that is different from the top of curb, i.e., the distance between top of curb and flow line of pipe is a variable, marker stakes or curb markers shall be placed at intervals of no more than 50 feet.

6.2.4 Fire Hydrants, Services and Other Appurtenances

The location of fire hydrants, services and other appurtenances shall each be referenced with an offset stake. The stake shall identify the appurtenance and the offset to the appurtenance.

Water service lateral lines and appurtenances shall be five (5) feet minimum from edge of sanitary sewer house lateral and edge of driveway, unless otherwise specified on District Standard Drawing CL-5-08.

If the District finds that services or appurtenances are improperly installed as a result of errors by the Contractor or errors by the engineers, these service lines and/or laterals shall be abandoned at the water main and new service lines and/or laterals installed. The installation of union connectors on service lines will not be permitted.

6.2.5 Cut Sheets

Two (2) sets of “cut sheets” for stakes placed pursuant to Sections 6.2.3 and 6.2.4 shall be provided to the District Engineer for approval by District prior to start of construction work by

the Contractor. The Engineer/Surveyor shall provide at least one (1) set of approved cut sheets to the water main Contractor prior to the start of construction of the water mains and appurtenances. The sheets shall indicate the elevation of the hub, proposed subgrade and existing grade at pipe centerline, the invert of the pipe and the difference in elevation between each hub and the invert of the pipe, as well as the appropriate stationing. See Appendices for District standard cut sheet form and an example of a completed cut sheet form.

Cut sheets shall be submitted to District for approval. No District Permit for Public Water System Construction nor District inspection shall be provided unless and until cut sheets have been reviewed and approved by District. A minimum of ten (10) working days shall be allowed for District review of each cut sheet submittal.

7 RESPONSIBILITIES OF DEVELOPER AND CONTRACTOR

7.1 Insurance

Developer or Contractor shall, at no cost to District, maintain in full force and effect during the period beginning with commencement of construction of the water system and terminating no earlier than one year from and after District's acceptance of the water system pursuant to Section 13, a policy or policies of liability insurance, as follows:

1. General liability in an amount not less than one million dollars (\$1,000,000.00) per occurrence and two million dollars (\$2,000,000.00) general aggregate; and
2. Personal and advertising injury insurance in an amount not less than one million dollars (\$1,000,000.00) per occurrence; and
3. Excess liability or umbrella liability in an amount not less than two million dollars (\$2,000,000.00) per occurrence.

Such policies shall name District, its directors, officers, employees and agents as an additional insured against any and all liability for the death of or injury to any person and for the loss of or damage to any property which may arise by reason of acts done or omitted to be done as a result of the installation and construction of the water system by or on behalf of Developer and shall further insure District against any and all costs and expenses, including attorneys' fees, which District may incur in resisting any claim which may be made against District for any such injury or damage.

Each such policy shall be issued by an insurance company or companies qualified to do business in California; name District, its Directors, officers, agents and employees, as additional insureds; specify that it acts as Primary Insurance; the insurer being liable thereunder for the full amount of any loss up to and including the total limit of liability without right of contribution from any insurance effected by District; provide that the policy shall not be cancelled or altered without thirty (30) days' prior written notice to District; and otherwise be in form reasonably satisfactory to District.

Developer or Contractor shall provide, and maintain at all times during the course of installation and construction of the water system, Worker's Compensation Insurance in conformance with the

laws of the State of California. Such policy shall provide that the underwriter thereof waives all right of subrogation against District by reason of any claim arising out of or connected with installation and construction of the water system and that such policy shall not be cancelled or altered without thirty (30) days' prior written notice to District.

Copies of all policies required above (or Certificates of Insurance satisfactory to District) shall be delivered to District at least ten (10) working days prior to, and such delivery shall be a condition of, issuance of the Permit for Public Water System Construction. Insurance not meeting District requirements will be cause for withholding or revoking the Permit for Public Water System Construction. Reference Section 7.10.

7.2 Bonding

Developer or Contractor shall furnish, at no cost to District, bonding for faithful performance (Performance Bond), payment (Payment Bond), and warranty maintenance (Warranty Bond) of the public water system extension.

7.2.1 Public Water System Bonding Using City Bonding Requirements

If Developer or Contractor is required by the city in whose jurisdiction the public water system extension is being installed to secure bonding, then that bonding may be used to satisfy District bonding requirements described in this Section 7.2.1, unless otherwise determined by District. Any bond or bonds not meeting the requirements in this Section must be furnished under the requirements described in Section 7.2.2.

Developer or Contractor shall furnish bonding for faithful performance and payment of the public water system extension in the amounts required by the city, but in no event less than one hundred percent (100%) of the estimated cost of constructing the public water system extension. To avoid potentially significant delays in receiving a Permit for the Public Water System Construction, it shall be the responsibility of the Developer or Contractor to confirm the District's approval of the proposed bond amounts prior to the execution of the bonding for faithful performance and payment. Upon execution of this bonding, Developer or Contractor shall submit to District documents confirming these bonding requirements are met, including copies of the executed bonds provided to the city. The Developer or Contractor shall provide District at least ten (10) working days to review the documents. Bonding documents and bonding amounts must be satisfactory to District. District approval of executed documents and bond amounts shall be a condition of issuance of a Permit for Public Water System Construction. Bonding documents for the faithful performance and payment bonding not meeting District requirements or bonding amounts not acceptable to District will be cause for withholding or revoking a Permit for Public Water System Construction.

Bonding for faithful performance and payment shall be maintained in full force and effect until each and every one of the covenants and conditions of the Public Water System Extension Agreement are completed. Bonding for payment shall be maintained in full force and effect until after District finally accepts the public water system, as described in Section 13, and all claims

against Developer or Contractor for materials and labor have been paid. District shall issue a letter to Developer and Contractor as evidence of such completion.

Developer or Contractor shall also provide bonding for warranty maintenance of the public water system during the one year period from District's final acceptance of the water system, as described in Section 13. The amount of the bonding required during this warranty period shall be in the amounts required by the city for the warranty bond, but in no event less than fifty percent (50%) of the cost of constructing the public water system extension. Developer or Contractor shall provide District at least ten (10) working days to review the executed documents. Bonding documents and the bonding amount shall be satisfactory to District. Bonding documents not meeting District requirements or bonding amounts not acceptable to District will be cause for withholding District's final acceptance of the water system, as described in Section 13. This bond shall be maintained in full force and effect until each and every one of the Public Water System Extension Agreement covenants and conditions in force for the warranty period are completed.

7.2.2 Public Water System Bonding Directly with District

If Developer or Contractor is not required to provide bonding for the city in whose jurisdiction the public water system extension is being installed, or if the city bonding does not meet District requirements in Section 7.2.1 above, or if the District determines in its absolute discretion that bonding is required directly with the District, then the following requirements shall apply.

Developer or Contractor shall furnish bonding for faithful performance, which shall include the warranty period, and payment in an amount of no less than one hundred percent (100%) of the estimated cost of construction of the public water system extension. Developer or Contractor shall confirm District's approval of the estimated cost of constructing the public water system extension prior to the execution of the bonding for faithful performance and payment. The bonding for faithful performance shall be so conditioned as to insure the faithful performance by Developer and Contractor of all covenants and conditions of the Public Water System Extension Agreement and the replacing of, or making acceptable, any defective materials or faulty workmanship occurring within the warranty period specified. The bonding for payment shall be so conditioned as to insure the payment in full of the claims of all claimants and by its terms inure to the benefit of any person or laborer, authorized by a direct contractor, subcontractor, architect, project manager, or other person having charge of all or part of the work to provide work for the Developer or its construction contractor.

The surety or sureties must be qualified to do business in the State of California. Should any surety or sureties become insolvent for any reason or no longer be admitted to transact surety business in the State of California, Developer or Contractor shall immediately notify District. Alternatively, if District determines that a surety or sureties is unsatisfactory, notice will be given to Developer and Contractor to that effect. In any of these situations, Developer or Contractor shall immediately substitute a new surety or sureties satisfactory to District. District may suspend inspection under the Public Water System Extension Agreement until the new surety or sureties shall qualify and be accepted by District and replacement bonds are submitted to and accepted by District. Each bond shall be signed by both the Developer or Contractor and the

surety or sureties, and the surety must attach an acknowledgement by a notary public and a valid power of attorney authorizing execution of the bonds.

Developer or Contractor shall submit to District an executed Performance Bond and Payment Bond using the forms provided by District. No other bond forms will be accepted by District. Developer or Contractor shall provide District at least ten (10) working days to review the documents. Bonding documents and bonding amounts must be satisfactory to District. District approval of executed documents and bond amounts for bonding for performance and payment shall be a condition of issuance of a Permit for Public Water System Construction. Bonding documents for the faithful performance and payment bonding not meeting District requirements or bonding amounts not acceptable to District will be cause for withholding or revoking a Permit for Public Water System Construction. An irrevocable letter of credit in a form acceptable to District in and amount that satisfies the requirement of this Section may be used in place of a Performance Bond or a Payment Bond.

Bonding for faithful performance shall be maintained in full force and effect until each and every one of the covenants and conditions of the Public Water System Extension Agreement are completed and until not less than one (1) year after District's final acceptance of the public water system, as described in Section 13. Bonding for payment shall be maintained in full force and effect until after District's final acceptance of the public water system, as described in Section 13, and all claims against Developer or Contractor for materials and labor have been paid. District shall issue a letter to Developer and Contractor as evidence of such completion.

7.3 Work

Until the final acceptance of the work by District, Contractor shall have the charge and care thereof and will bear the risk of injury or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. Contractor shall, at no expense to District, rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance by District.

District will not be held responsible for the care or protection of any material or parts of the work prior to final acceptance.

District and authorized representatives of District will at all times have access to the work during construction and will be furnished with every reasonable facility for ascertaining full knowledge of the progress, proficiency of works and character of materials used and employed in the work.

7.4 Storage of Materials on the Site

Protection of materials stored on the site shall be the responsibility of Contractor. District reserves the right to direct Contractor to provide proper means of protection for materials if such is deemed advisable by District; however, the exercise of or failure to exercise this right shall not be deemed to relieve Contractor of this primary responsibility for protecting the material. Contractor shall store and care for the materials in the most suitable manner to protect them from distortion or other damage.

7.5 Damages

District will not be answerable or accountable in any manner for any loss or damage that may happen to the work or any part thereof; or for any material or equipment used in performing the work; or for injury or damage to any person or persons, either employees or the public; or for damage to adjoining property from any cause whatsoever during the progress of the work or at any time before final acceptance.

Damage to existing structures or utilities, either above or below grade will, when directed by District, be repaired by and at the expense of Contractor. If the structure is owned by a governmental agency or public utility and repairs are made by the agency or utility, any cost chargeable for the repair work shall be the responsibility of Developer and Contractor.

Developer and Contractor shall jointly and severally indemnify, defend, and save District harmless from any suits, claims, or actions brought by any person or persons for or on account of any injuries or damages sustained or arising in the construction of the work or in the consequences thereof. This indemnification also runs to liability imposed on District due to the active negligence of both District and Contractor and/or Developer. The intent of the prior sentence is to indemnify District against liability arising because of the conduct of Contractor even under circumstances where District, its agents, servants or employees has been actively negligent and thereby contributed to the liability.

7.6 Laws to be Observed

Contractor shall at all times observe and comply with, and will cause all agents and employees to observe and comply with, all existing and future District, City, County, State, and federal laws, ordinances, regulations, orders and decrees. Developer and Contractor shall jointly and severally protect and indemnify District against any claim or liability arising from or based on the violation of any such laws, ordinances, regulations, orders or decrees, whether by the Contractor or Contractor's employees.

7.7 Safety Requirements

All safety orders, rules and recommendations of the Division of Occupational Safety and Health of the Department of Industrial Relations of the State of California applicable to the work will be obeyed and enforced by Contractor. Contractor shall inform District's Inspector of any unsafe conditions at the site of the work solely for the Inspector's own safety and to allow for District's documentation of conditions. District has no responsibility or liability whatsoever for any unsafe condition at the site of the work.

7.8 Engineered Steel Pipelines

All engineered steel pipelines require the submittal of shop fabrication drawings. A minimum of ten (10) working days are required for District review of each shop drawing submittal. Pipeline

stations shall be shown on centerline of pipe.

Shop drawings shall not be approved for fabrication until such time as pipeline alignment, size and location of connection points for appurtenances, pipeline joints and specifications for material, lining and coating are in accordance with the project plans and District Standard Specifications.

7.8.1 Shop Drawings

Where required on the plans, elsewhere in these specifications or when directed by District, Contractor shall furnish to District four (4) sets of manufacturer's certified shop drawings showing the fabrication and/or construction to be performed.

If the drawings and/or data are in accord with District standards and meet the requirements of District and these specifications, District will return two (2) copies of each of said drawings stamped approved; otherwise, one (1) copy of the drawings will be returned to Contractor with a statement or notes indicating what additional information is required. Contractor, after making the necessary revisions shall resubmit four (4) sets of revised drawings for review by District.

Any fabrication or other work performed in advance of approval of the shop drawings shall be done entirely at Contractor's risk.

After approval of the drawings, Contractor shall not deviate in any way from the design and dimensions shown without written approval of District. Any items which are neither indicated nor shown on the certified drawings but which are required to complete the work will be subject to all District requirements and these specifications.

7.9 Encroachment Permits and Other Permits and Approvals

Prior to the start of construction, Developer or Contractor shall apply for and obtain all encroachment permits and all other permits and approvals required by the controlling agencies and affected property and utility owners for the construction of the work. All costs associated with the permits and approvals shall be paid either by Developer or Contractor. Contractor shall upon request submit evidence of having obtained the necessary permits and approvals to District Engineering Department prior to start of construction or at any other time such request is made.

Licenses required by railroad companies will be obtained by District, unless otherwise determined by District. Any cost associated with the license will be invoiced to and will be paid to District by either Developer or Contractor. Developer and Contractor shall jointly and severally be bound by all conditions and requirements of said license and will protect, indemnify and save District harmless against any claim, suit, or action brought by a person or persons for or on account of any injuries or damages sustained or arising from the construction of the work or in the consequence thereof under this license. Developer and Contractor shall jointly and severally also be liable for any penalties imposed by the railroad company for violation of any condition or requirement listed or implied by said license.

7.10 District Permit for Public Water System Construction

Prior to the start of public water system construction, Contractor shall secure from District Engineering Department a Permit for Public Water System Construction. District will not issue a Permit for Public Water System Construction until all the following conditions are met:

- Application for Public Water System Extension completed and signed by Developer and accepted by the District.
- Payment of District's Public Water System Extension Engineering Fee deposit(s).
- Two (2) complete sets of Approved Plans which have been signed by all affected public agencies, including the municipality within which the work will be completed, have been received by District.
- Two (2) sets of cut sheets which have been prepared and approved in accordance with Section 6.1.5 and/or Section 6.2.5 have been received by District.
- The public water system extension agreement required by Section 2.1.6 has been executed by Developer and received by District.
- Copies of all insurance policies required by Section 7.1 (or Certificates of Insurance satisfactory to District) shall be delivered to District at least ten (10) working days prior to, and such delivery shall be a condition of, issuance of the Permit for Public Water System Construction.
- Documentation of payment and performance bonding meeting District requirements in Section 7.2 shall be submitted at least ten (10) working days prior to, and such delivery and District approval shall be a condition of, issuance of the Permit for Public Water System Construction.
- All information required by the Permit for Public Water System Construction must be completed prior to its issuance.

Insurance or bonding documents not meeting District requirements will be cause for withholding or revoking the Permit for Public Water System Construction.

All conditions, terms and requirements stated on the Permit for Public Water System Construction shall be binding jointly and severally on Contractor and Developer.

Failure to secure the Permit for Public Water System Construction will deny inspection of the work by District, and any work so constructed will not be accepted by District nor allowed to be connected to District system.

7.11 Responsibility for Work

Notwithstanding the above, it is Developer's responsibility to ensure that the water distribution system shall comply with Approved Plans, District Standard Specifications, District Standard Drawings, these Development Specifications and the District's Development Policies.

7.12 Commencement of Work

No work will be permitted nor will inspection by District be provided for the installation of the proposed public water system until all the following have occurred:

1. Issuance of District Permit for Public Water System Construction per Section 7.10.
2. Notice of construction and request for inspection has been received by District in accordance with, and within the time required by, Standard Specifications Section F.1.4 and the conditions, terms and requirements stated on the Permit for Public Water System Construction.

In addition, prior to the start of construction, Developer or Contractor shall secure all encroachment permits and all other necessary permits and approvals from controlling agencies and affected property and utility owners in accordance with Section 7.9.

Failure to comply with these requirements will result in District's refusal to accept the work and to furnish water to the development.

Contractor shall submit a dechlorination plan to District within fifteen (15) days after the start of construction of the water system. Reference Section 10.

For any project requiring water line easements, the recorded subdivision map or approved written description and scale drawings of the easements, together with current title report(s), must be submitted to District within fifteen (15) days of issuance of the Permit for Public Water System Construction. Reference Section 2.2.3.

7.13 Requests for Work by District Forces

Developer or Contractor shall submit to District a Customer Work Request Application to request work by District forces pursuant to Section 2.1.3. To avoid potentially costly changes to the work requested and potentially significant delays, it shall be the responsibility of the Developer or Contractor to submit the Customer Work Request Application for any needed construction work by District forces only after the Approved Plans have received approval from all other public agencies having jurisdiction over the project, including the municipality within which the work will be completed.

Such Customer Work Requests are processed by District in the order received and often require significant lead time to process. It is the responsibility of the Developer or Contractor to submit complete and correct Customer Work Request Applications sufficiently in advance of when the work is required.

8 AUTHORITY OF DISTRICT

8.1 General

District will determine the amount, quality, and fitness of the several kinds of work and materials and may reject any or all work and materials which do not conform to the requirements of

District's Standard Specifications and all other applicable District regulations, including these Development Specifications. District will interpret all questions relative to the plans and specifications. District may stop the work when necessary to prevent its improper execution.

All instructions, rulings, and decisions of District will be final and binding jointly and severally on Contractor and Developer.

8.2 Inspection by District

Contractor shall notify District at least two (2) working days and at least 48 hours prior to the day the work is to begin at the start of the public water system construction. In addition, prior to installation or backfill of any water system components or prior to resuming work after any work stoppage lasting longer than two (2) working days and longer than 48 hours, Contractor shall notify District Engineering Department at least one (1) working day and at least 24 hours in advance of the time of such installations or resumption of work so that arrangements for inspection of the work can be made.

District may not furnish continuous inspection of the work. However, District will, with proper notification, endeavor to furnish the necessary inspection to ensure that the work is in compliance with District's Specifications and the approved plans.

However, notwithstanding the above, no pipe, valve, and/or appurtenance will be backfilled until the installation of the pipe, valve and/or appurtenance has been inspected and approved by District. Where backfilling is made prior to inspection and approval, reexcavation and exposure of the pipe, valve and/or appurtenance for examination will, at the option of District, be required before approval of the installation is obtained.

When overtime work is to be requested, Contractor shall notify District not later than 12:00 noon on the workday prior to the day the overtime is to be performed. District has no obligation to provide, and may refuse, inspection for Contractor overtime work. If overtime work is approved, District inspection of overtime work will be provided on an actual cost basis, including, but not limited to, all base labor, fringe and overhead, overtime labor premium, equipment and materials.

8.3 Operation of District-Owned Facilities

No existing valves, blowoffs or other facilities owned by District or which are connected to District's water system through completion of a closure connection shall be operated by the Contractor. All required operations will be performed only by authorized District personnel. The Contractor shall notify District at least two (2) working days and at least 48 hours in advance of the time that such operation is required.

In case of an emergency, the Contractor will immediately notify District of the nature of the emergency so that District may immediately initiate corrective action.

At any time after the development water system, or any portion thereof, has been connected into District's water system through completion of a closure connection, all work on that

development water system, or portion thereof so connected, which requires opening the water system; depressurizing the water system; any work on any valves; and relocating or modifying the water services, fire services, fire hydrants, and other appurtenances connected thereto, including work necessitated by failure of, relocations of or damage to the development water system or any appurtenances thereto, will be performed by District forces at the expense of Contractor or Developer unless permission is given by District for Contractor to do the work under full-time District inspection.

8.4 Approval of Materials

See list of Approved Materials in District Standard Specifications.

No pipe, fitting, hydrant, valve, valve box or other material shall be installed in District water system until approval for the particular brand name and manufacturer's number has been granted in writing by District.

Request for approval of substitution material shall be submitted in writing with two (2) copies of the manufacturer's drawings and data for each type of item mentioned above to be furnished, together with a certification from the manufacturer that the materials meet all the required specifications. District approval must be granted in writing prior to installation of the substitution material.

A minimum of fourteen (14) days are required for District review of proposals for substitution materials.

8.5 Samples and Tests

At the option of District, the source of supply of each of the materials proposed for use on the work will be approved before the delivery is started and before such materials are used in the work. Representative preliminary samples of the character and quality prescribed will be submitted by Contractor or producer of the materials to be used in the work for testing or examination when requested.

The cost of securing samples, the material furnished for the sample and the testing of the sample will be borne by Contractor.

Testing of materials will be made by a testing laboratory regularly engaged in testing work.

All tests of materials furnished by Contractor will be made in accordance with the commonly recognized standards of national technical organizations and such special methods and tests as are prescribed in such standards. Contractor shall furnish to District certified copies of the test results. Samples will be obtained and tested whenever necessary to determine the quality of the material.

9 WATER FOR CONSTRUCTION AND FOR PIPELINE TESTING

All title, control and responsibility for all water used at and upon the site of the work transfers to the Contractor at the upstream side of the jumper assembly when such assembly is in place. Contractor is responsible for the use or misuse of the water and shall be liable for any damages resulting from the use, misuse or failure to properly handle or control the water. Contractor shall be responsible to comply with all applicable federal, State, and local laws, rules, regulations, permit requirements, ordinances and best management practices regarding the use, handling and discharge of all water at the site of the work.

District reserves the right to install or to require the Contractor to install a metering device on all jumper assemblies, and Contractor and Developer shall be liable for all water used for flushing and testing procedures as determined by District.

Water for all other construction activities shall be obtained from a public fire hydrant using a District hydrant meter with integral backflow prevention device obtained from District. It shall be the responsibility of the Contractor to prevent the consumption of water for any and all uses from unsterile mains, whether by their workmen, subcontractors or any other person who may come into contact with the water from the unsterile main.

10 WATER DISCHARGED DURING FLUSHING

All chlorinated water discharged during flushing of new water system shall be dechlorinated in accordance with AWWA C-651, Section 4.5.2. Contractor shall submit a dechlorination plan to District within fifteen (15) days after the start of construction of the water system. Submission of a dechlorination plan to District does not absolve the Contractor of any responsibility to comply with all applicable federal, State, and local regulations and best management practices regarding discharge of chlorinated water.

11 REQUIREMENTS FOR OBTAINING CONDITIONAL ACCEPTANCE OF THE WATER SYSTEM / APPROVAL FOR SERVICE

All of the following conditions must be satisfactorily completed before a water system within a development will be conditionally accepted / approved for service:

1. Annexation Fees, if applicable, must be paid in full. All required Annexations must be completed.
2. All invoiced charges for work performed by District for the development must be paid in full.
3. All metered jumper assemblies must be returned to the DISTRICT and all outstanding charges related to metered jumper assemblies and charges for water use through the jumper assembly must be paid in full.
4. All required easements must be properly executed and returned to District.
5. All wells which are required by District to be sealed must be sealed in accordance with

District specifications.

6. All water mains and appurtenances which are, in the opinion of District, necessary for service or necessary for proper integration with the existing public water system must be satisfactorily installed and approved by District.
7. All applicable pressure, leakage and bacteriological testing must be satisfactorily completed and approved by District.
8. All necessary permanent connections between the in-tract mains and District mains must be satisfactorily completed and approved by District.
9. All necessary valves, blowoffs and fire hydrants must be operable and accessible.
10. Placement of angle meter stops and installation of all necessary meter idlers, fire sprinkler connections and address labels for water meters must be in accordance with applicable District Standard Drawings.
11. Submittal to District Engineering Department of two full size copies of the recorded subdivision map and one 11" x 17" reduced size copy of the recorded subdivision map.
12. Submittal to District of two each of the following: a map of the subdivision tract indicating the subdivision boundary, lot lines, lot number and City-assigned street addresses, and a list of the lots in the tract indicating both lot numbers and corresponding City-assigned street addresses. One set must be submitted to District Customer Service Department, and one set must be submitted to District Engineering Department.

12 REQUIREMENTS FOR OBTAINING METERING DEVICES

All metering devices and appurtenances consisting of, but not necessarily limited to meters, detector check valves, fire meters, compound meters and master meters, will be installed by District, within public rights of way or easements granted to District for this purpose.

Metering devices will be installed by District at the location stakes provided by Developer's Surveyor and will be considered permanent upon installation and will not be moved. If relocation of a metering device is required as the result of errors in staking or otherwise, the metering device will be moved by District at the expense of Developer.

Notwithstanding the above, no metering devices will be installed until all of the following conditions have been satisfactorily completed:

1. The public water system has been conditionally accepted / approved for service by District as set forth in Section 11.
2. All applicable Facilities Connection Charges and installation charges for service line and/or meter, chargeable to a particular lot or development, must be paid in full. As described in Section 2.1.2, if Developer delays the physical installation of any meters

beyond one year from the date of payment, then any incremental cost increase in the Facilities Connection Charge and the meter installation charge in effect at the time Developer requests physical installation of the meters will be applicable.

In addition, no metering device will be connected to building water piping which in the opinion of District could endanger any of District's facilities or the public.

13 REQUIREMENTS FOR OBTAINING FINAL ACCEPTANCE OF THE WATER SYSTEM

District will finally accept, operate and maintain a public water system extension (known as issuance of Final Acceptance) when Developer has satisfactorily completed all of the following:

1. Completed installation of the water system in accordance with the Approved Plans, District's Standard Specifications, District's Development Specifications, and other District requirements and such improvements have been accepted by District;
2. Furnished District with evidence that Developer has paid all costs incurred in constructing the water system and that there are no outstanding liens or encumbrances on the water system;
3. Provided District with all necessary changes to easements for the water system;
4. Provided District with documentation of bonding of warranty maintenance satisfactory to District;
5. Paid all applicable fees and charges to District; and
6. Complied with all terms and conditions of the Public Water System Extension Agreement.

14 REMOVAL OF DEFECTIVE WORK AND MATERIALS AND ONE (1) YEAR WARRANTY

Developer will guarantee all work performed in the extension of District's water system against defective materials or quality of work for a period of one (1) year from the date of District's Final Acceptance of the work.

Any work which has been determined by the District to be defective in its construction or deficient in any of the requirements of these specifications within the one (1) year warranty will be remedied or removed and replaced by District at the expense of the Contractor or Developer, unless permission or direction is given by District for Contractor to make the repair to the satisfaction of the District, and under full District inspection. Such District inspection shall be at the expense of the Developer. Reference Section 8.3.

The remedy required to correct any defect, deficiency or failure shall be determined by the

District and the District's determination shall be final. Such remedy may include the removal and replacement of other portions of the water system or water system components which, in the sole opinion of the District, may also be defective or deficient or may be subject to a similar failure.

Approval of the work by the Inspector will not be deemed to waive any of the provisions of this warranty.

The one (1) year warranty period will begin on the date of District's Final Acceptance of the work, pursuant to Section 13.

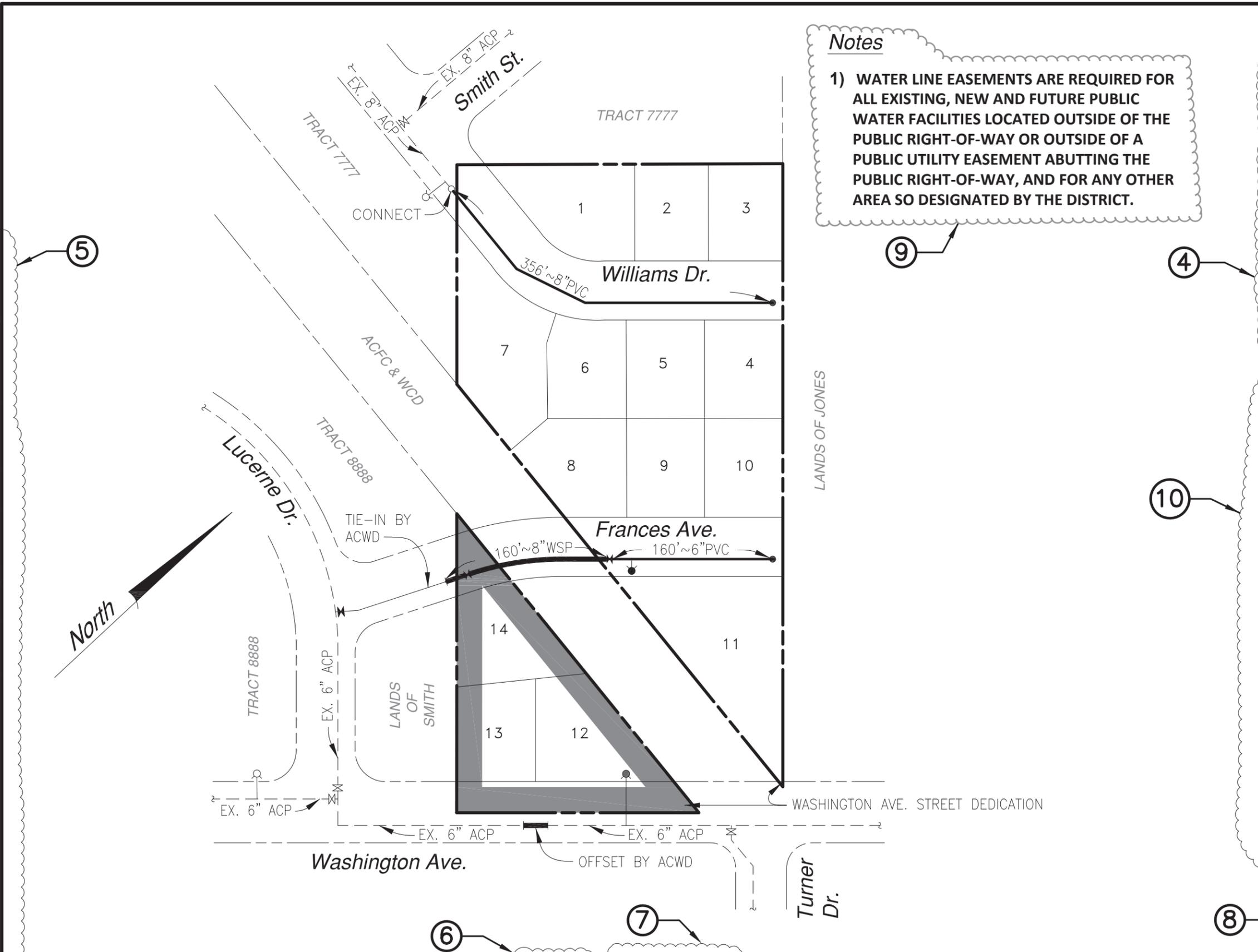
15 MODIFICATIONS TO THESE SPECIFICATIONS

District may from time to time make changes or additions to these specifications. It will be the responsibility of each person, firm, association, syndicate, co-partnership or any other entity doing business with District to obtain any changes issued by District, and any changes so issued whether received or not will be binding upon all parties from the effective date of the change. Changes issued by District will be available on District website at www.acwd.org.

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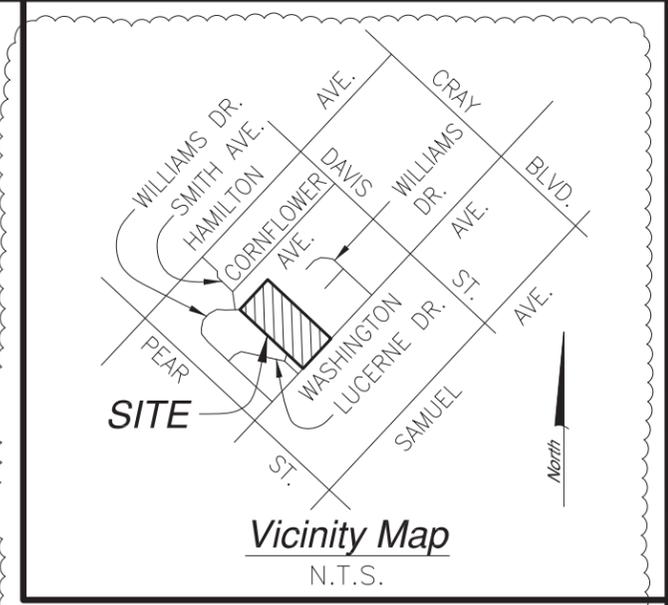
APPENDIX I: SAMPLE EXHIBIT "A" DRAWING

FILE: ACWD #XXXX-XXXX MAP REF: A114, AH14 DWG FILE: U:\BENTLEY\Drawings\Exhibit A\Tracts\Tract XXXX\X-XXE-XX.dwg



Notes

1) WATER LINE EASEMENTS ARE REQUIRED FOR ALL EXISTING, NEW AND FUTURE PUBLIC WATER FACILITIES LOCATED OUTSIDE OF THE PUBLIC RIGHT-OF-WAY OR OUTSIDE OF A PUBLIC UTILITY EASEMENT ABUTTING THE PUBLIC RIGHT-OF-WAY, AND FOR ANY OTHER AREA SO DESIGNATED BY THE DISTRICT.



Legend

- NEW WATER MAIN
- - - SITE BOUNDARY
- LOT LINE
- - - ADJACENT PROPERTY LINE
- - - EXISTING WATER MAIN
- ✕ NEW VALVE
- ⊗ EXISTING VALVE
- NEW PBO
- EXISTING PBO
- NEW FIRE HYDRANT
- ⊗ EXISTING FIRE HYDRANT
- NEW FIRE HYDRANT BY ACWD
- LIMIT OF ANNEXATION AREA

Approved _____
 Ed Stevenson,
 Manager of Engineering and Technology Services

ZONE X, XX XXXX UNITS

IMPROVEMENT PLANS APPROVED XX/XX/XX

NO	DATE	REVISION	BY	APP

DESIGNED	ACWD
DRAWN	XXX
CHECKED	XXX
ENGR IN CHARGE	
DIVISION ENGR	

PUBLIC WATER SYSTEM EXTENSION
 WITHIN THE
 ALAMEDA COUNTY WATER DISTRICT

EXHIBIT "A"
 USA Development, Inc.
 Tract XXXX
 ACWD #XXXX-XXXX

SCALE 1"=XXX'
 DATE XX/XX/XX
 DWG NO.
 X-XXE-XX

APPENDIX II: NOTES DESCRIBING ITEMS ON SAMPLE EXHIBIT “A” DRAWING

<u>ITEM</u>	<u>DESCRIPTION</u>
Title Block and File Information	
(1) Title:	Exhibit “A”
(2) Subtitle:	Developer’s Legal Name Tract # or Project Name ACWD No. (provided by ACWD)
(3) Scale:	Drawing should be to standard scale so as to fit on an 11” x 17” paper but no greater than 1”:200’, or as otherwise directed by ACWD.
Date:	Date drawing completed
Drawing Number:	(provided by ACWD)
(4) Vicinity Map, which should include:	Labeled streets around project site Project limits shown on map North Arrow
(5) File information on left vertical border	File: ACWD #9999-9999, ACWD Map #, Drawing file name (ACWD # and ACWD Map # provided by ACWD)
Text Above Lower Title Block:	
(6) ACWD pressure zone(s) of the new water main(s) (provided by ACWD)	
(7) Number of units by type (single family, multi-family, etc.), commercial, main extension only. Types of developments include:	Single family residential Multi-family residential Commercial Industrial Main extension only
(8) Date project’s improvement plans were approved by ACWD.	
Notes and Legend	
(9) Note: Water line easements are required for all public water facilities located outside of the public right-of-way or outside of a public utility easement abutting the public right-of-way. (Additional notes will be provided by ACWD as required for individual projects.	
(10) Legend: Include items in legend as needed. Legend symbols are included with title	

block example file provided by ACWD.

Property Lines

Project Boundary / Adjacent Property Lines

- a. The outer perimeter of the project boundary should be shown as a property line with a heavy lineweight. Include all interior lot lines in a thinner solid lineweight (pen 2). Label interior lots with lot numbers or parcel numbers/letters, as applicable.
- b. Property lines and right-of-way lines adjacent to the project site should be shown in a thinner solid lineweight. Label these adjacent areas with applicable Tract number, parcel map number, Owner name or Street name.
- c. Show and label any street right-of-way dedications along the perimeter of the site.

Water Facilities

New water facilities to be shown on in Exhibit A are:

- a. New Water Mains. All new water mains being installed by Developer's Contractor must be shown on Exhibit A. New water mains should be labeled with footage, size of main, and type of pipe. Footages should be the horizontal length of new water mains between changes in pipe type or diameter. Indicate limits of each labeled section of water main with leader or arrows pointing to extent of footage labeled.

Abbreviations are:

Polyvinyl Chloride – PVC

Steel – STL

Example: 80'-8" PVC, 20' – 12" STL (use abbreviation for Steel)

Steel water mains to be shown with .05" wide solid line weight over length of segment.

- b. New fire hydrants, existing fire hydrants and fire hydrants to be installed by ACWD. The Exhibit A will have different symbols for each of these categories. Do not show valves on these fire hydrant laterals.
- c. New line valves and permanent blow offs. Do not show valves for service laterals.
- d. Do not include service lines or air valves on Exhibit A.
- e. Labeling shall be provided, as directed by ACWD, for new public water system facilities eligible for potential reimbursement or refunds.

Existing Water Facilities to be included in Exhibit A are:

- a. Existing water mains and existing line valves. Label the existing water mains with size and type of pipe.
- b. Existing fire hydrants. Do not include line valves on the existing fire hydrant laterals.
- c. Existing permanent blow offs.

Annexation Areas:

Projects which require all or portions of their site to be annexed will need to have such areas designated on the Exhibit A. A shaded border 0.25" in width shall abut the interior side of the boundary of the area to be annexed. The border should be a screened color through which any other lines will be visible. Border drawing order should be set "behind" other lines so as not to obscure them. ACWD will provide direction on the boundary limits of areas to be annexed.

APPENDIX III: STANDARDS FOR AUTOCAD 2012 SUBMISSIONS OF EXHIBIT “A” DRAWING

AutoCAD 2012 Standards

1. Deliverables

- a. AutoCAD files saved as version 2012 or older.
- b. Xref files saved as version 2012 or older (AutoCAD files, images, etc.)
- c. All xref files shall be *pathed* with a RELATIVE PATH.
 - i. Xref drawing links are “broken” if Consultant’s xrefs are linked “FULL PATH.”

2. Versioning and Revisions

- a. Revisions = 1 through 999
- b. Revision Clouds:
 - i. The “Current Revision” of a drawing is most recent entry in revision block of the titleblock.
 - ii. Clouded revisions on the drawing should only reflect the current revision. Old revision clouds shall be removed from drawing.
 - iii. Revision cloud(s) on the drawing shall be noted with a Delta & revision letter or number.
- c. Changes which are made prior to ACWD’s approval of the Exhibit shall not be flagged as revisions.

3. Drawing Scale

- a. Drawings shall be developed at 1:1 scale in *model space*.
- b. Drawings are scaled in *paper/layout space* through viewports.

4. Title Blocks

- a. Drawing Sheet Template:
 - i. Exhibit A Template Rev 02-22-12.dwg
- b. File names shall be the drawing number. Drawing numbers are assigned by and provided by ACWD.
- c. ACWD title blocks shall be inserted in *paper space*.
- d. The bottom/left corner of the title block shall be at coordinates 0,0.
- e. Limits shall be set to (0,0), (17,11). ACWD plot specs are configured to plot by limits.

5. Drawing File Limits: shall be set at (0,0) (17,11).

6. Text

- a. Text, dimensions, shading and notes are drawn in paper space.
- b. Text style – Romans – Notes, legend, vicinity map
- c. Text style – Sansserif Oblique – Street names, Property owner names
- d. General text height - 0.10”
 - i. Text height for street names – 0.15”
 - ii. Text must be legible on half-size prints (8.5”x11”).
- e. Text color - pen 2 (yellow)

7. Lineweight

- a. ACWD plot specs are configured to “lineweight by color.”
See drawing ACWD Lineweight by Color EXHIBIT A.dwg.
- b. All lineweight widths for each layer to be set to “Bylayer.”
- c. All colors shall be set to “Bylayer.”
- d. All linetypes shall be set to “Bylayer.”
- e. ACWD color/lineweight standards:
 - iii. Street Names - pen 3
 - iv. Dimensions and text - pen 2
 - v. Text height smaller than .10 – pen 1
 - vi. Project Boundary – pen 5
 - vii. Interior lot lines – pen 2
 - viii. Adjacent property lines – pen 2
 - ix. New water mains – pen 4
 - x. New fire hydrants, valves and permanent blow offs – pen 2
 - xi. New fire hydrants by ACWD – pen 2
 - xii. Existing water mains, fire hydrants, valves and permanent blow offs – pen 2
 - xiii. Screened lines – pens 10 through 20
- f. Text must be legible on half size prints (8.5” x 11”)

8. ACAD Files Included

- a. **Exhibit A Template Rev 02-22-12.dwg** – Main drawing sheet for project. Includes ACWD logo, Project name, Job Number, Date and Location/vicinity map. (Note: Location/vicinity maps to be updated and revised to reflect project requirements.)
- b. **Font files** – Romans.shx, romant.shx, romand.shx, sanssb__.ttf (SansserifBold)
- c. **ACWD Lineweight by Color EXHIBIT A.dwg** – Line weight by color chart
- d. **ACWD Exhibit A 11x17.ctb** – Full size (11”x17”)

9. Drawing Numbers, ACWD Numbers, & Job Numbers

- a. To be assigned by Alameda County Water District.

10. Color

- a. Color to be set on all layers to Bylayer on drawings.

APPENDIX VI: DISTRICT WATER LINE EASEMENT GUIDELINES AND STANDARDS

GENERAL

The Alameda County Water District (ACWD) provides public water service to the cities of Fremont, Newark and Union City. At times, public water facilities cannot be placed in the public right-of-way but instead are installed on private property. In these cases, a water line easement is required for ACWD to legally install and maintain these public facilities on private property.

This informational sheet is to provide information on ACWD's easement process and requirements.

REQUIREMENT FOR EASEMENT DEDICATIONS

Water line easements are required for all public water facilities located outside of the public right-of-way or outside of a public utility easement abutting the public right-of-way.

FORM OF EASEMENT

ACWD has no preference as to whether the water line easement is shown on the recorded subdivision map or prepared by separate plat and description. ACWD will not schedule the installation of any water facilities that require an easement until the Grant Deed has been signed by the property owner and returned to ACWD.

The Developer will need to provide ACWD the following documents:

Easement by Plat and Description

If the project does not involve a recorded subdivision map, or of the project subdivision map does not grant a Water Line Easement ("WLE") to the public, the easement must be prepared by separate plat and description as describe below.

Legal Description(s):

- 1) Shall be prepared by
 - a) a Land Surveyor licensed by the California Board for Professional Engineers and Land Surveyors, or
 - b) a Civil Engineer licensed by the California Board for Professional Engineers and Land Surveyors with a license number of 33965 or lower.

- 2) The legal description(s) shall include all information necessary to describe the location and boundaries of the easement(s). In addition, the legal description(s) shall conform to the following requirements:
 - a) Prepared on 8.5"x11" size paper
 - b) Legal description must be labeled: Exhibit "A", Water Line Easement
 - c) Courses shown on the plat must match the courses described in the legal description. Where practical, the direction of the courses shown on the plat should match the direction of the courses described in the legal description (as opposed to northwest on the plat and southeast on the legal description).
 - d) Assessor's Parcel Number(s) of all affected parcels should be shown in legal description.

Plat:

- 1) The Legal Description shall be accompanied by a plat meeting the following requirements:
 - a) Preparation – see Legal Description 1, 2(a), and 2(c), above.
 - b) Plat must be labeled: Exhibit "B", Water Line Easement.
 - c) Assessor's Parcel Number(s) of all affected parcels must be shown.
 - d) There must be sufficient information shown on the plat to locate the affected parcel without having to reference another deed. If necessary to locate the property, streets adjacent to the site and/or a location map must be shown.

Current Title Report: for all affected parcels.

- 1) The legal description and the plat must be based upon and accompanied by a current Title Report meeting the following requirements:
 - a) Any title report(s) shall cover the entire area and all parcels affected.
 - b) The current title report(s) shall be no more than six (6) months old.
 - c) Vested owner(s) listed on the title report(s) shall be the current owner(s) of the property.

Easement on Subdivision Maps

For water line easement(s) shown on a subdivision map, ACWD must review and approve the easement(s) before the map is recorded.

After ACWD has received a copy of the recorded map, **ACWD will prepare a separate grant deed** and send it to the Applicant for execution. The new deed will reference the easement shown on the map and will grant the easement directly to ACWD (typical easements on subdivision maps are granted to the "public", not to ACWD).

ACWD EASEMENT PROCESS

If the easement is by plat and description, the plat and legal description should be sent to ACWD's Development Services for review. After ACWD has approved the plat and legal descriptions, the original, stamped, wet-signed plats and legal descriptions should be sent to ACWD.

If the easement is by subdivision map, the proposed subdivision map showing the water line easement(s) should be sent to ACWD's Development Services for review.

Whether easements are on subdivision maps or by plat and description, ACWD will prepare the water line easement deeds and forward to the Applicant for signature by the property owner(s). The property owner's signature must be properly notarized by a Notary Public. The documents should not be returned to ACWD unless and until they meet the following requirements:

- i. Acknowledgment form must be completely filled out and stamped with the notary's seal.
- ii. The name(s) of the signator(s) printed on the acknowledgment form must exactly match the name(s) of the signator(s) on the easement deed.
- iii. The entire notary seal (including the California state seal) must be completely legible.

After the documents have been properly signed and notarized, they should be returned to ACWD.

ACWD's District Secretary will send the easement for recordation with Alameda County. At this point, any new public water facility work will be released for construction if an easement was a condition of the project.

If you have any questions, please contact the ACWD Engineering Department at (510) 668-4499.

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