PART 1

PROCEDURAL GUIDE AND DESIGN REQUIREMENTS FOR CONSTRUCTION OF WATER AND SEWER FACILITIES

Vallecitos Water District
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VALLECITOS WATER DISTRICT

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PART 1

PROCEDURAL GUIDE AND DESIGN REQUIREMENTS

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SECTION 100

GENERAL STEPS FOR PROCURING WATER AND SEWER SERVICE FROM VALLECITOS WATER DISTRICT

100.1 AVAILABILITY OF SERVICE

Vallecitos Water District (District) recommends that early contact be made with the District’s Engineering Department to determine the current boundaries of the District and the availability of service prior to preparing improvement plans.

100.2 WILL-SERVE LETTERS AND “PROJECT FACILITY AVAILABILITY” FORMS

For proposed developments within the boundaries of the District, the developer will request a “Water Availability” or “Sewer Availability” letter from the District. Local governing agencies require these documents for processing of Tentative Maps or development reviews. In response to service availability requests, the District may attach certain conditions to the project. A fee is required to complete these documents.

When proposed developments near approval of their Parcel Map, the local governing agency will require a Water Commitment (County) or Will-Serve letter (City) to be completed by the District that commits water and/or Sewer capacity to the development. No fee is required to complete these forms.

100.3 ANNEXATION TO EXISTING VWD IMPROVEMENT DISTRICTS

Before a utility service can be provided to lands lying outside the boundaries of the Vallecitos Water District or improvement Districts, the lands must first be annexed to the Vallecitos Water District or Improvement District. If the proposed development is not included in any of the existing VWD Improvement Districts (IDs), the Developer or Owner must file a formal application for annexation. The Vallecitos Water District has adopted the Local Agency Formation Commission’s (LAFCO) sphere of influence, which identifies the water/sewer service area for planning purposes.

For additional information and requirements, see the following items which are located in the Engineering Department:
- Current Ordinance “Establishing Annexation and De-Annexation Charges”
- Current Ordinance, “Establishing Policies, Conditions, and Fees in Connection with Annexations to or De-Annexations form the District and to or from Improvement Districts within the District.”
- “State Board of Equalization” Fee.
- “Schedule of Charges and Deposits.”

100.4 TEMPORARY OFFSITE AGREEMENTS

A temporary offsite agreement allows water or sewer service to a property that does not have pipeline facilities adjacent to it. This is only done when adjacent properties will not benefit from the extension of pipeline facilities at the current time. However, future extensions may occur.

If a new water or sewer main that allows service by the District is extended past the property in question, the owner must (a) disconnect the offsite service, (b) reconnect to the new pipeline, and (c) pay all appropriate fees. No service connections to District pipeline facilities will be allowed until all proceedings are completed, any payback and all fees are paid, and all documents are recorded. The
Owner shall be responsible for conforming to these requirements and consenting to participate in any future Special Assessment Improvement District or Mello Roos, if they should occur. The owner will pay the regular capacity charges, installation charges, and acquire any easements or encroachment permits that might be necessary to run a service lateral from the nearest District pipeline to the place of use on the Owner’s property. Contact the District’s Engineering Department for additional instructions and review of the agreements.

100.5 PERMANENT OFFSITE AGREEMENT

In certain circumstances, the District may elect to provide service to a parcel that does not abut on, is adjacent to, or traversed by an existing pipeline, via an easement for water and/or sewer service. This is only done when adjacent properties will not benefit from the extension of pipeline facilities. For example, the Owner’s property is not adjacent to any District pipeline and their property is the last parcel to benefit from a pipeline extension.

Based on applicable District Ordinances which may be revised from time to time by the Board of Directors, the District establishes a permanent-offsite service charge based on the District’s estimated cost to design and construct a permanent facility to the parcel.

100.6 REIMBURSEMENT (PAYBACK) AGREEMENT

The District may enter into a payback agreement with individuals, subdividers, or developers to refund costs of “off-site” construction with the following stipulations:

1. Main extensions of less than 150 feet in length shall not be considered eligible for repayment agreement.
2. Eligible reimbursement costs shall include only construction costs. Refer to the standard Agreement for particulars.
3. The Reimbursement Agreement shall terminate at the end of ten (20) years from date of the contract or when the District has refunded to the individual, subdivider, or developer an amount equal to the cost of the “off-site” facility, whichever occurs sooner.

Upon study, exact interpretation of “offsite” and “onsite” construction will be made by the District’s Board of Directors. Following receipt at the District office of a written application for sewer main extension, the Board of Directors of the District – if the Board deems such extension to be in the best interest of the District – will prepare an administrative cost estimate and require the preparation of plans and specifications for the proposed construction. Such extension will be accomplished at no cost to the District. Refer to the current Ordinance and Reimbursement and Acquisition Agreement at the Engineering Department.

100.7 PLAN CHECKING PROPOSED DESIGN

For all projects, the applicant shall request that the District prepare a water and/or sewer availability letter. This request shall be made in writing and prior to submitting preliminary plans and requesting preparation of a Water and Sewer Study.

All projects are required to complete a Water and Sewer Study which quantifies and identifies project impacts to the existing District system and facilities. Funds for the Study shall be submitted to the District as a deposit for the cost of the Study. The District will prepare the Study or retain a consultant to prepare the Study.
In some areas, a feasibility investigation and report may be necessary to establish whether and how the District can serve the proposed area. The applicant may complete the study for District review or advance funds to the District for District completion of the study. The District will establish an estimated deposit to prepare or review any studies or reports. Applicant shall advance the deposit to the District, including any additional deposits required during the review or preparation.

The applicant's engineer shall submit an initial concept plan and design report, as required by the District, of the proposed domestic water, sewer and recycled water facilities to the District Engineer for review and approval. The applicant shall submit two (2) sets of design plans, 24" by 36" in size, of the proposed domestic water, sewer and recycled water facilities for any development to the Engineering Department for review and approval. Plans shall also be submitted to the City Engineer of the city having jurisdiction or the County of San Diego for unincorporated areas for review and determination of the requirements for approval of work within city or county jurisdiction.

100.8 AGREEMENT AND FEE PAYMENT

The applicant shall submit the required sets of plans for water and/or sewer service to the District. When the plan check process is near completion, the District will prepare a fee and bond letter and an “AGREEMENT FOR THE CONSTRUCTION OF FACILITIES TO BE DEDICATED TO THE VALLECITOS WATER DISTRICT”. All bonding requirements and fees required to be paid to the District will be included in this agreement. The District will sign its approval of the utility plans when the applicant has satisfied those financial obligations and returned two copies of the agreement with original signatures, and the Board has accepted and executed the agreement at a regularly scheduled Board meeting.

100.9 RESPONSIBILITY FOR FURNISHING MATERIAL AND INSTALLATION

Installation of a development's water and/or sewer facilities and any other required off-site facilities will be the obligation of, and at, developer's expense. The applicant shall cause all installation work to meet the District's "Standard Specifications” and, upon final Board acceptance, convey the off-site facilities to the District.

100.10 GUARANTEES

As set forth in the Agreement, the applicant shall be responsible for any and all repairs and replacements for a period of one year from the date of acceptance by the District Board of Directors without expense whatsoever to the District; ordinary wear and tear and unusual abuse or neglect excepted. In the event of failure to comply with the aforementioned conditions, the District will use securities posted by the developer (Warranty Bond) to have the defects repaired and made good. The cost and charges shall include attorney fees and other incidental costs involved thereof.

100.11 DEDICATION OF FACILITIES

Upon completion and final inspection of all work, the applicant shall file a request at least 12 working days prior to a regular Board of Directors meeting for formal acceptance. The applicant shall also furnish the District a report of actual costs of said facilities, compaction reports, meter/address/APN list, record drawings ("as-builts" reproducible mylars and digital files) of the facilities, and any operation and maintenance manuals required upon compliance with these requirements. Upon said acceptance, the District will file a Notice of Completion and, 40 days thereafter, give approval for the release of improvement bonds held by the District for the construction of domestic water, sewer and/or recycled water facilities.
END OF SECTION
SECTION 200

DISTRICT CHARGES
CAPITAL FACILITY FEES, AND OTHER COSTS

200.1 WATER RATES AND SERVICE CHARGES

These charges will be billed for water, sewer and ready to serve meter charges as listed in the District’s latest schedule of rates and charges available for review at the District office. These rates and charges are subject to change and it is the developer/applicant’s responsibility to confirm current rates and charges.

200.2 DEVELOPMENT CHARGES

Development fees and deposits will be assessed and collected as part of the agreement between the developer (applicant) and the District.

The plan check and inspection fees and deposits are based on actual costs of plan checking and inspection. The deposits and fees are estimated by the District from the most current Schedule of Fees and Charges. Additional deposits may be required from time to time throughout the duration of the project. Prior to construction, the plan check costs will be compared to the deposits collected and overages will be credited to the inspection phase. Any balance due will be required prior to scheduling of a preconstruction meeting, and additional deposits may be required for subsequent phases. At the time the project is deemed ready for final Board approval, a final assessment of fees/deposits will be determined and notification of any refunds or additional payments required will be sent to the developer/applicant. Board approval will be delayed until additional payments for services are rendered.

200.3 CAPITAL FACILITY FEES

The District’s Board of Directors has established water and sewer capital facility fees per Ordinance. These fees may change and the most current schedule is available for review at the District offices. Capital Facility Fees do not include the installation or cost of water services and meters, nor the cost of installation of sewer laterals. The applicant is required to furnish, install and dedicate water meters to the District.

200.4 OTHER FEES

To facilitate the construction of major District facilities, the Board of Directors may enter into an agreement with the applicant for reimbursement of over-sizing costs for facilities required per the District’s current adopted Water, Wastewater and Reclamation Master Plan and applicable Ordinances.

END OF SECTION
SECTION 300

WATER AND SEWER STUDY, DESIGN AND INSPECTION PROCEDURES

300.1  WATER AND SEWER STUDY

The Water and Sewer Study considers water demand and sewage generation from the proposed project to determine if the current water and sewer infrastructure is sufficient to accommodate the Project and provides recommendations for needed capital improvements to provide service.

300.1.1  Submittals - The following items are to be submitted to the Engineering Department by the applicant or the applicant's engineer prior to submittal of improvement plans:

1. One copy of the proposed site plan with proposed point of connection to existing water and/or sewer systems.

2. List of existing Assessor’s Parcel Numbers

3. Total project acreage and acreage of each proposed land use

4. Number of dwelling units in each land use area

5. Project fire flow requirements from the local fire authority.

300.1.1.1  Water System Analysis - The Engineering Department will evaluate the following items:

1. Water distribution system, including the need to upsize pipelines, install new pipelines, or install flow control facilities

2. Water storage, including the need for additional storage and the adequacy of existing storage tanks and reservoirs to serve the proposed development

3. Water pump stations, including the need to install new pump stations or upsize existing pump stations to serve the proposed development

300.1.1.2  Sewer System Analysis - The Engineering Department will evaluate the following items:

1. Wastewater collection system, including the need to upsize pipelines and manholes, or the need to install new pipelines and manholes

2. Wastewater lift stations, including the need to install new lift stations or upsize existing lift stations to serve the proposed development

3. Wastewater land outfall, including the need to construct a parallel land outfall to serve this and other proposed developments
4. Wastewater treatment facilities, including the need for obtaining additional capacity at the Encina Water Pollution Control Facility (EWPCF) or for expanding the Meadowlark Water Reclamation Facility (MRF).

300.1.2 Conclusions – Based on the analyses of the project’s impacts to the water and sewer system, improvements to the District’s existing systems may be required to support and mitigate the proposed project. Such improvements will be summarized in this section.

300.2 IMPROVEMENT PLAN SUBMITTAL FOR REVIEW AND APPROVAL

300.2.1 First Plan Check Requirements

The applicant/engineer shall submit all items for first review of residential/commercial/industrial subdivisions per Section 100 and the District’s Submittal Requirements Guidelines, available at the Engineering Department.

A hydraulic analysis for the project will be prepared as a part of the Water and Sewer Study. It is the responsibility of the developer/applicant to provide sufficient information prior to, or at the time of, improvement plan submittal.

The improvement plans will be checked against the tentatively approved master development plan and the minimum design standards. Tract maps and parcel maps will be checked against improvement plans for the required easements. After the first plan check, the District will return one red-lined set each of the utility improvement plan and the tract/parcel map. The returned sets will note any specific variations from the basic requirements. See Section 300.2.2 below.

300.2.2 Detailed Plan Requirements

All plans submitted to the District Engineering staff for plan checking and approval of water and sewer facilities shall be submitted on 24" X 36" sheet size. The plans shall conform to the local city or county having jurisdiction and/or the following requirements.

300.2.2.1 Required Details:

1. Title Sheet

   A. Project Title or Development Tract

   B. Index Map

       1) Scale - 1" = 100'/200'
       2) Show: Water mains - size, fire hydrants, valves and existing facilities. Sewer mains - size, flow direction, manholes, (number M.H.) and existing facilities, building/D.U./lots/”footprints.”
       3) North arrow
       4) Street names
       5) Legend of symbols and lines
       6) Show existing and proposed easements for water, sewer and irrigation facilities

   C. Location map; showing general area with project noted

   D. District signature block
E. Fire Marshal signature

F. Bench Mark; description, elevation, datum in two formats:
   • Horizontal Datum of the California State Plane Coordinate System Zone VI (NAD83)
   • (NAVD29) North American Vertical Datum

G. City Engineer signature block

H. Survey horizontal control and source of topography

I. Name, address, and phone number of engineering firm
   Name, address, and phone number of developer
   Legal description of property (Tract/Lot, Parcel Map No.)

J. Legend with quantity estimates may appear on Title Sheet. Water and sewer facilities to be called out separately. Labeled and not mixed together.

K. Index of sheets

L. Revision block

M. VWD Water and Sewer General Notes

N. Utility, addresses, and phone numbers, including but not limited to - Gas, Telephone, Power, Cable T.V., Water, Sewer, and Storm Drain

O. U.S.A. Dig Alert notice per Section 4212/5217 of the Government code

P. Assessor Parcel Number

2. Second Sheet (normally Sheet 2 includes):

A. Legend with quantity estimates (if not shown on Title Sheet) and Standard Drawing Number

B. VWD Standard Notes (Obtain from Engineering Dept. or www.vwd.org)

C. Construction notes

D. Detail drawings

3. Plan and Profile Sheets

Separate plan and profile sheets are required for all water and sewer pipelines, as follows:

A. Horizontal Scale: 1-inch = 40-feet     Vertical Scale: 1-inch = 4-feet
B. The plan and profile should be on same sheet if possible and aligned.

C. Existing water and sewer facilities adjacent to development must be shown

D. Easements dedicated to the District for water and sewer facilities must appear on plans

E. Building/dwelling unit pad elevation

F. Water, sewer, and storm drain crossing elevations

G. Private on site Plumbing Plan

H. Dry Utility Plan

300.2.3 Non-Residential Application Procedure Requirements.

In addition to the requirements described in Section 300.2.2, the following is required for all commercial or industrial developments:

300.2.3.1 Domestic Water Services

1. Site Utility Plans Showing:
   A. Property lines
   B. "Footprint" of building
   C. All on-site public and private fire hydrants
   D. Stamped/signed by the jurisdictional Fire Marshal
      1) Services for other than single family residential development are required to have back flow prevention devices, as determined by the District.

2. Items required for application for domestic service.
   A. Completed Water Meter Demand form for both irrigation and domestic water service, with irrigation plans, if applicable. Separate irrigation meters required except for SFR. One meter per legal lot.
   B. Address and Assessor’s Parcel Number to be served
   C. Site Map showing buildings being served by each/specific meters
   D. All fees paid per current rules/regulations/Resolutions

300.2.3.2 Fire Service Requirements

1. All fire services will require at a minimum a double check detector check per VWD standard drawing W-12 or W-13, or a reduced pressure principle assembly. See Part 3, Technical Specifications, Section 15115.

2. Private fire services on site shall not be looped, or connected.

300.2.3.3 Industrial Waste Questionnaire
Applicant requesting service for a commercial or industrial project may be required to submit a completed industrial waste questionnaire. For further information concerning the discharge limitations or the questionnaire, contact the Encina Wastewater Authority (EWA) office at (760) 438-3941.

The industrial waste questionnaire is designed to provide necessary information so that the District, EWA, and its customers can comply with the Federal Clean Water Act's Pretreatment Regulations (40 CFR Part 403).

A site inspection by EWA and/or the District will be made to verify the information provided on the questionnaire.

### 300.2.4 Additional Requirements, Standards, and Fees

#### 300.2.4.1 License Requirements

1. The applicant’s contractor shall have a Class A license or, a C-16 (fire protection), a C-34 (water), or a C-42 (sewer) license, for the specific work being performed.

2. The applicant’s contractor shall have a business license to operate within the city or county having jurisdiction.

#### 300.2.4.2 Standards for Application

1. The developer will furnish and install all domestic and irrigation water meters for the project.

2. Sizing water meters:

<table>
<thead>
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<th>Meter Size</th>
<th>GPM - MAXIMUM</th>
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<tbody>
<tr>
<td>3/4&quot;</td>
<td>35</td>
</tr>
<tr>
<td>1&quot;</td>
<td>55</td>
</tr>
<tr>
<td>1½&quot;</td>
<td>120</td>
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<tr>
<td>2&quot;</td>
<td>190</td>
</tr>
<tr>
<td>3&quot;</td>
<td>435</td>
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<tr>
<td>4&quot;</td>
<td>750</td>
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The District reserves the right to size meters per Ordinance.

3. Type of meter:

   See Approved Material List, latest edition

### 300.2.5 District’s Regulation Regarding Cross Connection

All domestic and irrigation water services shall be subject to the provisions of the applicable sections of the District's Cross Connection Ordinance. The following summarizes these provisions:

Cross connections of any type that permit a back flow condition from any source or system other than that of the District's domestic water mains are prohibited. A connection constituting a potential or actual back flow hazard is not permissible unless a back flow device or air gap, which is approved by the California
State Department of Health and local Health Agency and complies with Title 17 of the California State Administrative Code, is installed. Such an installation shall at all times be subject to inspection and regulation by the District for the purpose of avoiding possibility of back flow.

The District has a backflow technician who is available for consulting on any questions regarding cross connections.

The District will not provide any water service to any premises unless the public domestic water supply is protected as required by State, County and District regulations. Except in special situations, it is required to have back-flow devices installed for:

- All commercial domestic water services
- All industrial domestic water services
- All fire lines to commercial or industrial buildings
- All domestic systems or fire line systems having two, or more, points of connection to District mains
- All irrigation services on the domestic water system
- All domestic services to sites with recycled water irrigation service or well water

Back-flow prevention devices shall be approved by the U.S.C. Foundation for Cross-Connection Control and shall be installed by and at the expense of the customer.

The customer shall have the device regularly tested (at least once a year) by a tester certified by the San Diego County Health Department and service such devices to maintain them in satisfactory operating condition and shall overhaul or replace such devices if they are found defective. Test results shall be provided before District will accept service as complete.

Records of such annual tests, repairs, and overhauling shall be kept by the customer and originals forwarded to the District cross-connection inspector.

Service of water to any premises may be discontinued by the District if a back-flow prevention device required by the District ordinance is not installed, tested, and maintained; or if any defect is found in an installed back-flow prevention device; or if it is found that a back-flow prevention device has been removed or bypassed; or if unprotected cross-connections exist on the premises. Services will be restored only when such conditions or defects are corrected to the satisfaction of the District.

The District will further define how water lines must be marked where multiple water systems are in use and outline the duties and responsibilities of a property's water supervisor.

Additional reference for guidelines to when, why, and what types of back-flow and cross-connection control devices are approved may be found in:

C. Manual of Cross-Connection Control, published by Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California,
300.2.6 Domestic Water Facilities

See Section 500 for detailed specifications regarding the construction of domestic water facilities.

300.3 PROVIDING REQUIRED EASEMENTS

If an easement outside of the public right-of-way is required for construction and/or maintenance of sewer mains or water facilities, including but not limited to, sewer mains, manholes, water mains, hydrants, meter vaults, and detector check vaults; its minimum width shall be 20 feet for sewer and water mains, 10 feet on all sides for manholes, 5 feet square for meters, 5 feet on all sides for fire hydrants, meter vaults, detector check vaults, and other appurtenances, unless otherwise determined by the District. Sharing of easements with other utilities is discouraged. An easement running parallel with a lot line shall not be split so as to occur on two lots. The easement, title report, and legal descriptions with accompanying plat and plans shall be prepared by the applicant's engineer, two copies of which shall be sent to the Engineering Department. Easement plats and descriptions shall be on the approved Easement Form utilized by the District and will be checked by the District. Easements and recording information shall be shown on the maps and construction plans. The District will approve the plans only after all required easements have been deeded to the District together with any necessary partial reconveyance or subordination agreements. Exhibits shall be 8-1/2" X 11", no exceptions.

Along public streets a three or five foot utility parallel easement on private property for District use may be required depending upon public right-of-way widths and sidewalk locations.

Applicant shall submit two copies of the easement description and plat to the District for review. If acceptable, the applicant shall furnish one original of the description and plat, signed by a registered engineer or surveyor, along with a completed “Grant of Right of Way” form to the District, a current (within 60 days) title report of the property reflecting all deeds of trust and encumbrances, and subordinations signed by the trustees shown on the title report. If not acceptable, the District will return the documents with the required corrections noted.

The easement plat must contain a vicinity map showing the location of the easement in relation to major streets and highways, as well as a sketch depicting the easement boundaries with bearings, distances, points of beginning, north arrow, and any other information required by the District.

NOTE: Approval by the District will not be given for the tract water or sewerage systems until all easements have been obtained.

300.4 COST ESTIMATE

The Engineer of Work shall provide the quantities, unit costs and totals to allow the District to project costs for the water, sewer and appurtenant facilities to be dedicated to the District per the District’s Bond Worksheet. The items listed will include, but will not be limited to pipes, valves, meters & appurtenances, connections, hot taps, manholes, and facilities construction.

300.5 FIRE AUTHORITY APPROVAL

After the first plan check by the District, it will become the responsibility of the applicant or engineer to obtain the local jurisdictional Fire Authority approval before submitting for a second plan check.

300.6 SECOND PLAN CHECK
Upon satisfactory completion of items 300.1 through 300.5 the developer's engineer shall submit plans for
the second plan check. This submittal will be checked against the corrections requested in the first plan
check and the District’s minimum design standards.

300.6.1 Corrected Plans Returned To Developer's Engineer

Upon review of the improvement plans for the total development, one red lined copy will be returned to the
applicant's engineer, showing any corrections and/or comments.

300.7 AGREEMENT FOR THE CONSTRUCTION OF FACILITIES

Upon receiving the corrected plans for a second plan check and quantities for the bond worksheet and if the
plans are deemed near complete, the Engineering Department will compute the required development fees,
based on the then current fees and will prepare the Agreement for Construction of Facilities;

The District will send two copies of the Agreement to the developer for signature.

300.7.1 Security (Bonding) Requirements

All projects, including modifications to the District’s existing systems, must include a 100% Faithful
Performance Bond and 100% Labor and Material Bond based on the Engineer’s Estimate of Cost. This
surety shall be of a type which is automatically renewed every year, at the developer’s expense, until
released by the District. All completed projects must, before acceptance by the District, submit a Warranty
Bond equal to 25% of the Contractor’s actual construction cost for the water and/or sewer improvements.
The Warranty Bond shall be in effect for one (1) year from the date of acceptance of the project by the
District Board of Directors.

Acceptable Security Devices include:

1. Faithful Performance Bond, Labor and Material Bond, and Warranty Bond executed in
   favor of Vallecitos Water District by a reliable bonding company.
2. Cash Deposit with the District to replace either the Payment or Performance bond, or both.
3. Certificate of Deposit
4. Instrument of Credit on a form acceptable to the District. The Certificate of Deposit or
   Instrument of Credit requires Board approval prior to acceptance. The Certificate of
   Deposit or Instrument of Credit may replace either the Performance and/or Payment Bond.

300.7.2 Insurance Requirements

The Contractor shall purchase and maintain insurance in amounts equal to the requirements, and in the form
and manner provided therefor, of the District’s Agreement for Construction. The Developer shall provide
certificates of insurance and endorsement showing that Developer has liability insurance coverage with an
insurance company licensed to do business in the State of California, and acceptable to the District,
providing the minimum coverage set forth in the Agreement for Construction.

300.8 FINAL PLANS

Upon completion of any remaining items noted in the plan check, the developer's engineer shall submit two
blue line sets of improvement plans, along with the red line mark up, for final verification.

300.9 FINAL EASEMENTS

300.9.1 Submittal
The developer shall submit easement documents, which incorporate all changes caused by the review process, in accordance with Section 300.3.

300.9.2 Verification

The engineer will verify that the easements as listed in the easement documents remain valid. The engineer will then submit the final easement documents and the final title report for recordation by the District.

300.10 FEES AND DEPOSITS

The developer shall pay all fees and deposits as determined in the "AGREEMENT” between the developer and the District and per District Ordinance.

300.11 BOARD APPROVAL OF AGREEMENT

Upon satisfactory completion of items 300.1 through 300.10 the District will, at the request of the developer, submit to its Board of Directors for approval the “AGREEMENT”.

300.12 SIGNED PLANS

Utility improvement plans must have the signature of the District Engineer or his designee before any construction by the applicant begins.

300.12.1 Prerequisites for Signing Plans

1. AGREEMENT FOR THE CONSTRUCTION OF FACILITIES must be signed by developer, and approved by the District's Board of Directors.

2. Required signed easement documents or the Tract/Parcel Map must have been accepted for dedication by the District and recorded.

3. All fees and charges must be paid in full by the applicant, per District rules, regulations and Resolutions.

4. Signatures of the Engineer of Work, the Fire Marshal, and any other utility or governmental entity having interest in the project, are required. Signatures of the City Engineer/County Engineer normally follow District signature.

300.12.2 District Signing Plans

300.12.2.1 Submittal for Signature - Once the requirements detailed in Sections 300.1 through 300.11 are satisfied, the applicant shall submit to the District the following:

Improvement/utility plan original mylars shall be delivered to the Engineering Department with one bond copy set.

300.12.2.2 Notification - District will notify applicant's engineer once the plans have been signed. A preconstruction meeting will be scheduled by the District inspector after receipt of three sets of signed bond copies of the plans have been submitted to the Engineering Department.

300.12.3 Validity of Signed Plans
Plans will be valid for two (2) years from the date of District approval. If construction has not started within eighteen (18) months from the date of plan approval, the signed plans shall become "null and void". The District will require rechecking of the plans and it reserves the right to charge additional plan check fees.

300.12.4 Project Extension Letter

In the event that construction does not start within eighteen (18) months, and the approval becomes null and void, as described in Section 300.12.3; a project extension letter shall be submitted by the Developer/Owner, by registered mail, to request a one year extension of the approval.

300.13 ORDER OF PRECEDENCE OF STANDARDS

In the case of conflict between the specifications, drawings, and permit requirements, with regard to construction of facilities, the following order of precedence will apply: The permit requirements of other agencies, special details, plans, special conditions, District standard drawings, technical specifications, general conditions, the Standard Specifications for Public Works Construction and the Cal Trans Manual.

Figured dimensions of the drawings shall govern, but work not dimensioned shall be as directed. Work not particularly shown or specified shall be the same as similar parts that are shown or specified or as directed. Full-size details shall take precedence over scale drawings as to shape and details to construction. Scale drawings, full-size details, and specifications are intended to be fully cooperative and to agree; but should any discrepancy or apparent difference occur between plans and specifications, or should errors occur in projects being constructed by others affecting the work, and the contractor proceeds with the work affected without instruction from the District, the contractor shall be fully responsible for any resultant damage or defect.

300.13.1 Permit Requirements

The permit requirements, as approved by the agency having jurisdiction, will take precedence over the below listed details and standards with regard to the construction of water and sewer facilities.

300.13.2 Special Details

The special details, as approved by the signature of the District Engineer, will take precedence over the below listed details and standards with regard to the construction of water and sewer facilities.

300.13.3 Plans

The plans, as approved by the signature of the District Engineer, will take precedence over the below listed details and standards with regard to the construction of water and sewer facilities.

300.13.4 Special Conditions

The special conditions, for the specific project and incorporated into the project contract documents, as approved by the Districts Board of Directors, will take precedence over the below listed standards with regard to the construction of water and sewer facilities.

300.13.5 District Standard Drawings

Districts' standard drawings, as approved by the signature of the District Engineer, will take precedence over the below listed details and standards with regard to the construction of water and sewer facilities.

300.13.6 District Standard Specifications

Districts' standard specifications, detailed below, as approved by the Board of Directors, will take precedence over the below listed standards with regard to the construction of water and sewer facilities.
The "Standard Specifications for the Construction of Water and Sewer Facilities” are incorporated herein by this reference. Copies may be obtained from the Vallecitos Water District, 201 Vallecitos De Oro, San Marcos, CA 92069, or on-line at www.vwd.org.

300.13.7 Technical Specifications

The technical specifications, of the District’s "Standard Specifications of the Construction of Water and Sewer Facilities," as detailed above, of the contract documents, as approved by the District’s Board of Directors, will take precedence over the below listed standards with regard to the construction of water and sewer facilities.

300.13.8 Standard Specifications for Public Works Construction

The Standard Specifications for Public Works Construction as referenced by the District’s details, standards and specifications, will take precedence over other standards with regard to the construction of water and sewer facilities.

The "Standard Specifications for Public Works Construction," (Green Book), are included herein by this reference. Copies may be purchased from Building News, Inc., 3055 Overland Avenue, Los Angeles, California 90034.

300.13.9 The Cal-Trans Manual

The Cal-Trans Manual, as referenced by the District’s details, standards and specifications, will take precedence over other standards with regard to the construction of water and sewer facilities.

The "Standard Specifications," CALTRANS, are incorporated herein by this reference, copies of which may be purchased from the State of California, Department of Transportation, Central Publications Distribution Unit, P.O. Box 1015, North Highlands, California 95660.

300.14 RECORD DRAWINGS

Record drawings documenting “as-built” changes will be provided to the District as detailed in Section 500.13 for water and sewer facilities.

300.15 SIGNED UTILITY PLANS BOTH BY DISTRICT AND CITY

The District shall have completely signed and approved domestic water and sewer and irrigation improvement plans. Three sets of bond copies shall be furnished to the Engineering Department at least five working days before the preconstruction meeting. Work may not commence until a preconstruction meeting is held.

300.16 USE OF DISTRICT SEWERAGE FACILITIES

The District has regulations on the types of wastes that are allowed to be discharged into its sewers in order to protect the facilities of the District and its operations to meet its discharge requirements. The section on the use of District sewerage facilities in the District's Ordinances, including a separate supplement, sets forth these requirements. These provisions establish conditions under which certain users are required to obtain permits for use of District sewerage facilities. Applicants whose sewage discharges qualify them for a permit shall not be allowed to connect the building sewer to the District lateral sewer or sewer main until a written notification is provided by the District allowing the hookup. All users must comply with the discharge prohibitions established in the District's Ordinances.

300.17 PROJECT CONSTRUCTION
300.17.1 Notification

Signed plans must be delivered to the inspector at least five working days before a preconstruction meeting is scheduled. The contractor will be allowed to start construction only after the preconstruction meeting. The City or County inspector shall be notified prior to work within public right-of-way. Notice shall be given to the District inspector at least 48 hours before starting construction.

300.17.2 Preconstruction Meeting

A preconstruction conference is to be held a minimum of 2 working days before starting construction. The purpose of the meeting will be to answer any questions regarding the District’s specification requirements, to obtain the contractor’s construction schedule and emergency contact information, and to discuss any circumstances that may affect the work. The following attendees must be present: Contractor’s job foreman and/or job superintendent, Subcontractor(s) if applicable, Developer/Owner’s engineer, District Inspector, Federal, State or Local regulatory or enforcement agency representative, and other parties deemed appropriate by the District.

300.17.2.1 Preconstruction Meeting Agenda

Without relieving the developer of responsibilities outlined elsewhere in the specifications; the District will present to the developer a list of requirements that may contain, but will not be limited to, the following items:

1. Order of work
2. Working hours
3. Operation manuals
4. Manufacture’s specifications
5. Pressure test results
6. Bacterial test results
7. Compaction Reports
8. Meter Records
9. Record Drawings

300.17.2.2 Order of Precedence

The order of precedence as defined in Section 300.13 will be reviewed in the pre-construction meeting.

300.17.3 Water for Construction Purposes

The contractor will be furnished construction water at a connection point designated by the District after payment of fees and deposits. The water shall be taken through a metered delivery and the developer shall pay all costs related thereto, including (but not limited to) District's standard deposit for temporary meter and actual costs of water used, pumping costs, loading, hauling and the use thereof. The developer shall make all arrangements for transporting the water to the construction site. A backflow device is required for all construction meters.

300.17.4 Inspection of Work
300.17.4.1  **Access**

All work shall be subject to inspection by the District and shall be left open and uncovered until approved by appropriate District personnel. Any work done in the absence of the District Inspector shall be subject to rejection.

300.17.4.2  **Water and Sewer System Inspections**

The Contractor shall not proceed with any subsequent phase of work until the previous phase has been inspected and approved by the District. Inspection shall be made at the following intervals of work:

1. **Water System**
   A. Review of material submittal and/or plan submittal
   B. Delivery of materials to job site
   C. Check construction stakeout by surveyor to ensure compliance with improvement plans.
   D. Trench excavation and bedding
   E. Placing of pipe, fittings, and structures
   F. Pouring all concrete anchors and thrust blocks
   G. Placing and compacting the pipe zone back fill
   H. Backfilling balance of trench to grade. Compaction tests shall be performed by private soils consultant retained by the applicant and acceptable to the District in public and private streets and easements. Copies of test results shall be provided to the District, and the governing agency, by the applicant for approval before final acceptance of the work. Backfilling and repaving shall be in accordance with the requirements of the agency having jurisdiction.
   I. Pressure testing all mains and services
   J. Disinfecting and flushing
   K. Health samples
   L. Repaving trench cuts
   M. Raising valve box covers to finish grade and paint to District standards
   N. Fire hydrants painted and pads poured
   O. Installation of service lines, appurtenances meter boxes, and customer service valves
   P. Connection to the existing system

2. **Sewer Inspections**
   A. Trench excavation and bedding
B. Check construction stakeout by surveyor to ensure compliance with improvement plans.

C. Placing of pipe, fittings, and structures

D. Placing and compacting of the pipe zone backfill

E. Backfilling of the balance of the trench to grade. Compaction tests shall be taken by a private soils consultant retained by the applicant and acceptable to the District in public and private streets and easements. Copies of test results shall be provided to the District by the applicant for approval before final acceptance of the work.

F. Testing and video inspection after backfill compaction of all utilities is approved by the city and/or county road departments and must be obtained before paving.

300.17.5 District Authority

300.17.5.1 Access

The District shall at all times have access to the work during construction and shall be furnished with every reasonable facility for ascertaining full knowledge with respect to the progress, quality of labor, and character of materials used and employed in the work. No pipe, fittings, or other materials shall be installed or backfilled until inspected and approved by the District representative. The contractor shall give due notice in advance of backfilling to the District inspector so that proper inspection may be provided.

300.17.5.2 Obligation

Inspection of the work shall not relieve the contractor of any obligations to complete the work as prescribed by the Standard Specifications. Any known defective work shall be corrected before testing or final inspection will be permitted. Unsuitable materials may be rejected, even though they may have been previously overlooked by the inspector.

300.17.5.3 Suspension of Work

The District shall have the authority to suspend the work wholly or in part for such time as it may deem necessary if the contractor fails to carry out orders given by the District's inspector or to perform any work required in provisions of the plans and specifications. The contractor shall immediately comply with a written order of the District to suspend the work wholly or in part. The work shall be resumed when methods or defective work are corrected as ordered and approved in writing by the District.

300.17.6 Pressure Test

A pressure test of the newly constructed water lines and sewer mains shall be conducted as detailed in Section 15042 and Section 15043, respectively.

300.17.7 Water for Flushing, Testing and Sterilization

Water for flushing, testing and sterilization of the completed pipelines or sections thereof will be available from the District at the point, or points, of connection with the existing water mains via the construction water meter connection.

The developer shall make all arrangements for this water with the Vallecitos Water District, which shall
designate the exact location of the outlet or outlets and the time periods those connections may be used.

### 300.17.8 Chlorination and Bacteriological Testing

After a passing pressure test, the water lines shall be chlorinated and tested for bacteria as detailed in Section 15041.

### 300.17.9 Final Water Facilities Inspection

Before final acceptance, the District's inspector will make a final inspection of all work, accompanied by the contractor's superintendent or representative, to verify that:

1. All phases of the job are complete in accordance with plans and specifications
2. All valve boxes are raised to finish grade and that all repairs are completed.
3. All valves are referenced and the inspector has been given all reference measurements
4. All right-angle meter stops, and the meters, are properly positioned and all meter boxes are positioned and raised to proper grade
5. Fire hydrants are raised to proper grade, are in a vertical position, painted; and its concrete pad is poured
6. Backfill has passed all compaction testing
7. All system valves are turned and left open (except those specifically required to be normally closed), turns required for complete open/close cycle are recorded on the record drawings
8. Domestic water lines have been chlorinated
9. Water line pressure testing and flushing have been completed
10. The job site is clean and cleared of all the contractor's equipment and materials
11. All service line locations have been marked on curbs with a “W”
12. Certified test results have been provided for all backflow prevention devices
13. Meter number and Address form is completed
14. A mylar and a bond copy of the water facility plans labeled "RECORD DRAWINGS" with the "As-Built" revisions have been delivered to the District
15. Digital submittal of plan information in a format acceptable to the District

### 300.17.10 Final Sewer Inspection

Before final acceptance, the District, even though the sewers have been wayne-balled once, may require the contractor to flush and wayne-ball all sewer mains again. The District, accompanied by the contractor's foreman or superintendent, will make a final inspection of all work to check the following items:

1. All phases of the job are complete in accordance with plans and specifications
2. All bulkheads and plugs have been removed
3. The concrete base and channels in manholes are smooth
4. Manhole interiors are clean of all debris and excess concrete mortar
5. All manhole concrete grade rings are adequately grouted and properly set
6. Pavement around manhole cover has been properly blacktopped to correct grade
7. Proper field tests have been made on all sewer main sections and manholes, particularly where sections of manholes had to be repaired.
8. Backfill has passed all compaction requirements.
9. The job site is clean and cleared of all the contractor's equipment and materials.
10. Lateral locations have been marked with a "S" on curb.
11. A mylar and a bond copy of the water facility plans labeled "RECORD DRAWINGS" with the "As-Built" revisions have been delivered to the District.
12. Digital submittal of plan information in a format acceptable to the District.

300.17.11 Raising of Valve Boxes and Manhole Rims

For paved areas in the applicant's development, it shall be the responsibility of the applicant to raise to grade all valves and manholes and provide temporary ramping or feathering around valve boxes or manholes between pavement lifts.

300.18 RECORD MYLARS

Record drawings shall be completed and submitted by the developer's engineer, or a registered land surveyor, as detailed in Section 500.13. The applicant shall furnish to the District record drawings (1 marked set of bond copy, 1 set of mylar, and 1 set of digital format (.dwg) showing all revisions to the original approved plans. All future extensions of water transmission mains and sewer mains shall have the invert elevation of the terminal pipe verified by the applicant and posted on the drawings. Failure to comply with these requirements will necessitate withholding final approval.

300.19 EASEMENT VERIFICATION

The developer's engineer will verify in writing that the facilities to be accepted by the District were constructed within the easements as listed in the easement documents. In the event the facilities were not constructed within the designated easement, the engineer will submit revised easement documents, quitclaim documents, and the final title report for recordation.

300.20 FINAL COSTS, BOND, AND FEE VERIFICATION

With the record drawings, the applicant is to furnish the District a cost breakdown of the newly installed facilities for District accounting purposes. A warranty bond in the amount of 25% of the actual installation costs for District facilities shall be submitted. Any adjustments to the deposits and fees will be made at this time.

The District will also re-evaluate the plans for compliance with the "AGREEMENT" and reserves the right to re-assess the development fees if deviations from the originally approved plans have been made. Changes include, but are not limited to: the number of service connections, meter sizes, building square footage, the irrigated area, the number of dwelling units, and any other measure used to calculate the original fees. All fees and/or deposits shall be made current prior to forwarding the project for acceptance.

300.21 BOARD ACCEPTANCE

After satisfactory completion of the items in Section 300.1 through 300.20, the District will, upon the request of the developer, place the project on the District Board’s agenda for acceptance, said date of acceptance being the commencement of the one year warranty period.
300.22 RELEASE

300.22.1 Bond Release

All final inspection requirements shall be fulfilled before the District will give its final acceptance notice to the City and/or County for release of the applicant's bond to those agencies, if applicable. The applicant's bond with the District shall remain in effect in accordance with Section 100.5 and the Agreement.

300.22.2 Water and Sewer Service in service prior to Acceptance

The District Engineer, at his sole discretion, may approve placing newly installed water and sewer systems into service prior to Board acceptance after compaction has been approved by the governing agency and the portions have been pressure tested, chlorinated, flushed, and have passed the bacteriological test and inspection for domestic water mains. This partial acceptance may be granted only upon written request from the applicant and subsequent approval by the District Engineer. Upon this written approval for partial acceptance of facilities, the applicant shall be relieved of the duty to maintain the portions so used or placed into operation provided, however, that nothing in this section shall be construed as relieving the applicant of full responsibility for completing the work in its entirety, for making good any defective work and materials, for protecting the work from damage, and for being responsible for damage and for work as set forth in the agreement and other contractual documents; nor shall such action by the District be deemed completion and acceptance, and such action shall not relieve the applicant of the guarantee provision of the Agreement with the District.

Meters shall remain locked and there shall be no occupancy until capital facility fees have been paid and the District signs the building permit card, per current District rules and regulations. Final acceptance of the project shall be subject to all District fees and charges being paid current.

300.23 SECURITY RELEASE

If in the time period of one year from the date of Board acceptance no failure of the system has occurred, which has gone unrepaired by the developer, to the satisfaction of the District, the District will release the surety. The sewer system will be video inspected prior to the one year anniversary of the surety bond.

END OF SECTION
VALLECITOS WATER DISTRICT
SECTION 400

DESIGN CRITERIA
SEWER FACILITIES

The three main components in a wastewater collection system include gravity sewers, force mains, and lift stations. This section contains criteria to be used in the design of the proposed gravity sewer system. The developer and engineer shall be responsible for ensuring that designs submitted to the District are consistent with, and comply with the latest editions of the VWD Master Plan, VWD Standard Specifications, VWD Standard Drawings, VWD Approved Materials List, VWD policies, rules and regulations, and generally accepted engineering practice.

400.1 MINIMUM SIZE

The District will not accept sewer mains smaller than 8-inches in diameter nor any sewer line that is within a common trench (two or more utilities in the same trench) for operation and maintenance. Adequate horizontal and vertical spacing shall be maintained from potable water systems as defined in the Department of Health Services standards. Continuity/consistency of pipe sizes shall be observed; for example, upstream mains shall not be larger in diameter than tributary/connecting downstream mains. Differing size sewer main pipe segments shall be combined at manholes by matching soffits.

Sewage lift stations and force mains, except those identified in the District’s Master Plan, are discouraged. Private lift stations shall be avoided to the maximum extent possible and will only be considered as a last resort. The size of sewer force mains will be determined during the design phase which includes an analysis of alternatives. The minimum size for a force main shall be 6-inches. The capacity shall be the calculated design peak flow from the lift station. The design velocity may be between 2 fps to 6 fps. Discharge shall be into a coated sewer manhole.

Sewage lift stations shall be designed to meet current and proposed flow projections. A design report is required to be submitted for District review and approval. All lift stations, if approved, shall be public and comply with District standards and operation and maintenance requirements. In addition to the building, pumps (including duty and standby), motors and electric system, the station shall also include control systems, telemetry, stand-by power, security and other appurtenances as required by the District.

400.2 MINIMUM AND MAXIMUM SLOPE DESIGN

400.2.1 Slopes

All gravity sewers shall be designed and constructed to provide mean velocities, when flowing half full, of not less than 2.0 fps, based on Manning’s formula using an “n” value of 0.013. The following are minimum slopes; however, slopes greater than these are desirable:

<table>
<thead>
<tr>
<th>Sewer Size (inches)</th>
<th>Minimum Slope in Feet per 100 Feet (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>0.40</td>
</tr>
<tr>
<td>10</td>
<td>0.28</td>
</tr>
<tr>
<td>12</td>
<td>0.22</td>
</tr>
<tr>
<td>15</td>
<td>0.15</td>
</tr>
<tr>
<td>18</td>
<td>0.12</td>
</tr>
</tbody>
</table>
The maximum allowable slope shall be the slope that generates a maximum flow velocity of 8 fps at the calculated peak flow rate.

400.2.2 Peak Flows

Design peak flows in sewer mains 12-inches in diameter and smaller shall be limited to \( \frac{d}{D} = 0.5 \), and in mains 15-inches and larger, \( \frac{d}{D} = 0.75 \).

400.2.3 Generation Rates

Sewerage generation rates (duty factors) for various land uses within the District are as established in the District’s Water, Wastewater and Recycled Water Master Plan, latest edition.

400.2.4 High Velocity Protection

In steep sections where flow velocities greater than 15 fps are calculated, special provision shall be made to protect the main against displacement by erosion (slope anchors required on slopes greater than 20%) and shock for pipe entering a manhole and for concrete manhole base and flow channels.

400.3 STANDARD LOCATION AND ALIGNMENT

400.3.1 Location

Sewer mains shall be constructed on the centerline of streets and easements, but not in the median or parking lanes. In those cases, mains shall be constructed to the north or west of centerline, as approved by the District. Where an existing main which is not in the standard location is to be extended or where streets are curved and the location or side of the street is questionable, the location of the proposed extension shall be reviewed by the Engineering Department. Sewer mains and laterals shall not be constructed in a common trench with other utilities. Horizontal or vertical curves in sewer mains are not allowed. In curvilinear streets, mains shall parallel the centerline as much as possible by means of horizontal deflection points at manholes (straight alignment between manholes). In multi-lane streets, it is preferable to locate sewers so that manholes are in the middle of traffic lanes.

400.3.2 Alignment

Barring other limiting design and construction considerations, a minimum separation between sewer and water mains in new subdivisions shall be achieved by the following construction procedures:

1. On curvilinear streets, the sewers shall parallel as nearly as possible the street centerline by means of horizontal deflection points at manholes.

2. Sewer mains should be installed on the opposite side of the centerline from the water mains.
400.3.3 Radius of Curvature

Horizontal or vertical curves in sewer mains are not allowed.

400.4 STATIONING PROCEDURE

Where water mains and sewer mains are shown as part of a street improvement project, street centerline stationing and offsets shall be used. When the improvement plans are for sewer and/or water construction only, stationing shall be along the centerline of the sewer and/or water mains. All manholes are to be numbered (example MH No. 1).

400.5 MINIMUM COVER

Minimum cover from finish street grade to top of sewer main pipe shall be 5 feet. Sewer laterals shall be designed and constructed with a minimum cover of 5 feet from the finish grade at property line. Construction stakes and cut sheets shall be provided. Installation of sewer mains prior to grading, or as part of the grading process is prohibited. Sewer mains shall not be constructed at depths less than 5 feet followed by fill/grading.

400.6 MANHOLE SPACING AND LOCATION

Manholes shall be installed at the end of each line; at all changes in grade, size, or alignment; at all intersections of two or more mains; and at distances not greater than 400 feet for 8- through 15-inch sewers and 500 feet for 18- to 30-inch sewers, or as otherwise approved.

400.7 MANHOLE TYPE, MINIMUM SIZE AND DEPTH

400.7.1 Manhole Depth

Manhole depth is calculated from finish grade to lowest pipe invert. Minimum manhole depth shall be 6 feet. Manholes shall contain pre-cast reinforced concrete sections with eccentric cone style, no steps. Pre-cast manhole bases may be used if approved by District. The minimum diameter of manholes shall be as follows:

<table>
<thead>
<tr>
<th>Sewer Diameter</th>
<th>Min. Manhole Dia.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-12 in.</td>
<td>48 inches</td>
</tr>
<tr>
<td>15-24 in.</td>
<td>60 inches</td>
</tr>
<tr>
<td>Greater than 24 in.</td>
<td>96 inches</td>
</tr>
</tbody>
</table>

Depth of manhole shall be measured from the lowest pipe invert to the finished grade of the street.

The standards for the District sewers are generally based on a depth criteria of approximately 6 feet to 15 feet for manholes. However, if deeper manholes, regardless of sewer size, are required and approved by the District, the following criteria will govern. The larger manhole, based on either diameter or depth, shall be constructed.

<table>
<thead>
<tr>
<th>Sewer Depth</th>
<th>Manhole Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-15 ft.</td>
<td>48 inches</td>
</tr>
<tr>
<td>&gt;15-22 ft.</td>
<td>60 inches</td>
</tr>
<tr>
<td>Greater than 22 ft.</td>
<td>72 inches</td>
</tr>
</tbody>
</table>
400.7.2 Allowable Head Losses

Allowable head loss in manholes shall be as follows:

1. Straight run through manholes based on 0.10-foot loss

2. Right angle turn in manholes based on 0.5 velocity head loss or 0.20 feet, whichever is greater

400.8 MANHOLE PROTECTIVE LINING

The interior of manholes greater than 60-inch in diameter and larger shall be coated with a polyurethane lining system. The interior of manholes 48-inch in diameter shall not be coated with a polyurethane lining system unless as determined by the Engineer or the District and shall be noted on the plans. 48-inch diameter manhole locations shall be evaluated to determine their potential to generate hydrogen sulfide gases, such as at sewer main alignment changes greater than 60 degrees, where significant grade changes occur, or at the convergence of large flows. The coating shall extend down to cover the manhole shelf in its entirety and to overlap joints in the inlet/outlet sewer pipe penetrations. The coating shall not extend into the channel and flowline. The protective lining system shall be Zebron lining system.

400.9 MANHOLE COVERS

400.9.1 Type of Covers

Cast-iron frames and covers shall be 36-inches in diameter. Covers shall be three-piece with the words “SEWER” and “VALLECITOS WATER DISTRICT” cast in the cover. Larger size covers may be specified for special conditions on plans. See Standard Drawings S-1, S-2, and S-3. Frames and covers shall be from the same manufacturer and originating from the same factory.

400.9.2 Position of Covers

The flat part of the eccentric cone section shall generally be oriented to the upstream flow through the manhole. Specifically cut plywood shall be placed in the bottom of the manhole after testing and before final grade adjustment. At the completion of final paving, the manholes shall be raised to final grade by using the necessary sized grade rings and the plywood shall be removed prior to occupancy.

400.10 ACCESS TO MANHOLE

All sewer manholes shall be designed and constructed with a direct paved or all weather access to them, as approved by the District.

400.11 SEPARATION BETWEEN WATERLINES AND SEWERLINES

See Subsection 400.3 herewith, and Subsection 500.7.

400.12 HOUSE LATERALS AND MINIMUM DEPTH AT PROPERTY OR EASEMENT LINE

Because the District does not have control over what enters the drain/lateral from private developments or dwellings nor does it have control over private properties, the proper operation and maintenance of all sewer laterals is the sole responsibility of the private property owner from the property line to the public sewer
All sewer laterals shall be located by the applicant and shown (with stationing) on the improvement plans.

House connections shall be constructed to the property line. There shall be one house sewer lateral (4” minimum) constructed for each individually owned dwelling unit (a granny flat on the same property as a primary dwelling can use the same sewer lateral as the primary dwelling). Minimum depth shall be 5 feet from finished grade at property or easement line. The sewer house connections shall be laid to the grade as established by the applicant so that the 4-inch house connection will have a minimum cover of 5 feet from the finished grade to the top of the pipe at the property line per Standard Drawing S-4.

400.13 TOWNHOUSES AND CONDOMINIUM LATERALS

For buildings containing two to four units, either one 4-inch diameter lateral to each unit or one 6-inch diameter, or larger, lateral to the building shall be used. For buildings containing more than four units, either one 4-inch diameter lateral to each unit or one 8-inch diameter, or larger, lateral to the building shall be used. In general, a lateral shall serve only one building regardless of the number of units per building.

400.14 INDUSTRIAL TREATMENT

Requirements for industrial pretreatment will be determined as a result of processing the Industrial Waste Questionnaire through the Encina Wastewater Authority office. Design requirements will be dependent upon those industrial pretreatment requirements.

400.15 GREASE INTERCEPTORS

The requirements for grease interceptors are governed by the Uniform Plumbing Code. All facilities which have the potential to discharge fats, oils and grease into the District’s sewers may be required to install grease interceptors to minimize problems in collection systems and treatment plants. The Department of Health Services and/or the local agency building department issues permits and has jurisdiction and establishes the size and location of the interceptor(s).

It is the responsibility of the owner of each facility to maintain proper operation of the interceptor unit and to remove accumulated grease at suitable intervals to avoid excessive buildup in the unit.

400.16 STANDARD SEWER NOTES

The District’s current General Notes for Improvement Plans and General Notes Grading Plans may be obtained from the Engineering Department or the District website, www.vwd.org.

**END OF SECTION**
VALLECITOS WATER DISTRICT  
SECTION 500  
DESIGN CRITERIA  
WATER FACILITIES

This section contains design criteria for proposed water systems. The developer and engineer shall be responsible for ensuring that designs submitted to the District are consistent with and comply with the latest editions of the VWD Master Plan, VWD Standard Specifications, VWD Standard Drawings, VWD Approved Materials List, VWD policies, rules and regulations, and generally accepted engineering practice.

The developer shall be responsible for constructing the complete water distribution system shown on the plans including but not limited to the necessary piping, valves, fire hydrants, fittings, vaults, power (including backup power), control systems, telemetry, pressure reducing stations and related appurtenances.

500.1 MINIMUM SIZE MAINS

The minimum size distribution main shall be an 8-inch main in public right of way or separate easement. The water mains must be sized to meet maximum day plus fire flow demands.

500.1.1 Water-System Reliability

Water systems shall be designed to meet the pressure criteria under max day plus fire flow demands. Each project or development shall have at least two connections to waterlines in different streets to form a looped water system. If connection to different streets is impractical or impossible in the opinion of the Engineer, connections to a waterline in the same street may be permitted, provided that adequate design criteria is met and valving for isolation of the segments of waterlines is incorporated. Non-looped systems will be permitted only with the express permission of the District.

Water mains and valving shall be designed so that no more than one average City-sized block (approximately 30 homes) is out of service at any one time, and no more than two fire hydrants are on a dead end or out of service at any time. Water mains serving more than two fire hydrants, or more than 30 homes (EDU’s) shall be looped/duel fed.

500.1.2 Full Frontage Extension

Water lines will be required, at the District’s discretion, along the entire length of at least one property line frontage of the property to be developed whenever there is a possibility of future main extension, or there are other lots that could connect to the new main at a later date. The property line frontage is that portion of the property along the public right-of-way. If a parcel to be developed has more than one property line frontage, the District may require a water line to be installed along the other frontage(s).

500.2 SYSTEM DEMANDS AND DESIGN CRITERIA

The design of water system facilities shall be based on the ultimate build-out water demand for the District, as described in the District’s Master Plan. The water system must meet the fire flow requirements of the local governing agency.

The minimum residual pressure at any point in the system shall be 20 psi under maximum day plus fire flow demands. The minimum residual pressure at any point in the system shall be 40 psi at peak hour demand.
The minimum static pressure at any water service location (meter) shall be 40 psi. To protect the meter, pressure regulators are required on the District side of the meter if the static pressure is greater than 150 psi.

The maximum velocity in a line shall not exceed 7 fps (feet per second) during the maximum day demand plus fire flow or during the peak hour demand. Refer to the District’s current Master plan for maximum day and peak hour demand peaking curves. The maximum desirable head loss is 5 feet per 1,000 feet of pipeline but the maximum allowable is 15 feet per 1,000 feet.

500.3 TYPE OF MAIN PIPE

Residential Areas (Distribution Mains). Only C900 PVC pipe, DR14 (pressure class 305 psi) is to be used for distribution mains of 8-inches thru 12-inches in diameter. For pipe over 12-inches in diameter up to 14-inches, C900 DR14 PVC pipe, ductile-iron pipe (DIP), or CML&C steel pipe may be used. For pipes larger than 16-inches in diameter, only DIP or CML&C steel pipe is allowed.

Pipe shall be fully restrained within easements with restricted access and slopes exceeding 10%.

500.4 MINIMUM DEPTH TO TOP OF WATER MAINPipe

500.4.1 Residential Areas (Distribution Mains 12-inch and smaller)

The top of the pipe shall be a minimum of 42-inches below the top of street finished grade, unless otherwise indicated on District-approved plans or directed by the District inspector because of unusual field conditions.

500.4.2 Transmission Mains. (Generally larger than 12-inch)

The top of the pipe shall be a minimum of 48-inches below the street finished grade, unless indicated otherwise on job plans or directed otherwise by the District inspector because of unusual field conditions.

500.5 STANDARD LOCATION

Water main center-lines shall normally be located 12 feet south or east of street centerline (middle of a lane preferably) or in the center of an easement for water only, or at least 10 feet from a sewer in a District joint easement.

500.6 WATER VALVE SPACING

At each tee connection, there shall be three (3) control valves. Where two mains cross, there shall be four valves. On long blocks, intermediate (inline) valves shall be installed so that no more than 30 lots, 600 feet of main, or two fire hydrants are out of service during a shutdown.

Where water mains pass through easements outside traveled streets, a valve shall be located at each end of the easement. The final determination of valves and locations shall be at the District’s discretion.

500.7 COMBINATION AIR AND VACUUM VALVES

Combination air and vacuum valves may be required on pipeline high points, at gate valves, and changes in grade, depending on the main size and terrain. The valves shall also be placed down slope of a permanently closed valve separating two pressure zones. Combination air and vacuum valves shall be made in a level section of pipe no closer than 30-inches to a coupling, joint, valve, or fitting.
500.8 BLOW-OFF VALVES

Blow-off valves are required on all dead-end pipe runs and at low points of the water main. A 2-inch assembly shall be placed on mains up to 12-inches in diameter. Larger main sizes require a 4-inch or 6-inch blow-off assembly, depending on the size of main and distance between valves and blow-off points. A blow-off assembly may not be required if a fire hydrant is located near the dead end, gate valve, or low point. A blow-off shall be no closer than 30-inches to a coupling, joint, valve, or fitting.

500.9 THRUST BLOCKS AND ANCHOR BLOCKS

Thrust and anchor blocks are required at all caps, valves, reducers, tees, bends, and fittings used to change the pipe direction. They shall be installed in accordance with the Standard Specifications and Standard Drawing W-15.

500.10 SEPARATION OF DOMESTIC WATER, SEWER, AND RECYCLED WATER LINES

500.10.1 Horizontal Separation

County Health Department regulations require a 10-foot minimum wall-to-wall separation between water and sewer water mains. Minimum separation of domestic water service line and sewer lateral shall be 5 feet. Special construction methods may be approved where the separation cannot be achieved. Separation other than the required minimum, must be reviewed and approved by the District.

500.10.2 Vertical Separation

Normally, water, sewer, and recycled water shall be located vertically from the street surface in order of the higher quality, i.e., domestic water shall be above recycled water and recycled water shall be above sewer.

Encasement may be required if separation conditions cannot be met.

If a sewer is above a water main, the special construction shall extend a sufficient distance on both sides of the crossing to provide a minimum of 10 feet of horizontal clearance. If a sewer is located below a water main, and within a vertical distance of 1-foot clearance, the special construction shall extend a sufficient distance on both sides of the crossing to provide a minimum 4 feet of horizontal clearance. These construction requirements shall not apply to house laterals that cross perpendicular less than 1-foot below a pressure water main.

500.11 FIRE FLOW DEMAND

The design criteria to be used for determining fire flow requirements shall be the actual fire flow requirements as determined by the Fire Marshal of the agency having jurisdiction. Before designing the domestic water system for a project, the applicant shall obtain the Fire Marshal's fire flow requirements for the project. These requirements, plus the signature of the Fire Marshal, are required to be on the improvement plans prior to District's approval. A hydraulic analysis is required to confirm that the proposed water system improvements meet the required flows.

500.12 FIRE HYDRANT LOCATIONS

The spacing and location of fire hydrants shall be as determined by the Fire Marshal of the agency having jurisdiction. The location with respect to the curb and sidewalk shall be as shown in District standards W-4 and W-5.
500.12.1 Fire Hydrant Spacing

In general, the maximum fire hydrant separation shall be 300 feet from fire hydrant to fire hydrant. The only exceptions will be at the discretion of the Fire Marshal.

Fire hydrants shall be located near the beginning of curb return (BCR) or lot lines.

Fire hydrants shall not be located within 3 feet of a driveway (unless approved by the Fire Marshal).

500.12.2 Types of Hydrants

Wet barrel all-bronze type hydrants, as specified by the District, are to be used except in high pressure zones, hill areas or special "high-risk" situations where the District may require a wet barrel with pressure valve or check valve, at its discretion.

500.12.3 Plan Requirements

Fire hydrants shall be shown on the plans with respect to the property line or easements, if provided.

500.13 SERVICE MATERIALS AND MINIMUM SERVICE SIZE

500.13.1 General

Approved materials and manufacturers for various service material tubing and connections are as listed in the District's Approved Materials List, latest edition.

500.13.2 Minimum Domestic Service Size

Minimum domestic service line size shall be 1-inch with a 3/4-inch meter. The sizing of the service shall be specified on the plans designated by lot numbers. Services and sizes for commercial or industrial developments are to be as shown on plans or as directed by the District.

For industrial, commercial, private-street residential, and other nonresidential development, the District may require a detail on the plans depicting the location of the proposed service.

500.13.3 Type of Service Line

Acceptable service line material is as described below:

1. 1-inch and 2-inch service line shall be copper tubing.

2. 4-inch and larger service lines, use DIP per Section 15056, or PVC per Section 15064, as determined by the District Engineer. (3-inch size is not a District Standard - use 4-inch piping to meter).

500.13.4 Meters

All meters shall be supplied and installed by the applicant and dedicated to the District subsequent to payment of applicable fees and charges, per District rules and regulations.
500.13.4.1 Pressure Regulators for Meters in High Pressure Areas

In areas of the District where pressures exceed 150 psi, a pressure regulator is required to protect the District meter. It is the responsibility of the property owner to install appropriate piping, fittings and appurtenances on the customer side of the meter for potential high-pressure protection.

500.14 STANDARD WATER NOTES

The District’s current General Notes for Improvement Plans and General Notes Grading Plans may be obtained from the Engineering Department or the District website, www.vwd.org.

**END OF SECTION**
SECTION 100

GENERAL STEPS FOR PROCURING WATER AND SEWER SERVICE FROM VALLECITOS WATER DISTRICT

100.1 AVAILABILITY OF SERVICE

Vallecitos Water District (District) recommends that early contact be made with the District’s Engineering Department to determine the current boundaries of the District and the availability of service prior to preparing improvement plans.

100.2 WILL-SERVE LETTERS AND “PROJECT FACILITY AVAILABILITY” FORMS

For proposed developments within the boundaries of the District, the developer will request a “Water Availability” or “Sewer Availability” letter from the District. Local governing agencies require these documents for processing of Tentative Maps or development reviews. In response to service availability requests, the District may attach certain conditions to the project. A fee is required to complete these documents.

When proposed developments near approval of their Parcel Map, the local governing agency will require a Water Commitment (County) or Will-Serve letter (City) to be completed by the District that commits water and/or Sewer capacity to the development. No fee is required to complete these forms.

100.3 ANNEXATION TO EXISTING VWD IMPROVEMENT DISTRICTS

Before a utility service can be provided to lands lying outside the boundaries of the Vallecitos Water District or improvement Districts, the lands must first be annexed to the Vallecitos Water District or Improvement District. If the proposed development is not included in any of the existing VWD Improvement Districts (IDs), the Developer or Owner must file a formal application for annexation. The Vallecitos Water District has adopted the Local Agency Formation Commission’s (LAFCO) sphere of influence, which identifies the water/sewer service area for planning purposes.

For additional information and requirements, see the following items which are located in the Engineering Department:

- Current Ordinance “Establishing Annexation and De-Annexation Charges”
- Current Ordinance, “Establishing Policies, Conditions, and Fees in Connection with Annexations to or De-Annexations form the District and to or from Improvement Districts within the District.”
- “State Board of Equalization” Fee.
- “Schedule of Charges and Deposits.”

100.4 TEMPORARY OFFSITE AGREEMENTS

A temporary offsite agreement allows water or sewer service to a property that does not have pipeline facilities adjacent to it. This is only done when adjacent properties will not benefit from the extension of pipeline facilities at the current time. However, future extensions may occur.

If a new water or sewer main that allows service by the District is extended past the property in question, the owner must (a) disconnect the offsite service, (b) reconnect to the new pipeline, and (c) pay all appropriate fees. No service connections to District pipeline facilities will be allowed until all proceedings are completed, any payback and all fees are paid, and all documents are recorded. The
Owner shall be responsible for conforming to these requirements and consenting to participate in any future Special Assessment Improvement District or Mello Roos, if they should occur. The owner will pay the regular capacity charges, installation charges, and acquire any easements or encroachment permits that might be necessary to run a service lateral from the nearest District pipeline to the place of use on the Owner’s property. Contact the District’s Engineering Department for additional instructions and review of the agreements.

100.5 PERMANENT OFFSITE AGREEMENT

In certain circumstances, the District may elect to provide service to a parcel that does not abut on, is adjacent to, or traversed by an existing pipeline, via an easement for water and/or sewer service. This is only done when adjacent properties will not benefit from the extension of pipeline facilities. For example, the Owner’s property is not adjacent to any District pipeline and their property is the last parcel to benefit from a pipeline extension.

Based on applicable District Ordinances which may be revised from time to time by the Board of Directors, the District establishes a permanent-offsite service charge based on the District’s estimated cost to design and construct a permanent facility to the parcel.

100.6 REIMBURSEMENT (PAYBACK) AGREEMENT

The District may enter into a payback agreement with individuals, subdividers, or developers to refund costs of “off-site” construction with the following stipulations:

1. Main extensions of less than 150 feet in length shall not be considered eligible for repayment agreement.
2. Eligible reimbursement costs shall include only construction costs. Refer to the standard Agreement for particulars.
3. The Reimbursement Agreement shall terminate at the end of ten (20) years from date of the contract or when the District has refunded to the individual, subdivider, or developer an amount equal to the cost of the “off-site” facility, whichever occurs sooner.

Upon study, exact interpretation of “offsite” and “onsite” construction will be made by the District’s Board of Directors. Following receipt at the District office of a written application for sewer main extension, the Board of Directors of the District – if the Board deems such extension to be in the best interest of the District – will prepare an administrative cost estimate and require the preparation of plans and specifications for the proposed construction. Such extension will be accomplished at no cost to the District. Refer to the current Ordinance and Reimbursement and Acquisition Agreement at the Engineering Department.

100.7 PLAN CHECKING PROPOSED DESIGN

For all projects, the applicant shall request that the District prepare a water and/or sewer availability letter. This request shall be made in writing and prior to submitting preliminary plans and requesting preparation of a Water and Sewer Study.

All projects are required to complete a Water and Sewer Study which quantifies and identifies project impacts to the existing District system and facilities. Funds for the Study shall be submitted to the District as a deposit for the cost of the Study. The District will prepare the Study or retain a consultant to prepare the Study.
In some areas, a feasibility investigation and report may be necessary to establish whether and how the District can serve the proposed area. The applicant may complete the study for District review or advance funds to the District for District completion of the study. The District will establish an estimated deposit to prepare or review any studies or reports. Applicant shall advance the deposit to the District, including any additional deposits required during the review or preparation.

The applicant's engineer shall submit an initial concept plan and design report, as required by the District, of the proposed domestic water, sewer and recycled water facilities to the District Engineer for review and approval. The applicant shall submit two (2) sets of design plans, 24" by 36" in size, of the proposed domestic water, sewer and recycled water facilities for any development to the Engineering Department for review and approval. Plans shall also be submitted to the City Engineer of the city having jurisdiction or the County of San Diego for unincorporated areas for review and determination of the requirements for approval of work within city or county jurisdiction.

100.8 AGREEMENT AND FEE PAYMENT

The applicant shall submit the required sets of plans for water and/or sewer service to the District. When the plan check process is near completion, the District will prepare a fee and bond letter and an “AGREEMENT FOR THE CONSTRUCTION OF FACILITIES TO BE DEDICATED TO THE VALLECITOS WATER DISTRICT”. All bonding requirements and fees required to be paid to the District will be included in this agreement. The District will sign its approval of the utility plans when the applicant has satisfied those financial obligations and returned two copies of the agreement with original signatures, and the Board has accepted and executed the agreement at a regularly scheduled Board meeting.

100.9 RESPONSIBILITY FOR FURNISHING MATERIAL AND INSTALLATION

Installation of a development's water and/or sewer facilities and any other required off-site facilities will be the obligation of, and at, developer's expense. The applicant shall cause all installation work to meet the District's "Standard Specifications” and, upon final Board acceptance, convey the off-site facilities to the District.

100.10 GUARANTEES

As set forth in the Agreement, the applicant shall be responsible for any and all repairs and replacements for a period of one year from the date of acceptance by the District Board of Directors without expense whatsoever to the District; ordinary wear and tear and unusual abuse or neglect excepted. In the event of failure to comply with the aforementioned conditions, the District will use securities posted by the developer (Warranty Bond) to have the defects repaired and made good. The cost and charges shall include attorney fees and other incidental costs involved thereof.

100.11 DEDICATION OF FACILITIES

Upon completion and final inspection of all work, the applicant shall file a request at least 12 working days prior to a regular Board of Directors meeting for formal acceptance. The applicant shall also furnish the District a report of actual costs of said facilities, compaction reports, meter/address/APN list, record drawings ("as-built" reproducible mylars and digital files) of the facilities, and any operation and maintenance manuals required upon compliance with these requirements. Upon said acceptance, the District will file a Notice of Completion and, 40 days thereafter, give approval for the release of improvement bonds held by the District for the construction of domestic water, sewer and/or recycled water facilities.
SECTION 200

DISTRICT CHARGES
CAPITAL FACILITY FEES, AND OTHER COSTS

200.1 WATER RATES AND SERVICE CHARGES

These charges will be billed for water, sewer and ready to serve meter charges as listed in the District’s latest schedule of rates and charges available for review at the District office. These rates and charges are subject to change and it is the developer/applicant’s responsibility to confirm current rates and charges.

200.2 DEVELOPMENT CHARGES

Development fees and deposits will be assessed and collected as part of the agreement between the developer (applicant) and the District.

The plan check and inspection fees and deposits are based on actual costs of plan checking and inspection. The deposits and fees are estimated by the District from the most current Schedule of Fees and Charges. Additional deposits may be required from time to time throughout the duration of the project. Prior to construction, the plan check costs will be compared to the deposits collected and overages will be credited to the inspection phase. Any balance due will be required prior to scheduling of a preconstruction meeting, and additional deposits may be required for subsequent phases. At the time the project is deemed ready for final Board approval, a final assessment of fees/deposits will be determined and notification of any refunds or additional payments required will be sent to the developer/applicant. Board approval will be delayed until additional payments for services are rendered.

200.3 CAPITAL FACILITY FEES

The District’s Board of Directors has established water and sewer capital facility fees per Ordinance. These fees may change and the most current schedule is available for review at the District offices. Capital Facility Fees do not include the installation or cost of water services and meters, nor the cost of installation of sewer laterals. The applicant is required to furnish, install and dedicate water meters to the District.

200.4 OTHER FEES

To facilitate the construction of major District facilities, the Board of Directors may enter into an agreement with the applicant for reimbursement of over-sizing costs for facilities required per the District’s current adopted Water, Wastewater and Reclamation Master Plan and applicable Ordinances.

END OF SECTION
SECTION 300

WATER AND SEWER STUDY, DESIGN AND INSPECTION PROCEDURES

300.1 WATER AND SEWER STUDY

The Water and Sewer Study considers water demand and sewage generation from the proposed project to determine if the current water and sewer infrastructure is sufficient to accommodate the Project and provides recommendations for needed capital improvements to provide service.

300.1.1 Submittals - The following items are to be submitted to the Engineering Department by the applicant or the applicant's engineer prior to submittal of improvement plans:

1. One copy of the proposed site plan with proposed point of connection to existing water and/or sewer systems.

2. List of existing Assessor’s Parcel Numbers

3. Total project acreage and acreage of each proposed land use

4. Number of dwelling units in each land use area

5. Project fire flow requirements from the local fire authority.

300.1.1.1 Water System Analysis - The Engineering Department will evaluate the following items:

1. Water distribution system, including the need to upsize pipelines, install new pipelines, or install flow control facilities

2. Water storage, including the need for additional storage and the adequacy of existing storage tanks and reservoirs to serve the proposed development

3. Water pump stations, including the need to install new pump stations or upsize existing pump stations to serve the proposed development

300.1.1.2 Sewer System Analysis - The Engineering Department will evaluate the following items:

1. Wastewater collection system, including the need to upsize pipelines and manholes, or the need to install new pipelines and manholes

2. Wastewater lift stations, including the need to install new lift stations or upsize existing lift stations to serve the proposed development

3. Wastewater land outfall, including the need to construct a parallel land outfall to serve this and other proposed developments
4. Wastewater treatment facilities, including the need for obtaining additional capacity at the Encina Water Pollution Control Facility (EWPCF) or for expanding the Meadowlark Water Reclamation Facility (MRF).

300.1.2 **Conclusions** – Based on the analyses of the project’s impacts to the water and sewer system, improvements to the District’s existing systems may be required to support and mitigate the proposed project. Such improvements will be summarized in this section.

300.2 **IMPROVEMENT PLAN SUBMITTAL FOR REVIEW AND APPROVAL**

300.2.1 **First Plan Check Requirements**

The applicant/engineer shall submit all items for first review of residential/commercial/industrial subdivisions per Section 100 and the District’s Submittal Requirements Guidelines, available at the Engineering Department.

A hydraulic analysis for the project will be prepared as a part of the Water and Sewer Study. It is the responsibility of the developer/applicant to provide sufficient information prior to, or at the time of, improvement plan submittal.

The improvement plans will be checked against the tentatively approved master development plan and the minimum design standards. Tract maps and parcel maps will be checked against improvement plans for the required easements. After the first plan check, the District will return one red-lined set each of the utility improvement plan and the tract/parcel map. The returned sets will note any specific variations from the basic requirements. See Section 300.2.2 below.

300.2.2 **Detailed Plan Requirements**

All plans submitted to the District Engineering staff for plan checking and approval of water and sewer facilities shall be submitted on 24" X 36" sheet size. The plans shall conform to the local city or county having jurisdiction and/or the following requirements.

300.2.2.1 **Required Details:**

1. **Title Sheet**
   
   A. Project Title or Development Tract
   
   B. Index Map

   1) Scale - 1" = 100’/200’
   2) Show: Water mains - size, fire hydrants, valves and existing facilities. Sewer mains - size, flow direction, manholes, (number M.H.) and existing facilities, building/D.U./lots/"footprints."
   3) North arrow
   4) Street names
   5) Legend of symbols and lines
   6) Show existing and proposed easements for water, sewer and irrigation facilities

   C. Location map; showing general area with project noted

   D. District signature block
E. Fire Marshal signature

F. Bench Mark; description, elevation, datum in two formats:
   - Horizontal Datum of the California State Plane Coordinate System Zone VI (NAD83)
   - (NAVD29) North American Vertical Datum

G. City Engineer signature block

H. Survey horizontal control and source of topography

I. Name, address, and phone number of engineering firm
   Name, address, and phone number of developer
   Legal description of property (Tract/Lot, Parcel Map No.)

J. Legend with quantity estimates may appear on Title Sheet. Water and sewer facilities to be called out separately. Labeled and not mixed together.

K. Index of sheets

L. Revision block

M. VWD Water and Sewer General Notes

N. Utility, addresses, and phone numbers, including but not limited to - Gas, Telephone, Power, Cable T.V., Water, Sewer, and Storm Drain

O. U.S.A. Dig Alert notice per Section 4212/5217 of the Government code

P. Assessor Parcel Number

2. Second Sheet (normally Sheet 2 includes):
   A. Legend with quantity estimates (if not shown on Title Sheet) and Standard Drawing Number

   B. VWD Standard Notes (Obtain from Engineering Dept. or www.vwd.org)

   C. Construction notes

   D. Detail drawings

3. Plan and Profile Sheets
   Separate plan and profile sheets are required for all water and sewer pipelines, as follows:
   A. Horizontal Scale: 1-inch = 40-feet     Vertical Scale: 1-inch = 4-feet
B. The plan and profile should be on same sheet if possible and aligned.
C. Existing water and sewer facilities adjacent to development must be shown
D. Easements dedicated to the District for water and sewer facilities must appear on plans
E. Building/dwelling unit pad elevation
F. Water, sewer, and storm drain crossing elevations
G. Private on site Plumbing Plan
H. Dry Utility Plan

300.2.3 Non-Residential Application Procedure Requirements.

In addition to the requirements described in Section 300.2.2, the following is required for all commercial or industrial developments:

300.2.3.1 Domestic Water Services

1. Site Utility Plans Showing:
   A. Property lines
   B. "Footprint" of building
   C. All on-site public and private fire hydrants
   D. Stamped/signed by the jurisdictional Fire Marshal
      1) Services for other than single family residential development are required to have back flow prevention devices, as determined by the District.

2. Items required for application for domestic service.
   A. Completed Water Meter Demand form for both irrigation and domestic water service, with irrigation plans, if applicable. Separate irrigation meters required except for SFR. One meter per legal lot.
   B. Address and Assessor’s Parcel Number to be served
   C. Site Map showing buildings being served by each-specific meters
   D. All fees paid per current rules/regulations/Resolutions

300.2.3.2 Fire Service Requirements

1. All fire services will require at a minimum a double check detector check per VWD standard drawing W-12 or W-13, or a reduced pressure principle assembly. See Part 3, Technical Specifications, Section 15115.
2. Private fire services on site shall not be looped, or connected.

300.2.3.3 Industrial Waste Questionnaire
Applicant requesting service for a commercial or industrial project may be required to submit a completed industrial waste questionnaire. For further information concerning the discharge limitations or the questionnaire, contact the Encina Wastewater Authority (EWA) office at (760) 438-3941.

The industrial waste questionnaire is designed to provide necessary information so that the District, EWA, and its customers can comply with the Federal Clean Water Act's Pretreatment Regulations (40 CFR Part 403).

A site inspection by EWA and/or the District will be made to verify the information provided on the questionnaire.

300.2.4 Additional Requirements, Standards, and Fees

300.2.4.1 License Requirements

1. The applicant’s contractor shall have a Class A license or, a C-16 (fire protection), a C-34 (water), or a C-42 (sewer) license, for the specific work being performed.

2. The applicant’s contractor shall have a business license to operate within the city or county having jurisdiction.

300.2.4.2 Standards for Application

1. The developer will furnish and install all domestic and irrigation water meters for the project.

2. Sizing water meters:

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<thead>
<tr>
<th>Meter Size</th>
<th>GPM - MAXIMUM</th>
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   The District reserves the right to size meters per Ordinance.

3. Type of meter:

   See Approved Material List, latest edition

300.2.5 District’s Regulation Regarding Cross Connection

All domestic and irrigation water services shall be subject to the provisions of the applicable sections of the District's Cross Connection Ordinance. The following summarizes these provisions:

Cross connections of any type that permit a back flow condition from any source or system other than that of the District's domestic water mains are prohibited. A connection constituting a potential or actual back flow hazard is not permissible unless a back flow device or air gap, which is approved by the California
State Department of Health and local Health Agency and complies with Title 17 of the California State Administrative Code, is installed. Such an installation shall at all times be subject to inspection and regulation by the District for the purpose of avoiding possibility of back flow.

The District has a backflow technician who is available for consulting on any questions regarding cross connections.

The District will not provide any water service to any premises unless the public domestic water supply is protected as required by State, County and District regulations. Except in special situations, it is required to have back-flow devices installed for:

- All commercial domestic water services
- All industrial domestic water services
- All fire lines to commercial or industrial buildings
- All domestic systems or fire line systems having two, or more, points of connection to District mains
- All irrigation services on the domestic water system
- All domestic services to sites with recycled water irrigation service or well water

Back-flow prevention devices shall be approved by the U.S.C. Foundation for Cross-Connection Control and shall be installed by and at the expense of the customer.

The customer shall have the device regularly tested (at least once a year) by a tester certified by the San Diego County Health Department and service such devices to maintain them in satisfactory operating condition and shall overhaul or replace such devices if they are found defective. Test results shall be provided before District will accept service as complete.

Records of such annual tests, repairs, and overhauling shall be kept by the customer and originals forwarded to the District cross-connection inspector.

Service of water to any premises may be discontinued by the District if a back-flow prevention device required by the District ordinance is not installed, tested, and maintained; or if any defect is found in an installed back-flow prevention device; or if it is found that a back-flow prevention device has been removed or bypassed; or if unprotected cross-connections exist on the premises. Services will be restored only when such conditions or defects are corrected to the satisfaction of the District.

The District will further define how water lines must be marked where multiple water systems are in use and outline the duties and responsibilities of a property's water supervisor.

Additional reference for guidelines to when, why, and what types of back-flow and cross-connection control devices are approved may be found in:

C. Manual of Cross-Connection Control, published by Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California,
300.2.6 Domestic Water Facilities

See Section 500 for detailed specifications regarding the construction of domestic water facilities.

300.3 PROVIDING REQUIRED EASEMENTS

If an easement outside of the public right-of-way is required for construction and/or maintenance of sewer mains or water facilities, including but not limited to, sewer mains, manholes, water mains, hydrants, meter vaults, and detector check vaults; its minimum width shall be 20 feet for sewer and water mains, 10 feet on all sides for manholes, 5 feet square for meters, 5 feet on all sides for fire hydrants, meter vaults, detector check vaults, and other appurtenances, unless otherwise determined by the District. Sharing of easements with other utilities is discouraged. An easement running parallel with a lot line shall not be split so as to occur on two lots. The easement, title report, and legal descriptions with accompanying plat and plans shall be prepared by the applicant's engineer, two copies of which shall be sent to the Engineering Department. Easement plats and descriptions shall be on the approved Easement Form utilized by the District and will be checked by the District. Easements and recording information shall be shown on the maps and construction plans. The District will approve the plans only after all required easements have been deeded to the District together with any necessary partial reconveyance or subordination agreements. Exhibits shall be 8-1/2” X 11”, no exceptions.

Along public streets a three or five foot utility parallel easement on private property for District use may be required depending upon public right-of-way widths and sidewalk locations.

Applicant shall submit two copies of the easement description and plat to the District for review. If acceptable, the applicant shall furnish one original of the description and plat, signed by a registered engineer or surveyor, along with a completed “Grant of Right of Way” form to the District, a current (within 60 days) title report of the property reflecting all deeds of trust and encumbrances, and subordinations signed by the trustees shown on the title report. If not acceptable, the District will return the documents with the required corrections noted.

The easement plat must contain a vicinity map showing the location of the easement in relation to major streets and highways, as well as a sketch depicting the easement boundaries with bearings, distances, points of beginning, north arrow, and any other information required by the District.

NOTE: Approval by the District will not be given for the tract water or sewerage systems until all easements have been obtained.

300.4 COST ESTIMATE

The Engineer of Work shall provide the quantities, unit costs and totals to allow the District to project costs for the water, sewer and appurtenant facilities to be dedicated to the District per the District’s Bond Worksheet. The items listed will include, but will not be limited to pipes, valves, meters & appurtenances, connections, hot taps, manholes, and facilities construction.

300.5 FIRE AUTHORITY APPROVAL

After the first plan check by the District, it will become the responsibility of the applicant or engineer to obtain the local jurisdictional Fire Authority approval before submitting for a second plan check.

300.6 SECOND PLAN CHECK
Upon satisfactory completion of items 300.1 through 300.5 the developer's engineer shall submit plans for the second plan check. This submittal will be checked against the corrections requested in the first plan check and the District’s minimum design standards.

300.6.1 Corrected Plans Returned To Developer's Engineer

Upon review of the improvement plans for the total development, one red lined copy will be returned to the applicant's engineer, showing any corrections and/or comments.

300.7 AGREEMENT FOR THE CONSTRUCTION OF FACILITIES

Upon receiving the corrected plans for a second plan check and quantities for the bond worksheet and if the plans are deemed near complete, the Engineering Department will compute the required development fees, based on the then current fees and will prepare the Agreement for Construction of Facilities;

The District will send two copies of the Agreement to the developer for signature.

300.7.1 Security (Bonding) Requirements

All projects, including modifications to the District’s existing systems, must include a 100% Faithful Performance Bond and 100% Labor and Material Bond based on the Engineer’s Estimate of Cost. This surety shall be of a type which is automatically renewed every year, at the developer's expense, until released by the District. All completed projects must, before acceptance by the District, submit a Warranty Bond equal to 25% of the Contractor’s actual construction cost for the water and/or sewer improvements. The Warranty Bond shall be in effect for one (1) year from the date of acceptance of the project by the District Board of Directors.

Acceptable Security Devices include:

1. Faithful Performance Bond, Labor and Material Bond, and Warranty Bond executed in favor of Vallecitos Water District by a reliable bonding company.
2. Cash Deposit with the District to replace either the Payment or Performance bond, or both.
3. Certificate of Deposit
4. Instrument of Credit on a form acceptable to the District. The Certificate of Deposit or Instrument of Credit requires Board approval prior to acceptance. The Certificate of Deposit or Instrument of Credit may replace either the Performance and/or Payment Bond.

300.7.2 Insurance Requirements

The Contractor shall purchase and maintain insurance in amounts equal to the requirements, and in the form and manner provided therefor, of the District’s Agreement for Construction. The Developer shall provide certificates of insurance and endorsement showing that Developer has liability insurance coverage with an insurance company licensed to do business in the State of California, and acceptable to the District, providing the minimum coverage set forth in the Agreement for Construction.

300.8 FINAL PLANS

Upon completion of any remaining items noted in the plan check, the developer's engineer shall submit two blue line sets of improvement plans, along with the red line mark up, for final verification.

300.9 FINAL EASEMENTS

300.9.1 Submittal
The developer shall submit easement documents, which incorporate all changes caused by the review process, in accordance with Section 300.3.

300.9.2 Verification

The engineer will verify that the easements as listed in the easement documents remain valid. The engineer will then submit the final easement documents and the final title report for recordation by the District.

300.10 FEES AND DEPOSITS

The developer shall pay all fees and deposits as determined in the "AGREEMENT" between the developer and the District and per District Ordinance.

300.11 BOARD APPROVAL OF AGREEMENT

Upon satisfactory completion of items 300.1 through 300.10 the District will, at the request of the developer, submit to its Board of Directors for approval the “AGREEMENT”.

300.12 SIGNED PLANS

Utility improvement plans must have the signature of the District Engineer or his designee before any construction by the applicant begins.

300.12.1 Prerequisites for Signing Plans

1. AGREEMENT FOR THE CONSTRUCTION OF FACILITIES must be signed by developer, and approved by the District's Board of Directors.

2. Required signed easement documents or the Tract/Parcel Map must have been accepted for dedication by the District and recorded.

3. All fees and charges must be paid in full by the applicant, per District rules, regulations and Resolutions.

4. Signatures of the Engineer of Work, the Fire Marshal, and any other utility or governmental entity having interest in the project, are required. Signatures of the City Engineer/County Engineer normally follow District signature.

300.12.2 District Signing Plans

300.12.2.1 Submittal for Signature - Once the requirements detailed in Sections 300.1 through 300.11 are satisfied, the applicant shall submit to the District the following:

Improvement/utility plan original mylars shall be delivered to the Engineering Department with one bond copy set.

300.12.2.2 Notification - District will notify applicant's engineer once the plans have been signed. A preconstruction meeting will be scheduled by the District inspector after receipt of three sets of signed bond copies of the plans have been submitted to the Engineering Department.

300.12.3 Validity of Signed Plans
Plans will be valid for two (2) years from the date of District approval. If construction has not started within eighteen (18) months from the date of plan approval, the signed plans shall become "null and void“. The District will require rechecking of the plans and it reserves the right to charge additional plan check fees.

300.12.4 Project Extension Letter

In the event that construction does not start within eighteen (18) months, and the approval becomes null and void, as described in Section 300.12.3; a project extension letter shall be submitted by the Developer/Owner, by registered mail, to request a one year extension of the approval.

300.13 ORDER OF PRECEDENCE OF STANDARDS

In the case of conflict between the specifications, drawings, and permit requirements, with regard to construction of facilities, the following order of precedence will apply: The permit requirements of other agencies, special details, plans, special conditions, District standard drawings, technical specifications, general conditions, the Standard Specifications for Public Works Construction and the Cal Trans Manual.

Figured dimensions of the drawings shall govern, but work not dimensioned shall be as directed. Work not particularly shown or specified shall be the same as similar parts that are shown or specified or as directed. Full-size details shall take precedence over scale drawings as to shape and details to construction. Scale drawings, full-size details, and specifications are intended to be fully cooperative and to agree; but should any discrepancy or apparent difference occur between plans and specifications, or should errors occur in projects being constructed by others affecting the work, and the contractor proceeds with the work affected without instruction from the District, the contractor shall be fully responsible for any resultant damage or defect.

300.13.1 Permit Requirements

The permit requirements, as approved by the agency having jurisdiction, will take precedence over the below listed details and standards with regard to the construction of water and sewer facilities.

300.13.2 Special Details

The special details, as approved by the signature of the District Engineer, will take precedence over the below listed details and standards with regard to the construction of water and sewer facilities.

300.13.3 Plans

The plans, as approved by the signature of the District Engineer, will take precedence over the below listed details and standards with regard to the construction of water and sewer facilities.

300.13.4 Special Conditions

The special conditions, for the specific project and incorporated into the project contract documents, as approved by the Districts Board of Directors, will take precedence over the below listed standards with regard to the construction of water and sewer facilities.

300.13.5 District Standard Drawings

Districts' standard drawings, as approved by the signature of the District Engineer, will take precedence over the below listed details and standards with regard to the construction of water and sewer facilities.

300.13.6 District Standard Specifications

Districts' standard specifications, detailed below, as approved by the Board of Directors, will take precedence over the below listed standards with regard to the construction of water and sewer facilities.
The "Standard Specifications for the Construction of Water and Sewer Facilities" are incorporated herein by this reference. Copies may be obtained from the Vallecitos Water District, 201 Vallecitos De Oro, San Marcos, CA 92069, or on-line at www.vwd.org.

300.13.7 Technical Specifications

The technical specifications, of the District’s "Standard Specifications of the Construction of Water and Sewer Facilities," as detailed above, of the contract documents, as approved by the District’s Board of Directors, will take precedence over the below listed standards with regard to the construction of water and sewer facilities.

300.13.8 Standard Specifications for Public Works Construction

The Standard Specifications for Public Works Construction as referenced by the District’s details, standards and specifications, will take precedence over other standards with regard to the construction of water and sewer facilities.

The "Standard Specifications for Public Works Construction," (Green Book), are included herein by this reference. Copies may be purchased from Building News, Inc., 3055 Overland Avenue, Los Angeles, California 90034.

300.13.9 The Cal-Trans Manual

The Cal-Trans Manual, as referenced by the District’s details, standards and specifications, will take precedence over other standards with regard to the construction of water and sewer facilities.

The "Standard Specifications," CALTRANS, are incorporated herein by this reference, copies of which may be purchased from the State of California, Department of Transportation, Central Publications Distribution Unit, P.O. Box 1015, North Highlands, California 95660.

300.14 RECORD DRAWINGS

Record drawings documenting “as-built” changes will be provided to the District as detailed in Section 500.13 for water and sewer facilities.

300.15 SIGNED UTILITY PLANS BOTH BY DISTRICT AND CITY

The District shall have completely signed and approved domestic water and sewer and irrigation improvement plans. Three sets of bond copies shall be furnished to the Engineering Department at least five working days before the preconstruction meeting. Work may not commence until a preconstruction meeting is held.

300.16 USE OF DISTRICT SEWERAGE FACILITIES

The District has regulations on the types of wastes that are allowed to be discharged into its sewers in order to protect the facilities of the District and its operations to meet its discharge requirements. The section on the use of District sewerage facilities in the District's Ordinances, including a separate supplement, sets forth these requirements. These provisions establish conditions under which certain users are required to obtain permits for use of District sewerage facilities. Applicants whose sewage discharges qualify them for a permit shall not be allowed to connect the building sewer to the District lateral sewer or sewer main until a written notification is provided by the District allowing the hookup. All users must comply with the discharge prohibitions established in the District's Ordinances.

300.17 PROJECT CONSTRUCTION
300.17.1 Notification

Signed plans must be delivered to the inspector at least five working days before a preconstruction meeting is scheduled. The contractor will be allowed to start construction only after the preconstruction meeting. The City or County inspector shall be notified prior to work within public right-of-way. Notice shall be given to the District inspector at least 48 hours before starting construction.

300.17.2 Preconstruction Meeting

A preconstruction conference is to be held a minimum of 2 working days before starting construction. The purpose of the meeting will be to answer any questions regarding the District’s specification requirements, to obtain the contractor’s construction schedule and emergency contact information, and to discuss any circumstances that may affect the work. The following attendees must be present: Contractor’s job foreman and/or job superintendent, Subcontractor(s) if applicable, Developer/Owner’s engineer, District Inspector, Federal, State or Local regulatory or enforcement agency representative, and other parties deemed appropriate by the District.

300.17.2.1 Preconstruction Meeting Agenda

Without relieving the developer of responsibilities outlined elsewhere in the specifications; the District will present to the developer a list of requirements that may contain, but will not be limited to, the following items:

1. Order of work
2. Working hours
3. Operation manuals
4. Manufacture’s specifications
5. Pressure test results
6. Bacterial test results
7. Compaction Reports
8. Meter Records
9. Record Drawings

300.17.2.2 Order of Precedence

The order of precedence as defined in Section 300.13 will be reviewed in the pre-construction meeting.

300.17.3 Water for Construction Purposes

The contractor will be furnished construction water at a connection point designated by the District after payment of fees and deposits. The water shall be taken through a metered delivery and the developer shall pay all costs related thereto, including (but not limited to) District's standard deposit for temporary meter and actual costs of water used, pumping costs, loading, hauling and the use thereof. The developer shall make all arrangements for transporting the water to the construction site. A backflow device is required for all construction meters.

300.17.4 Inspection of Work
300.17.4.1 Access

All work shall be subject to inspection by the District and shall be left open and uncovered until approved by appropriate District personnel. Any work done in the absence of the District Inspector shall be subject to rejection.

300.17.4.2 Water and Sewer System Inspections

The Contractor shall not proceed with any subsequent phase of work until the previous phase has been inspected and approved by the District. Inspection shall be made at the following intervals of work:

1. Water System
   A. Review of material submittal and/or plan submittal
   B. Delivery of materials to job site
   C. Check construction stakeout by surveyor to ensure compliance with improvement plans.
   D. Trench excavation and bedding
   E. Placing of pipe, fittings, and structures
   F. Pouring all concrete anchors and thrust blocks
   G. Placing and compacting the pipe zone backfill
   H. Backfilling balance of trench to grade. Compaction tests shall be performed by private soils consultant retained by the applicant and acceptable to the District in public and private streets and easements. Copies of test results shall be provided to the District, and the governing agency, by the applicant for approval before final acceptance of the work. Backfilling and repaving shall be in accordance with the requirements of the agency having jurisdiction.
   I. Pressure testing all mains and services
   J. Disinfecting and flushing
   K. Health samples
   L. Repaving trench cuts
   M. Raising valve box covers to finish grade and paint to District standards
   N. Fire hydrants painted and pads poured
   O. Installation of service lines, appurtenances meter boxes, and customer service valves
   P. Connection to the existing system

2. Sewer Inspections

   A. Trench excavation and bedding
B. Check construction stakeout by surveyor to ensure compliance with improvement plans.

C. Placing of pipe, fittings, and structures

D. Placing and compacting of the pipe zone backfill

E. Backfilling of the balance of the trench to grade. Compaction tests shall be taken by a private soils consultant retained by the applicant and acceptable to the District in public and private streets and easements. Copies of test results shall be provided to the District by the applicant for approval before final acceptance of the work.

F. Testing and video inspection after backfill compaction of all utilities is approved by the city and/or county road departments and must be obtained before paving.

300.17.5 District Authority

300.17.5.1 Access

The District shall at all times have access to the work during construction and shall be furnished with every reasonable facility for ascertaining full knowledge with respect to the progress, quality of labor, and character of materials used and employed in the work. No pipe, fittings, or other materials shall be installed or backfilled until inspected and approved by the District representative. The contractor shall give due notice in advance of backfilling to the District inspector so that proper inspection may be provided.

300.17.5.2 Obligation

Inspection of the work shall not relieve the contractor of any obligations to complete the work as prescribed by the Standard Specifications. Any known defective work shall be corrected before testing or final inspection will be permitted. Unsuitable materials may be rejected, even though they may have been previously overlooked by the inspector.

300.17.5.3 Suspension of Work

The District shall have the authority to suspend the work wholly or in part for such time as it may deem necessary if the contractor fails to carry out orders given by the District's inspector or to perform any work required in provisions of the plans and specifications. The contractor shall immediately comply with a written order of the District to suspend the work wholly or in part. The work shall be resumed when methods or defective work are corrected as ordered and approved in writing by the District.

300.17.6 Pressure Test

A pressure test of the newly constructed water lines and sewer mains shall be conducted as detailed in Section 15042 and Section 15043, respectively.

300.17.7 Water for Flushing, Testing and Sterilization

Water for flushing, testing and sterilization of the completed pipelines or sections thereof will be available from the District at the point, or points, of connection with the existing water mains via the construction water meter connection.

The developer shall make all arrangements for this water with the Vallecitos Water District, which shall
designate the exact location of the outlet or outlets and the time periods those connections may be used.

### 300.17.8 Chlorination and Bacteriological Testing

After a passing pressure test, the water lines shall be chlorinated and tested for bacteria as detailed in Section 15041.

### 300.17.9 Final Water Facilities Inspection

Before final acceptance, the District's inspector will make a final inspection of all work, accompanied by the contractor's superintendent or representative, to verify that:

1. All phases of the job are complete in accordance with plans and specifications
2. All valve boxes are raised to finish grade and that all repairs are completed.
3. All valves are referenced and the inspector has been given all reference measurements
4. All right-angle meter stops, and the meters, are properly positioned and all meter boxes are positioned and raised to proper grade
5. Fire hydrants are raised to proper grade, are in a vertical position, painted; and its concrete pad is poured
6. Backfill has passed all compaction testing
7. All system valves are turned and left open (except those specifically required to be normally closed), turns required for complete open/close cycle are recorded on the record drawings
8. Domestic water lines have been chlorinated
9. Water line pressure testing and flushing have been completed
10. The job site is clean and cleared of all the contractor's equipment and materials
11. All service line locations have been marked on curbs with a “W”
12. Certified test results have been provided for all backflow prevention devices
13. Meter number and Address form is completed
14. A mylar and a bond copy of the water facility plans labeled "RECORD DRAWINGS" with the "As-Built" revisions have been delivered to the District
15. Digital submittal of plan information in a format acceptable to the District

### 300.17.10 Final Sewer Inspection

Before final acceptance, the District, even though the sewers have been wayne-balled once, may require the contractor to flush and wayne-ball all sewer mains again. The District, accompanied by the contractor's foreman or superintendent, will make a final inspection of all work to check the following items:

1. All phases of the job are complete in accordance with plans and specifications
2. All bulkheads and plugs have been removed
3. The concrete base and channels in manholes are smooth
4. Manhole interiors are clean of all debris and excess concrete mortar
5. All manhole concrete grade rings are adequately grouted and properly set
6. Pavement around manhole cover has been properly blacktopped to correct grade
7. Proper field tests have been made on all sewer main sections and manholes, particularly where sections of manholes had to be repaired
8. Backfill has passed all compaction requirements
9. The job site is clean and cleared of all the contractor's equipment and materials
10. Lateral locations have been mark with a "S" on curb
11. A mylar and a bond copy of the water facility plans labeled "RECORD DRAWINGS" with the "As-Built" revisions have been delivered to the District
12. Digital submittal of plan information in a format acceptable to the District

300.17.11 Raising of Valve Boxes and Manhole Rims

For paved areas in the applicant's development, it shall be the responsibility of the applicant to raise to grade all valves and manholes and provide temporary ramping or feathering around valve boxes or manholes between pavement lifts.

300.18 RECORD MYLARS

Record drawings shall be completed and submitted by the developer's engineer, or a registered land surveyor, as detailed in Section 500.13. The applicant shall furnish to the District record drawings (1 marked set of bond copy, 1 set of mylar, and 1 set of digital format (.dwg) showing all revisions to the original approved plans. All future extensions of water transmission mains and sewer mains shall have the invert elevation of the terminal pipe verified by the applicant and posted on the drawings. Failure to comply with these requirements will necessitate withholding final approval.

300.19 EASEMENT VERIFICATION

The developer's engineer will verify in writing that the facilities to be accepted by the District were constructed within the easements as listed in the easement documents. In the event the facilities were not constructed within the designated easement, the engineer will submit revised easement documents, quitclaim documents, and the final title report for recordation.

300.20 FINAL COSTS, BOND, AND FEE VERIFICATION

With the record drawings, the applicant is to furnish the District a cost breakdown of the newly installed facilities for District accounting purposes. A warranty bond in the amount of 25% of the actual installation costs for District facilities shall be submitted. Any adjustments to the deposits and fees will be made at this time.

The District will also re-evaluate the plans for compliance with the "AGREEMENT” and reserves the right to re-assess the development fees if deviations from the originally approved plans have been made. Changes include, but are not limited to: the number of service connections, meter sizes, building square footage, the irrigated area, the number of dwelling units, and any other measure used to calculate the original fees. All fees and/or deposits shall be made current prior to forwarding the project for acceptance.

300.21 BOARD ACCEPTANCE

After satisfactory completion of the items in Section 300.1 through 300.20, the District will, upon the request of the developer, place the project on the District Board’s agenda for acceptance, said date of acceptance being the commencement of the one year warranty period.
300.22 RELEASE

300.22.1 Bond Release

All final inspection requirements shall be fulfilled before the District will give its final acceptance notice to the City and/or County for release of the applicant’s bond to those agencies, if applicable. The applicant's bond with the District shall remain in effect in accordance with Section 100.5 and the Agreement.

300.22.2 Water and Sewer Service in service prior to Acceptance

The District Engineer, at his sole discretion, may approve placing newly installed water and sewer systems into service prior to Board acceptance after compaction has been approved by the governing agency and the portions have been pressure tested, chlorinated, flushed, and have passed the bacteriological test and inspection for domestic water mains. This partial acceptance may be granted only upon written request from the applicant and subsequent approval by the District Engineer. Upon this written approval for partial acceptance of facilities, the applicant shall be relieved of the duty to maintain the portions so used or placed into operation provided, however, that nothing in this section shall be construed as relieving the applicant of full responsibility for completing the work in its entirety, for making good any defective work and materials, for protecting the work from damage, and for being responsible for damage and for work as set forth in the agreement and other contractual documents; nor shall such action by the District be deemed completion and acceptance, and such action shall not relieve the applicant of the guarantee provision of the Agreement with the District.

Meters shall remain locked and there shall be no occupancy until capital facility fees have been paid and the District signs the building permit card, per current District rules and regulations. Final acceptance of the project shall be subject to all District fees and charges being paid current.

300.23 SECURITY RELEASE

If in the time period of one year from the date of Board acceptance no failure of the system has occurred, which has gone unrepaiired by the developer, to the satisfaction of the District, the District will release the surety. The sewer system will be video inspected prior to the one year anniversary of the surety bond.

END OF SECTION
The three main components in a wastewater collection system include gravity sewers, force mains, and lift stations. This section contains criteria to be used in the design of the proposed gravity sewer system. The developer and engineer shall be responsible for ensuring that designs submitted to the District are consistent with, and comply with the latest editions of the VWD Master Plan, VWD Standard Specifications, VWD Standard Drawings, VWD Approved Materials List, VWD policies, rules and regulations, and generally accepted engineering practice.

**400.1 MINIMUM SIZE**

The District will not accept sewer mains smaller than 8-inches in diameter nor any sewer line that is within a common trench (two or more utilities in the same trench) for operation and maintenance. Adequate horizontal and vertical spacing shall be maintained from potable water systems as defined in the Department of Health Services standards. Continuity/consistency of pipe sizes shall be observed; for example, upstream mains shall not be larger in diameter than tributary/connecting downstream mains. Differing size sewer main pipe segments shall be combined at manholes by matching soffits.

Sewage lift stations and force mains, except those identified in the District’s Master Plan, are discouraged. Private lift stations shall be avoided to the maximum extent possible and will only be considered as a last resort. The size of sewer force mains will be determined during the design phase which includes an analysis of alternatives. The minimum size for a force main shall be 6-inches. The capacity shall be the calculated design peak flow from the lift station. The design velocity may be between 2 fps to 6 fps. Discharge shall be into a coated sewer manhole.

Sewage lift stations shall be designed to meet current and proposed flow projections. A design report is required to be submitted for District review and approval. All lift stations, if approved, shall be public and comply with District standards and operation and maintenance requirements. In addition to the building, pumps (including duty and standby), motors and electric system, the station shall also include control systems, telemetry, stand-by power, security and other appurtenances as required by the District.

**400.2 MINIMUM AND MAXIMUM SLOPE DESIGN**

**400.2.1 Slopes**

All gravity sewers shall be designed and constructed to provide mean velocities, when flowing half full, of not less than 2.0 fps, based on Manning’s formula using an “n” value of 0.013. The following are minimum slopes; however, slopes greater than these are desirable:

<table>
<thead>
<tr>
<th>Sewer Size (inches)</th>
<th>Minimum Slope in Feet per 100 Feet (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>0.40</td>
</tr>
<tr>
<td>10</td>
<td>0.28</td>
</tr>
<tr>
<td>12</td>
<td>0.22</td>
</tr>
<tr>
<td>15</td>
<td>0.15</td>
</tr>
<tr>
<td>18</td>
<td>0.12</td>
</tr>
</tbody>
</table>
The maximum allowable slope shall be the slope that generates a maximum flow velocity of 8 fps at the calculated peak flow rate.

400.2.2 Peak Flows

Design peak flows in sewer mains 12-inches in diameter and smaller shall be limited to d/D = 0.5, and in mains 15-inches and larger, d/D = 0.75.

400.2.3 Generation Rates

Sewerage generation rates (duty factors) for various land uses within the District are as established in the District’s Water, Wastewater and Recycled Water Master Plan, latest edition.

400.2.4 High Velocity Protection

In steep sections where flow velocities greater than 15 fps are calculated, special provision shall be made to protect the main against displacement by erosion (slope anchors required on slopes greater than 20%) and shock for pipe entering a manhole and for concrete manhole base and flow channels.

400.3 STANDARD LOCATION AND ALIGNMENT

400.3.1 Location

Sewer mains shall be constructed on the centerline of streets and easements, but not in the median or parking lanes. In those cases, mains shall be constructed to the north or west of centerline, as approved by the District. Where an existing main which is not in the standard location is to be extended or where streets are curved and the location or side of the street is questionable, the location of the proposed extension shall be reviewed by the Engineering Department. Sewer mains and laterals shall not be constructed in a common trench with other utilities. Horizontal or vertical curves in sewer mains are not allowed. In curvilinear streets, mains shall parallel the centerline as much as possible by means of horizontal deflection points at manholes (straight alignment between manholes). In multi-lane streets, it is preferable to locate sewers so that manholes are in the middle of traffic lanes.

400.3.2 Alignment

Barring other limiting design and construction considerations, a minimum separation between sewer and water mains in new subdivisions shall be achieved by the following construction procedures:

1. On curvilinear streets, the sewers shall parallel as nearly as possible the street centerline by means of horizontal deflection points at manholes.

2. Sewer mains should be installed on the opposite side of the centerline from the water mains.
400.3.3 **Radius of Curvature**

Horizontal or vertical curves in sewer mains are not allowed.

400.4 **STATIONING PROCEDURE**

Where water mains and sewer mains are shown as part of a street improvement project, street centerline stationing and offsets shall be used. When the improvement plans are for sewer and/or water construction only, stationing shall be along the centerline of the sewer and/or water mains. All manholes are to be numbered (example MH No. 1).

400.5 **MINIMUM COVER**

Minimum cover from finish street grade to top of sewer main pipe shall be 5 feet. Sewer laterals shall be designed and constructed with a minimum cover of 5 feet from the finish grade at property line. Construction stakes and cut sheets shall be provided. Installation of sewer mains prior to grading, or as part of the grading process is prohibited. Sewer mains shall not be constructed at depths less than 5 feet followed by fill/grading.

400.6 **MANHOLE SPACING AND LOCATION**

Manholes shall be installed at the end of each line; at all changes in grade, size, or alignment; at all intersections of two or more mains; and at distances not greater than 400 feet for 8- through 15-inch sewers and 500 feet for 18- to 30-inch sewers, or as otherwise approved.

400.7 **MANHOLE TYPE, MINIMUM SIZE AND DEPTH**

400.7.1 **Manhole Depth**

Manhole depth is calculated from finish grade to lowest pipe invert. Minimum manhole depth shall be 6 feet. Manholes shall contain pre-cast reinforced concrete sections with eccentric cone style, no steps. Pre-cast manhole bases may be used if approved by District. The minimum diameter of manholes shall be as follows:

<table>
<thead>
<tr>
<th>Sewer Diameter</th>
<th>Min. Manhole Dia.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-12 in.</td>
<td>48 inches</td>
</tr>
<tr>
<td>15-24 in.</td>
<td>60 inches</td>
</tr>
<tr>
<td>Greater than 24 in.</td>
<td>96 inches</td>
</tr>
</tbody>
</table>

Depth of manhole shall be measured from the lowest pipe invert to the finished grade of the street.

The standards for the District sewers are generally based on a depth criteria of approximately 6 feet to 15 feet for manholes. However, if deeper manholes, regardless of sewer size, are required and approved by the District, the following criteria will govern. The larger manhole, based on either diameter or depth, shall be constructed.

<table>
<thead>
<tr>
<th>Sewer Depth</th>
<th>Manhole Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-15 ft.</td>
<td>48 inches</td>
</tr>
<tr>
<td>&gt;15-22 ft.</td>
<td>60 inches</td>
</tr>
<tr>
<td>Greater than 22 ft.</td>
<td>72 inches</td>
</tr>
</tbody>
</table>
400.7.2 **Allowable Head Losses**

Allowable head loss in manholes shall be as follows:

1. Straight run through manholes based on 0.10-foot loss

2. Right angle turn in manholes based on 0.5 velocity head loss or 0.20 feet, whichever is greater

400.8 **MANHOLE PROTECTIVE LINING**

The interior of manholes greater than 60-inch in diameter and larger shall be coated with a polyurethane lining system. The interior of manholes 48-inch in diameter shall not be coated with a polyurethane lining system unless as determined by the Engineer or the District and shall be noted on the plans. 48-inch diameter manhole locations shall be evaluated to determine their potential to generate hydrogen sulfide gases, such as at sewer main alignment changes greater than 60 degrees, where significant grade changes occur, or at the convergence of large flows. The coating shall extend down to cover the manhole shelf in its entirety and to overlap joints in the inlet/outlet sewer pipe penetrations. The coating shall not extend into the channel and flowline. The protective lining system shall be Zebron lining system.

400.9 **MANHOLE COVERS**

400.9.1 **Type of Covers**

Cast-iron frames and covers shall be 36-inches in diameter. Covers shall be three-piece with the words “SEWER” and “VALLECITOS WATER DISTRICT” cast in the cover. Larger size covers may be specified for special conditions on plans. See Standard Drawings S-1, S-2, and S-3. Frames and covers shall be from the same manufacturer and originating from the same factory.

400.9.2 **Position of Covers**

The flat part of the eccentric cone section shall generally be oriented to the upstream flow through the manhole. Specifically cut plywood shall be placed in the bottom of the manhole after testing and before final grade adjustment. At the completion of final paving, the manholes shall be raised to final grade by using the necessary sized grade rings and the plywood shall be removed prior to occupancy.

400.10 **ACCESS TO MANHOLE**

All sewer manholes shall be designed and constructed with a direct paved or all weather access to them, as approved by the District.

400.11 **SEPARATION BETWEEN WATERLINES AND SEWERLINES**

See Subsection 400.3 herewith, and Subsection 500.7.

400.12 **HOUSE LATERALS AND MINIMUM DEPTH AT PROPERTY OR EASEMENT LINE**

Because the District does not have control over what enters the drain/lateral from private developments or dwellings nor does it have control over private properties, the proper operation and maintenance of all sewer laterals is the sole responsibility of the private property owner from the property line to the public sewer.
All sewer laterals shall be located by the applicant and shown (with stationing) on the improvement plans.

House connections shall be constructed to the property line. There shall be one house sewer lateral (4” minimum) constructed for each individually owned dwelling unit (a granny flat on the same property as a primary dwelling can use the same sewer lateral as the primary dwelling). Minimum depth shall be 5 feet from finished grade at property or easement line. The sewer house connections shall be laid to the grade as established by the applicant so that the 4-inch house connection will have a minimum cover of 5 feet from the finished grade to the top of the pipe at the property line per Standard Drawing S-4.

400.13 TOWNHOUSES AND CONDOMINIUM LATERALS

For buildings containing two to four units, either one 4-inch diameter lateral to each unit or one 6-inch diameter, or larger, lateral to the building shall be used. For buildings containing more than four units, either one 4-inch diameter lateral to each unit or one 8-inch diameter, or larger, lateral to the building shall be used. In general, a lateral shall serve only one building regardless of the number of units per building.

400.14 INDUSTRIAL TREATMENT

Requirements for industrial pretreatment will be determined as a result of processing the Industrial Waste Questionnaire through the Encina Wastewater Authority office. Design requirements will be dependent upon those industrial pretreatment requirements.

400.15 GREASE INTERCEPTORS

The requirements for grease interceptors are governed by the Uniform Plumbing Code. All facilities which have the potential to discharge fats, oils and grease into the District’s sewers may be required to install grease interceptors to minimize problems in collection systems and treatment plants. The Department of Health Services and/or the local agency building department issues permits and has jurisdiction and establishes the size and location of the interceptor(s).

It is the responsibility of the owner of each facility to maintain proper operation of the interceptor unit and to remove accumulated grease at suitable intervals to avoid excessive buildup in the unit.

400.16 STANDARD SEWER NOTES

The District’s current General Notes for Improvement Plans and General Notes Grading Plans may be obtained from the Engineering Department or the District website, www.vwd.org.

**END OF SECTION**
VALLECITOS WATER DISTRICT
SECTION 500

DESIGN CRITERIA
WATER FACILITIES

This section contains design criteria for proposed water systems. The developer and engineer shall be responsible for ensuring that designs submitted to the District are consistent with, and comply with the latest editions of the VWD Master Plan, VWD Standard Specifications, VWD Standard Drawings, VWD Approved Materials List, VWD policies, rules and regulations, and generally accepted engineering practice.

The developer shall be responsible for constructing the complete water distribution system shown on the plans including but not limited to the necessary piping, valves, fire hydrants, fittings, vaults, power (including backup power), control systems, telemetry, pressure reducing stations and related appurtenances.

500.1 MINIMUM SIZE MAINS

The minimum size distribution main shall be an 8-inch main in public right of way or separate easement. The water mains must be sized to meet maximum day plus fire flow demands.

500.1.1 Water-System Reliability

Water systems shall be designed to meet the pressure criteria under max day plus fire flow demands. Each project or development shall have at least two connections to waterlines in different streets to form a looped water system. If connection to different streets is impractical or impossible in the opinion of the Engineer, connections to a waterline in the same street may be permitted, provided that adequate design criteria is met and valving for isolation of the segments of waterlines is incorporated. Non-looped systems will be permitted only with the express permission of the District.

Water mains and valving shall be designed so that no more than one average City-sized block (approximately 30 homes) is out of service at any one time, and no more than two fire hydrants are on a dead end or out of service at any time. Water mains serving more than two fire hydrants, or more than 30 homes (EDU’s) shall be looped/duel fed.

500.1.2 Full Frontage Extension

Water lines will be required, at the District’s discretion, along the entire length of at least one property line frontage of the property to be developed whenever there is a possibility of future main extension, or there are other lots that could connect to the new main at a later date. The property line frontage is that portion of the property along the public right-of-way. If a parcel to be developed has more than one property line frontage, the District may require a water line to be installed along the other frontage(s).

500.2 SYSTEM DEMANDS AND DESIGN CRITERIA

The design of water system facilities shall be based on the ultimate build-out water demand for the District, as described in the District’s Master Plan. The water system must meet the fire flow requirements of the local governing agency.

The minimum residual pressure at any point in the system shall be 20 psi under maximum day plus fire flow demands. The minimum residual pressure at any point in the system shall be 40 psi at peak hour demand.
The minimum static pressure at any water service location (meter) shall be 40 psi. To protect the meter, pressure regulators are required on the District side of the meter if the static pressure is greater than 150 psi.

The maximum velocity in a line shall not exceed 7 fps (feet per second) during the maximum day demand plus fire flow or during the peak hour demand. Refer to the District’s current Master plan for maximum day and peak hour demand peaking curves. The maximum desirable head loss is 5 feet per 1,000 feet of pipeline but the maximum allowable is 15 feet per 1,000 feet.

500.3 TYPE OF MAIN PIPE

Residential Areas (Distribution Mains). Only C900 PVC pipe, Class 200 or ductile-iron pipe, minimum Pressure Class 350, is to be used for distribution mains of 8 inches thru 12 inches in diameter. For pipe over 12 inches in diameter up to 14 inches, C905 PVC pipe, ductile-iron pipe, or CML&C steel pipe may be used. For pipes larger than 16 inches in diameter, only ductile-iron pipe or CML&C steel pipe is allowed. Where water mains pass through non-paved areas, the pipe may be ductile iron pipe, CML&C steel pipe, or slurry capped PVC.

All DIP, 6-inches thru 12-inches in diameter, will be Pressure Class 350 unless a higher pressure class is required for special installations. DIP shall be provided and installed per Section 15056. Fully restrained DIP shall be used within easements with restricted access and slopes exceeding 10%.

500.4 MINIMUM DEPTH TO TOP OF WATER MAIN PIPE

500.4.1 Residential Areas (Distribution Mains 12-inch and smaller)

The top of the pipe shall be a minimum of 42-inches below the top of street finished grade, unless otherwise indicated on District-approved plans or directed by the District inspector because of unusual field conditions.

500.4.2 Transmission Mains. (Generally larger than 12-inch)

The top of the pipe shall be a minimum of 48-inches below the street finished grade, unless indicated otherwise on job plans or directed otherwise by the District inspector because of unusual field conditions.

500.5 STANDARD LOCATION

Water main center-lines shall normally be located 12 feet south or east of street centerline (middle of a lane preferably) or in the center of an easement for water only, or at least 10 feet from a sewer in a District joint easement.

500.6 WATER VALVE SPACING

At each tee connection, there shall be three (3) control valves. Where two mains cross, there shall be four valves. On long blocks, intermediate (inline) valves shall be installed so that no more than 30 lots, 600 feet of main, or two fire hydrants are out of service during a shutdown.

Where water mains pass through easements outside traveled streets, a valve shall be located at each end of the easement. The final determination of valves and locations shall be at the District’s discretion.
500.7 COMBINATION AIR AND VACUUM VALVES

Combination air and vacuum valves may be required on pipeline high points, at gate valves, and changes in grade, depending on the main size and terrain. The valves shall also be placed down slope of a permanently closed valve separating two pressure zones. Combination air and vacuum valves shall be made in a level section of pipe no closer than 30-inches to a coupling, joint, valve, or fitting.

500.8 BLOW-OFF VALVES

Blow-off valves are required on all dead-end pipe runs and at low points of the water main, A 2-inch assembly shall be placed on mains up to 12-inches in diameter. Larger main sizes require a 4-inch or 6-inch blow-off assembly, depending on the size of main and distance between valves and blow-off points. A blow-off assembly may not be required if a fire hydrant is located near the dead end, gate valve, or low point. A blow-off shall be no closer than 30-inches to a coupling, joint, valve, or fitting.

500.9 THRUST BLOCKS AND ANCHOR BLOCKS

Thrust and anchor blocks are required at all caps, valves, reducers, tees, bends, and fittings used to change the pipe direction. They shall be installed in accordance with the Standard Specifications and Standard Drawing W-15.

500.10 SEPARATION OF DOMESTIC WATER, SEWER, AND RECYCLED WATER LINES

500.10.1 Horizontal Separation

County Health Department regulations require a 10-foot minimum wall-to-wall separation between water and sewer water mains. Minimum separation of domestic water service line and sewer lateral shall be 5 feet. Special construction methods may be approved where the separation cannot be achieved. Separation other than the required minimum, must be reviewed and approved by the District.

500.10.2 Vertical Separation

Normally, water, sewer, and recycled water shall be located vertically from the street surface in order of the higher quality, i.e., domestic water shall be above recycled water and recycled water shall be above sewer.

Encasement may be required if separation conditions cannot be met.

If a sewer is above a water main, the special construction shall extend a sufficient distance on both sides of the crossing to provide a minimum of 10 feet of horizontal clearance. If a sewer is located below a water main, and within a vertical distance of 1-foot clearance, the special construction shall extend a sufficient distance on both sides of the crossing to provide a minimum 4 feet of horizontal clearance. These construction requirements shall not apply to house laterals that cross perpendicular less than 1-foot below a pressure water main.

500.11 FIRE FLOW DEMAND

The design criteria to be used for determining fire flow requirements shall be the actual fire flow requirements as determined by the Fire Marshal of the agency having jurisdiction. Before designing the domestic water system for a project, the applicant shall obtain the Fire Marshal's fire flow requirements for the project. These requirements, plus the signature of the Fire Marshal, are required to be on the
improvement plans prior to District's approval. A hydraulic analysis is required to confirm that the proposed water system improvements meet the required flows.

500.12 FIRE HYDRANT LOCATIONS

The spacing and location of fire hydrants shall be as determined by the Fire Marshal of the agency having jurisdiction. The location with respect to the curb and sidewalk shall be as shown in District standards W-4 and W-5.

500.12.1 Fire Hydrant Spacing

In general, the maximum fire hydrant separation shall be 300 feet from fire hydrant to fire hydrant. The only exceptions will be at the discretion of the Fire Marshal.

Fire hydrants shall be located near the beginning of curb return (BCR) or lot lines.

Fire hydrants shall not be located within 3 feet of a driveway (unless approved by the Fire Marshal).

500.12.2 Types of Hydrants

Wet barrel all-bronze type hydrants, as specified by the District, are to be used except in high pressure zones, hill areas or special "high-risk" situations where the District may require a wet barrel with pressure valve or check valve, at its discretion.

500.12.3 Plan Requirements

Fire hydrants shall be shown on the plans with respect to the property line or easements, if provided.

500.13 SERVICE MATERIALS AND MINIMUM SERVICE SIZE

500.13.1 General

Approved materials and manufacturers for various service material tubing and connections are as listed in the District's Approved Materials List, latest edition.

500.13.2 Minimum Domestic Service Size

Minimum domestic service line size shall be 1-inch with a 3/4-inch meter. The sizing of the service shall be specified on the plans designated by lot numbers. Services and sizes for commercial or industrial developments are to be as shown on plans or as directed by the District.

For industrial, commercial, private-street residential, and other nonresidential development, the District may require a detail on the plans depicting the location of the proposed service.

500.13.3 Type of Service Line

Acceptable service line material is as described below:

1. 1-inch and 2-inch service line shall be copper tubing.

2. 4-inch and larger service lines, use DIP per Section 15056, or PVC per Section
15064, as determined by the District Engineer. (3-inch size is not a District Standard - use 4-inch piping to meter).

500.13.4 Meters

All meters shall be supplied and installed by the applicant and dedicated to the District subsequent to payment of applicable fees and charges, per District rules and regulations.

500.13.4.1 Pressure Regulators for Meters in High Pressure Areas

In areas of the District where pressures exceed 150 psi, a pressure regulator is required to protect the District meter. It is the responsibility of the property owner to install appropriate piping, fittings and appurtenances on the customer side of the meter for potential high pressure protection.

500.14 STANDARD WATER NOTES

The District’s current General Notes for Improvement Plans and General Notes Grading Plans may be obtained from the Engineering Department or the District website, www.vwd.org.

**END OF SECTION**