LAGUNA BEACH
COUNTY WATER DISTRICT

STANDARD SPECIFICATIONS

Revised June 2006

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LAGUNA BEACH, CALIFORNIA 92652

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GENERAL CONDITIONS

1-01 DEFINITIONS AND TERMS

Whenever the following terms or pronouns used in their stead occur in these specifications or in any document or instruments where these specifications govern, the intent and meaning shall be interpreted as follows:

(A) DISTRICT - The Laguna Beach County Water District, Orange County, California.

(B) BOARD - The Board of Directors of the Laguna Beach County Water District.

(C) ENGINEER - Whenever in these specifications the Engineer is referred to, it shall mean the Engineer for the District or his authorized representative.

(D) CONTRACT - The bid and award by District as well as the formal agreement subsequently executed between the District and the Contractor covering the performance of the work and the furnishing of labor, equipment and/or materials in the construction of the work. The contract shall further include not by way of limitation the bid, plans and specifications, and all special provisions setting forth interpretations of any said documents.

(E) CONTRACTOR - The person, partnership, corporation or combination thereof entering into contract with the District for the performance of the work required by these specifications, and the legal representative of said party or the agent appointed to act for said party in the performance of the work.

(F) SUBCONTRACTOR - The person, partnership, corporation or combination thereof supplying labor or labor and materials at the site of the work as a part of the Contractor's obligation under contract.

(G) BIDDER - Any individual, partnership, corporation or combination thereof submitting a proposal for the work contemplated, acting directly or through a duly authorized representative.

(H) ACCEPTED BID - The bid or proposal accepted by the District.

(I) PLANS - The official plans, profiles, typical cross-sections, general cross-sections, working drawings and supplemental drawings, or exact reproductions thereof, approved by the Engineer and District which show the location, character dimensions and details of the work to be done and which are to be constructed as a part of the contract supplementary to these specifications.

(J) SPECIFICATIONS - The directions, provisions and requirements contained herein, as supplemented by such special provisions as may be necessary, pertaining to the method and

manner of performing the work and to the qualities and quantities of materials to be furnished under the contract.

(K) LABORATORY - The designated laboratory authorized by the District to test materials and work involved in the contract.

(L) THE WORK - The work specified in the specifications, proposal and contract or indicated on the plans as the contemplated improvement covered by the contract.

(M) TERMS - Whenever in the specifications or upon the plans the words directed, permitted, ordered, designated, prescribed, or words of like import are used, it shall be understood that the direction, requirements, permission, order, designation or prescription of the Engineer is intended. Similarly, the words approved, acceptable, satisfactory, or words of like import shall mean approved or acceptable to or satisfactory to the Engineer unless otherwise expressly stated.

1-02 SCOPE OF WORK

(A) WORK TO BE PERFORMED - The work to be performed under these specifications shall include the furnishing of all labor, materials, services, equipment, methods and processes necessary for or appurtenant to the construction and completion of all work herein specified in accordance with the plans, profiles, and other drawings on file in the office of the Secretary of the District.

(B) REMOVAL OF OBSTRUCTIONS - The Contractor shall remove and dispose of all structures, debris, or other obstructions of any character necessary to accomplish the work.

(C) PUBLIC UTILITIES - The existence of utilities at the site of the work have been determined from records of known utilities in the vicinity of the work. The position and location of these utilities as determined from these records are as shown on the plans. It shall be the responsibility of the Contractor to determine type and location of these existing utilities by subsurface exploration, if necessary, including service locations, prior to commencing work which could result in damage to such utilities.

(1) The removal, relocation, or protection of existing utilities, located on the site of this construction project and identified in the plans and specifications, the cost of which must be borne by the owner thereof; such owner will, upon proper application by the Contractor, be notified by the District to remove, relocate or protect such utilities within a specified reasonable time, and the Contractor shall not interfere with said utilities until after expiration of the time specified.

(2) The removal, relocation, or protection of existing utilities, located on the construction site and identified in the plans and specifications, the cost of which is not required to be borne by the owner thereof; the Contractor shall bear all expenses incidental to the removal, relocation or protection of such utility in a manner satisfactory to the owner thereof, it being understood that in such cases the owner has the option of either doing the work with his own forces or permitting the work to be done by the contractor.

(3) The removal relocation, or protection of existing utilities located on the construction site and not identified in the plans and specifications is the responsibility of the District. The Contractor shall immediately notify the District in writing of the discovery of any utility not identified in the contract plans and specifications and shall not suffer liquidated damages for delay in completion of the project caused by the failure of the District or the owner of the utility to provide for removal, relocation or protection of the existing utility facilities. The right is reserved to the state, county, or city and to owners of public utilities and franchises to enter at any time upon any street alley, right-of-way or easement for the purpose of making changes in their property made necessary by the work and making repairs on their property.

(D) FINAL CLEAN UP - The Contractor shall maintain the site of work in a neat and orderly condition throughout the construction period providing means of disposal for rubbish and waste materials. Upon completion and before making application for acceptance of the work, the Contractor shall clean the street, borrowpits, and all ground occupied by him in connection with the work, of all rubbish, excess materials, temporary structures and equipment, and all parts of the work shall be left in a neat and presentable condition. The Contractor shall then make a written request to the Engineer for final inspection of work; upon receipt of said written request, the Engineer shall make such inspection.

1-03 CONTROL OF WORK

(A) AUTHORITY OF THE ENGINEER - The Engineer, through his authorized representatives, serves as the agent of the District and shall review the accomplishment of the work to ascertain it is in substantial accordance with the provisions of the contract. The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished and work performed; and as to the manner of performance, rate of progress of the work, all questions as to the interpretation of the plans and specifications and all questions as to the acceptable fulfillment of contract on the part of the Contractor.

(B) PLANS - The approved plans shall be supplemented by such working drawings as are necessary to control the work adequately. All such drawings shall be consistent with the contract documents and reasonably inferable therefrom. All drawings signed by the Engineer and delivered to the Contractor after execution of the Agreement and all revisions of these and of the specifications drawings, shall be deemed written instructions to the Contractor.

The District will furnish to the Contractor, free of charge, all copies of drawings and specifications reasonably necessary for the execution of the work. The Contractor shall keep one set of drawings and specifications in good order available to the Engineer and his representatives at the site of the work.

The plans for the work will show conditions as they are supposed or believed by the Engineer to exist, but it is not intended or to be supposed that the conditions as shown thereon constitute a representation by the District or authorized representative that such conditions are actually existent, nor shall the owner or authorized representatives be liable for any loss

sustained by the Contractor as a result of any variance of the conditions as shown on the plans and the actual conditions revealed during the progress of the work or otherwise.

Where the District, District Engineer or District Consultant has made investigations of subsurface conditions at or adjoining the areas where work is to be performed, such investigations were made for the purpose of study and design. Bidders or Contractors may inspect the records at the District or office of the Engineer.

The records of these investigations are not a part of the contract and are available solely for the convenience of the Bidder and Contractor. They may be attached to the plans; however, it is expressly understood and agreed that the District, District Engineer or District's Consultant assumes no responsibility as to the sufficiency or accuracy of these investigations.

(C) CONFORMITY WITH PLANS AND ALLOWABLE DEVIATIONS - Finished surfaces in all cases shall conform with the lines, elevations, grades, cross-sections, and dimensions shown on the approved plans. If no specific elevations are shown on the approved plans, the lines, elevations, grades, cross-sections, and dimensions shall be as staked in the field.

(D) CONTRACT DOCUMENTS - The contract documents consist of the Notice Inviting Sealed Bids, the Instructions to Bidders, the Proposal, the Agreement and Bonds, the Specifications and the Plans. These Contract Documents are complimentary, and what is called for in one shall be as binding as if called in all. The intention of the documents is to require a complete and finished piece of work.

(E) INTERPRETATION OF PLANS AND SPECIFICATIONS - Should it appear that the work to be done or any matter relative thereto is not sufficiently detailed or explained in these specifications, plans and the special conditions, the Contractor shall apply to the Engineer for such further explanations as may be necessary and shall conform to such explanation or interpretation as part of the contract so far as may be consistent with the intent of the original specifications. In the event of any discrepancy between any drawings and the figures shall be taken as correct. Large scale details take precedence over smaller scale drawings.

(F) SUPERVISOR BY CONTRACTOR - The Contractor shall give efficient supervision to the work, using his best skill and attention, and shall provide and keep on the work at all times during is progress a competent superintendent and any necessary assistants. All directions of the Engineer shall be given in writing and shall be received and obeyed by the superintendent in charge of the particular work, reference to which orders are given, and all such directions given to the superintendent shall be as binding as if given to the Contractor in person.

(G) SURVEY AND REFERENCE POINTS - Unless otherwise specified all lines and grades will be given by the Engineer. The Contractor shall preserve all bench marks, monuments, survey marks and stakes and in case of their removal or destruction by him or his employees he shall be liable for the cost of their replacement. The Contractor shall keep the Engineer informed a reasonable time in advance, but not less than 48 hours, of the times and

places at which he intends to do work, in order that lines and grades may be furnished; that inspection may be provided, and that necessary measurements for record and payment may be made. No direct payments will be made to the Contractor for the cost of any of the work or delay occasioned by fixing lines and grades, or making necessary measurements or by inspections.

(H) INSPECTION - The Engineer shall at all times have access to the work during construction and shall be furnished with every reasonable facility for ascertaining full knowledge respecting the progress, workmanship and character of materials used and employed in the work.

Whenever the Contractor varies the period during which work is carried on each day, he shall give due notice to the Engineer so that proper inspection may be provided. Any work done in the absence of the Engineer will be subject to rejection. Work covered up without the authority of the Engineer shall, upon order of the Engineer, be uncovered, and the Contractor shall bear the entire cost of all work and materials necessary for removal of the covering and its subsequent replacement.

The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill the contract as prescribed. Defective work shall be made good, and unsuitable materials may be rejected notwithstanding the fact that such defective work and unsuitable materials have been previously overlooked by the Engineer and accepted.

(I) ERRORS OR DISCREPANCIES NOTED BY CONTRACTOR - If the Contractor, either before commencing work or in the course of the work, finds any discrepancy between the specifications and the drawings, or between either, and the physical conditions at the site of the work, or finds any error or omission in any of the drawings or in any survey, he shall promptly notify the Engineer in writing of such conflict.

The Engineer, on receipt of any such notice, shall promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, any work done by the Contractor, either directly or indirectly, after his discovery of such error, discrepancy or conflict, will be at his own risk, and he shall bear all costs arising therefrom.

(J) DEFECTIVE AND UNAUTHORIZED WORK - All work which is defective in its construction or deficient in any of the requirements of these specifications shall be remedied or removed and replaced by the Contractor in an acceptable manner at his own expense. No compensation will be allowed for any work done beyond the lines and grades shown on the plans or established by the Engineer. Upon failure on the part of the Contractor made under the provision of this article, the District many cause the defective work to be remedied or removed and replaced at the expense of the Contractor.

(K) EQUIPMENT - The Contractor must furnish adequate equipment to perform properly the work in a workmanlike manner in accordance with these specifications. Such equipment must be in a good state of repair and maintained in such state during the progress of the work. No worn or obsolete equipment shall be used, and in no case shall the maker's rating of capacity for any equipment be exceeded.

1-04 MATERIALS AND EQUIPMENT

(A) GENERAL - All materials, equipment and supplies to be incorporated in the work shall be new unless otherwise specified. They shall be stored by the Contractor in such a manner as to prevent damage from exposure to the elements and contamination from foreign materials. The Engineer and his representatives, shall at all times, have immediate access to all places of manufacture where machinery or materials are being manufactured, produced or fabricated for use on the work, and shall have full facilities for determining that all such machinery or materials are being made strictly in accordance with the specifications and drawings. The Contractor shall, whenever so requested, give the Engineer access to the proper invoices, bills of lading, etc., and shall provide facilities and assistance for weighing or measuring any of the materials.

(B) SAMPLES AND TESTS - To ascertain compliance with the plans and specifications and at the option of the Engineer, the source of supply of each of the materials shall be approved by the Engineer before delivery is started and before such material is used in the work. Representative preliminary samples of the character and quality prescribed shall be submitted by the Contractor or producer of all materials to be used in the work for testing or examination as desired by the Engineer. All tests of materials furnished by the Contractor shall be made in accordance with commonly recognized standards of national organizations and such special methods and tests as are prescribed in these specifications. The Contractor shall furnish such samples as are requested by the Engineer without charge. No material shall be used until it has been approved by the Engineer. Samples will be secured and tested whenever necessary to determine the quality of material.

(C) QUALITY OF MATERIALS AND EQUIPMENT - Where the quality of a material, process or article is not specifically set forth in the plans and specifications the best available shall be provided.

Whenever a material, process or article is indicated or specified by grade, patent, proprietary name or name of manufacturer, unless otherwise noted, it shall be deemed to be followed by the words "or approved equal". The Contractor may offer a substitute which shall be substantially equal or better, provided, however, that if in the opinion of the Engineer the material, process or article is not equal, then the Contractor must comply with the specified item.

In accordance with Section 4380 of the Government Code of the State of California, the Contractor shall submit substantiating data for substitution of "equal" items within 35 days after award of contract. No additional time for completion of contract will be allowed for this period.

(D) DEFECTIVE MATERIALS - All materials not conforming to the requirements of these specifications shall be considered as defective; and all such materials, whether in place or not, shall be rejected and shall be removed immediately from the site of the work unless otherwise permitted by the Engineer. No rejected materials, the defects of which subsequently have been corrected, shall be used until approved in writing by the Engineer. Upon failure by the Contractor to comply with any order of the Engineer made under the

provisions of this article, the District shall have the authority to remove and replace defective material at the expense of the Contractor.

1-05 PROSECUTION AND PROGRESS

(A) SUBCONTRACTING - The Contractor shall give his personal attention to the fulfillment of the contract and shall keep the work under his control. No subcontractor will be recognized as such, and all persons engaged in the work of construction will be considered as employees of the Contractor, and the Contractor will be held responsible for their work, which shall be subject to the provisions of the contract. All subcontracts shall be in writing and a certified copy thereof shall be furnished to the District. Each subcontract shall contain a reference to the Agreement between the District and the principal Contractor, and the terms of that agreement shall be made a part of such subcontract insofar as applicable to the work covered thereby. Each subcontract shall provide for its annulment at the order of the District if the subcontractor fails to comply with the requirements of the principal contract insofar as the same may be applicable to his work, in which event the subcontractor shall be removed immediately from the work and shall not again be employed on the work. Reference is made to the provisions of Sections 4100 to 4107 inclusive of the Government Code of the State of California.

(B) ASSIGNMENT - The performance of the contract may not be assigned, except upon the written consent of the District. Consent will not be given to any proposed assignment which would relieve the original Contractor or his surety of their responsibilities under the contract, nor will the District consent to any assignment of a part of the work under the contract.

Upon obtaining a prior written consent of the District, the Contractor may assign moneys due or to become due him under the contract, to the extent permitted by law, but any assignment of moneys shall be subject to all proper setoffs in favor of the District and to all deductions provided for in the contract, and particularly all money withheld, whether assigned or not, shall be subject to being used by the District for the completion of the work in the event that the Contractor should be in default therein.

No such assignment will be approved by the District unless the instrument of assignment contains a clause that the assignee assumes all prior liens and claims for services rendered or materials supplied for the performance of the work called for in the contract, in favor of all persons, firms, or corporations rendering such services or supplying such materials. The instrument or assignment must also contain a clause wherein the assignee assumes any and all liability for latent defects in materials, work, and services already performed by assignor which in any way are connected to or related to the work and labor to be performed by assignee.

(C) CHARACTER OF WORKMEN - The Contractor shall employ none but competent foremen, laborers and mechanics. Any person employed who is found to be incompetent, intemperate, troublesome, disorderly or otherwise objectionable, or who fails or refuses to perform his work properly and acceptably, shall be immediately removed from the work by the Contractor and not be reemployed on the work.

(D) DISTRICT'S RIGHT TO TERMINATE OR SUSPEND CONTRACT - If the work to be done under the Contract shall be abandoned by the Contractor, of if the Contractor shall make a general assignment for the benefit of his creditors or be adjudicated as bankrupt or a receiver of his property or business be appointed by a court of competent jurisdiction, or if this contract shall be assigned by him otherwise than as hereinbefore specified, or if at any time the District shall determine that the performance of the contract is unnecessarily or unreasonable delayed, or that the Contractor is willfully violating any of the conditions or covenants of the contract or of the specifications, or is executing the same in bad faith or not in accordance with the terms thereof, or if the work is not fully completed within the time named in the contract for its completion, or approved extensions of such time, the District may by written notice instruct the Contractor and his surety of its intention to terminate the contract, and said notice shall contain reasons for such intention and set ten (10) days for corrections and satisfactory arrangements for completion of the contract. If at the end of the ten (10) day period the District determines the corrections and arrangements have not been satisfactory, the contract shall terminate and the Contractor shall not be entitled to receive any further payment until the work is completed.

Upon termination the District shall immediately notify in writing the Contractor and surety. The surety shall have the right to take over and perform the contract providing written notice of its intention is served the District within fifteen (15) days after the surety's receipt of "Notice of Termination". In the event the surety fails to proceed with the work, the District may take charge of the work and complete it by whatever method it deems expedient. In so doing the District may take possession of any materials, plant, tools, equipment, supplies and property of every kind provided by the Contractor for the purpose of his work. If upon completion of the work, the total cost to the District in connection therewith from the date of said "Notice of Termination" to the date of completion exceeds the amount which would have been due the Contractor if the Contract had been completed by him, he shall pay the amount of such excess to the District; and in case such total cost shall be less than the amount which would have been payable under the Contract if the same had been completed by the Contractor, then the difference shall be paid to the Contractor in the same manner as the final payment under the Contract.

The District also reserves the right of suspending the whole or any part of the work and, unless otherwise provided in the Specifications, the Contractor shall have no claim for damages or additional compensation on account of such suspension but will be entitled to so much additional time wherein to complete the contract as the District may determine to be just.

(E) SCHEDULE OF WORK - The Contractor shall submit, upon award of the contract and at such times thereafter as may be requested by the Engineer, a schedule showing the order in which the Contractor proposes to carry on the work with dates at which he will start several parts of the work and estimated dates of completion of such parts.

(F) RIGHTS-OF-WAY - The right-of-way for the work to be constructed will be provided by the District. The Contractor shall make his own arrangements and pay all expenses for additional area required by him outside the limits of the right-of-way.

(G) EXTENSIONS OF TIME - If the work is delayed in consequence of any act or omission of the District, Acts of God, Acts of the Federal Government, acts of the public enemy, delays resulting from war or national or local emergency, strikes and unusually severe weather or other unforeseeable causes beyond the control and without fault or negligence of the Contractor or his subcontractors, the Contractor shall be entitled to additional time beyond the time prescribed to complete the work. Applications for extension of time must be in writing stating cause and filed with the Secretary of the District within 10 days from the beginning of any such delay. The District shall ascertain facts and the extent of the delay and its findings shall be final and conclusive.

(H) LIQUIDATED DAMAGES FOR FAILURE TO COMPLY ON TIME - All of the work to be done under this contract shall be completed on or before the date set forth in the Proposal and the Specifications except as such time of completion shall be deferred by duly approved extensions of time. The Contractor shall pay for each and every day, including Sundays and legal holidays, that he shall be in default in completing the whole work to be done under this Contract, the sum named in the Special Conditions of these Specifications, which sum is, in the execution of the agreement mutually agreed upon, not as a penalty, but as liquidated damages which the District will suffer by reason of such default, it being impractical to fix the actual damage that may result from any delay in the completion of the work beyond the time stated. The District shall have the right to deduct the amount of such damages from any moneys due or to become due the Contractor.

(I) USE OF COMPLETED PORTIONS - When this work or any portion is sufficiently completed to be utilized or placed in service the District shall have the right after written notification to the Contractor to place in service and operate said portion of work.

Whenever the District shall, upon notice, begin utilization and operation of a portion of the work, the Contractor shall be relieved of the duty of maintaining said portion, providing however, nothing in this section shall relieve the Contractor of the full responsibility of completing the work, making good defective work and materials, protecting the work from damage and conforming to all other requirements of these General Conditions. This action by the District shall not be deemed completion and acceptance and all requirements relating to Guarantees shall remain in effect.

1-06 LEGAL RELATIONS AND RESPONSIBILITY

(A) OBSERVING LAWS AND ORDINANCES - The Contractor shall keep himself fully informed of all existing and future state and federal laws, and county and city ordinances and regulations which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any way affect the conduct of the work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over same. If any discrepancy or inconsistency is discovered in the plans, specifications or contract for the work in relation to any such law, ordinance, regulation, order or decree, he shall forthwith report the same to the District in writing. He shall at all times observe and comply with and shall cause all his agents and employees to observe and comply with all such existing and future laws, ordinances, regulations, orders and decrees, and shall protect and indemnify the District, the Engineer,

Consultants, and all of its officers and agents against any claim or liability arising from or based on the violation of any such law, ordinance regulation, order or decree, whether by himself or his employees.

(B) REGISTRATION OF CONTRACTORS - Before submitting bids, Contractors shall be licensed in accordance with the provision of Chapter 9, Division 3 of the Business and Professions Code of the State of California.

(C) PERMITS AND LICENSES - Unless otherwise explicitly provided in these specifications, the Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work.

(D) PATENTS - The Contractor shall assume all costs arising from the use of patented materials, equipment, devices or processes used on or incorporated in the work and agrees to indemnify and save harmless the District, the Engineer, and their duly authorized representatives from all suits of law or actions of every nature for or on account of the use of any patented material, equipment, devices or processes.

(E) PUBLIC CONVENIENCE AND SAFETY - The Contractor shall so conduct his operations as to cause the least public obstruction and inconvenience to public travel. Convenient access to driveways, houses and buildings along the line of work shall be maintained and temporary crossings shall be provided and maintained in good condition. Not more than one crossing or intersection street or road shall be closed at any one time without the approval of the Engineer.

During the performance of the work the Contractor shall erect and maintain temporary fences, bridges, railings, and barriers and take all other necessary precautions and place proper guards for the prevention of accidents; shall put up and keep suitable and sufficient lights and other signals and shall indemnify and save harmless the District, Board, Engineer, its officers and agents and employees from all damages and costs to which they may be put by reason of injury to persons or property resulting from the Contractor's negligence or carelessness in the performance of the work, or in guarding the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the Contractor or his agents.

The Contractor shall be responsible for all damage or injury which may be caused on any property by trespass by the Contractor or his employees in the course of their employment whether the said trespass was committed with or without the consent or knowledge of the Contractor.

(F) RESPONSIBILITY FOR DAMAGE - The District, the Board, the Engineer, their consultants or duly authorized agents and employees shall not be answerable or accountable in any manner for any loss or damage that may happen to the work or any part thereof or for any material or equipment used in performing the work, or for injury or damage to any person or persons, either workmen or the public, or for damage to adjoining property from any cause whatsoever during the progress of the work at any time before final acceptance of the work.

The Contractor shall indemnify and save harmless the District, the Board, the Engineer, their consultants, and duly authorized agents, or employees from any suits, claims or actions brought by any person or persons for or on account of any injuries or damages sustained or arising in the construction of the work.

(G) CONTRACTOR RESPONSIBILITY FOR WORK - Except as provided herein, until the formal acceptance of the work by the District, the Contractor shall have the charge and care thereof and shall bear the risk of injury where damage to any part thereof by the action of the elements or from any other cause whether arising from the execution or from the nonexecution of the work. The suspension of work from any cause shall not relieve the Contractor of his responsibility for the work and materials as herein specified. The Contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any of the previously mentioned causes before final acceptance and shall bear the expense thereof, except such injuries or damages occasioned by Acts of God, activities of the Federal Government or the public enemy.

(H) RESPONSIBILITY OF THE DISTRICT - The District shall not be held responsible for the care or protection of any material or parts of the work prior to final acceptance except as expressly provided in these specifications. The District will not be responsible for any changes in the Contractor's operations due to encountering obstructions which may interfere with the work.

(I) USE OF EXPLOSIVES - When the use of explosives is necessary for the prosecution of the work, the Contractor shall use the utmost care not to endanger life or property. All explosives shall be stored in a secure manner in accordance with the provisions of Division XI of the Health and Safety Code, Chapter 3, Statutes of 1939, amended, and shall be used in compliance with all state, county and city laws, ordinances and regulations governing such use. All such storage places shall be clearly marked "DANGEROUS - EXPLOSIVES".

(J) HOURS OF LABOR - Eight hours of labor shall constitute a legal day's work. The time of service of any workman employed in the execution of the contract is limited and restricted to eight hours during any one calendar day except in cases of extraordinary emergency caused by fire, flood, or danger to life or property. The Contractor shall forfeit $25.00 as penalty to the District for each laborer, workman or mechanic employed in the execution of the contract by him or by any subcontractor under him upon any of the work herein mentioned for each calendar day during which said laborer, workman or mechanic is required or permitted to labor more than eight hours in violation of the provisions of the Labor Code, in particular, Sections 1810 to 1817 inclusive, thereof.

(K) PREVAILING WAGE - The Contractor shall comply with Labor Code Section 1775. In accordance with Section 1775 the Contractor shall forfeit as a penalty to the District $25.00 for each calendar day or portion thereof for each workman paid less than the stipulated prevailing rates for such work or craft in which such workman is employed for any work done under the contract by him or by any subcontractor under him in violation of the provisions of the Labor Code and in particular, Labor Code Sections 1770 to 1780 inclusive. In addition to said Section 1775 the difference between such stipulated prevailing wage rates and the amount paid

to each workman for each calendar day or portion thereof for which each workman was paid less than the stipulated prevailing wage shall be paid to each workman by the Contractor.

(L) TRAVEL AND SUBSISTENCE - The Contractor shall pay travel and subsistence payments to each workman needed to execute the work as such payments are defined in the applicable collective bargaining agreements filed in accordance with Labor Code 1773.8.

(M) LEGAL ADDRESS OF CONTRACTOR - The address given in the Contractor's proposal on which the contract is founded is hereby designated as the place to which all notices, letters, and other communications to the Contractor shall be mailed or delivered, but this shall not be deemed to preclude the service of any notice, letter, or other communication upon the Contractor personally.

1-07 CONTRACTOR'S INSURANCE

(A) GENERAL - The Contractor shall not commence work under this contract until he has obtained all insurance required under this section and such insurance has been approved by the District, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar insurance required of the subcontractor has been obtained and approved. As evidence of specified insurance coverage, the Contractor shall provide certificates of insurance on the certificate forms provided herein. No alteration or substitution of said certificates will be allowed.

(B) INDEMNITY - The Contractor shall hold harmless, indemnify and defend the District, the Board, their Engineer, their consultants and all duly authorized agents from all liability claims, losses or damage, including attorney's fees arising or alleged to arise from and all actions of the Contractor or subcontractors in the performance of the work, or nonperformance of the work, unless said claims, losses or damages result from the sole negligence of one or more of the above names.

(C) WORKMEN'S COMPENSATION INSURANCE - The Contractor shall take out and maintain during the life of this contract workmen's compensation insurance for all of his employees engaged on or at the site of the project. In case any of his work is sublet, the Contractor shall require the subcontractor similarly to provide workmen's compensation insurance carried by the Contractor. This insurance shall be in strict accordance with the requirements of the most current and applicable state workmen's compensation insurance laws. In case any class of employees engaged in hazardous work under this contract on or at the site of the project is not protected under the Workmen's Compensation Statute and in case any other class of employees is not protected under the Workmen's Compensation Statute for any reason, the Contractor shall provide and shall cause each subcontractor to provide adequate insurance coverage as shall be satisfactory to the District for the protection of such employees not otherwise protected.

(D) COMPREHENSIVE GENERAL LIABILITY - The Contractor shall take out and maintain during the life of this contract full comprehensive general liability insurance coverage. The coverage shall protect the Contractor, the District, the Board, the Engineer, their consultants and all duly authorized agents from all claims for personal

injury including accidental death as well as from all claims for property damage arising from operations under this Contract.

The amounts of coverage for both bodily injury and property damage shall be not less than the limits shown in Section 2, Special Conditions.

(E) BUILDERS' "ALL RISK" INSURANCE - The Contractor shall take out and maintain during the life of this contract, builders' "All Risk" completed value insurance (including flood, but excluding earthquake and tidal wave) on the entire project which is to be completed under the terms and conditions of this contract. A deductible of 5% or $10,000.00, whichever is the smaller, may be a provision of this insurance.

1-08 GUARANTEES

Besides guarantees required elsewhere, the Contractor shall and hereby does guarantee the work for a period of one year after the period of one year after the date of acceptance of the work by the District and shall repair and replace any and all such work, together with any other work which may be displaced that in so doing may prove defective in workmanship and/or materials within the one year period from date of acceptance, 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 within a week after being notified in writing, the District is hereby authorized to proceed to have the defects repaired and made good at the expense of the Contractor, who hereby agrees to pay the cost and charges therefor immediately upon demand. The Faithful Performance Bond and Payment Bond shall remain in effect for the one year guarantee period.

1-09 SHOP DRAWINGS

The Contractor shall at his own expense furnish for review by the Engineer any and all shop drawings required by the specifications or that may be called for by the Engineer of any and all material, work, and equipment he proposes to use. These shop drawings shall be checked by the Engineer and two copies, with comments, returned to the Contractor within fifteen working days of their receipt by the Engineer. Preliminary shop drawings shall be submitted in quadruplicate accompanied by a letter of transmittal and shall be addressed to the Engineer for review. The letter of transmittal shall give a list of the numbers of the drawings submitted. All drawings must be marked with the name of the project and the name of the Contractor and be numbered consecutively. All drawings must be complete in every respect.

The Contractor shall make such corrections as shall be required by the Engineer and receive the Engineer's stamp before commencing the work involved. If the shop drawings show variations from the contract requirements because of standard shop practices or other reasons, the Contractor shall make specific mention of such variations in his letter of transmittal in order that (if allowable) suitable action may be taken for proper adjustment of the contract, otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the contract even though the shop drawings have been allowed. Review of shop drawings by the Engineer will be to determine general compliance with the

plans and specifications and shall not relieve the Contractor from the responsibility for proper fitting and construction of the work nor from furnishing the material and work required by the contract which may not be indicated on the shop drawings when allowed, neither does it relieve him from responsibility for errors in shop drawings.

Final allowed drawings in form and number shall be submitted to the Engineer upon request.

1-10 ESTIMATES AND PAYMENTS

(A) PROGRESS PAYMENTS - The District shall, on or before the tenth day of each calendar month after actual construction work is started, except in case of final estimate hereinafter provided, cause an estimate in writing to be made by the Engineer of the total amount of the work done and materials furnished by the Contractor and incorporated into the work to the first day of the month in which the estimate is made. In estimating such value, the Engineer may take into consideration, along with other facts and conditions deemed to him to be proper, the ratio of the difficulty of the work done to the probable difficulties of the work to be done. The District shall retain 10% of such estimated value as part security for the fulfillment of the contract by the Contractor within fifteen days after the preparation of such estimate and receipt of an invoice in the amount of the estimate, pay to the Contractor the balance of such estimated value after deducting therefrom all previous payments and all sums to be kept or retained under the terms of the contract.

(B) FINAL PAYMENT - The Engineer shall after the satisfactory completion of the work, make a final estimate of the amount of work done thereunder and the value of said work. If the District finds the work has been completed according to the contract, the District shall find and declare the work to be accepted, shall cause a notice of completion to be recorded with the County Recorder, and shall authorize the payment of the entire sum so found to be due after deducting therefrom all previous payments and all amounts to be retained under the provisions of the contract. All prior partial payments shall be subject to correction in the final estimate and payment. The final payment shall not be due and payable until the expiration of thirty-five (35) days from the date of filing a notice of completion of the work by the District.

It is mutually agreed between the parties to the contract that no certificate given or payment made under the contract shall be conclusive evidence of performance of the contract, and no payment shall be construed to be an acceptance of any defective work or improper materials.

The Contractor further agrees that the payment of the final amount due under the contract, and the adjustments and payments for any work done in accordance with any alterations of the same shall release the District, the Board of Directors, and the Engineer, their consultants and duly authorized agents and employees, from any and all claims of liability on account of work performed under the contract or any alteration thereof.

(C) EXTRA WORK - In giving instruction to the Contractor, the Engineer shall have authority to make minor changes in the work not involving extra cost and not inconsistent with the purpose of the work.

If the Contractor claims that any such instructions involve extra costs or time under this contract, he shall give the District written notice thereof within a reasonable time, not to exceed ten days, after receipt of such instructions, and in any event before proceeding to execute the work.

No claim for extra costs shall be valid unless made in writing by the Contractor and approved in writing by the District.

Extra work when ordered and accepted shall be paid for under a written change order in accordance with the terms therein provided. Payment for extra work will be made by: (1) lump sum, based on negotiated price, or (2) unit prices contained in the proposal or previously agreed upon between the Contractor and the District, or by (3) a "force account" agreement whereby the Contractor is reimbursed for the cost of labor, material, and equipment rented as follows:

(1) MATERIAL PURCHASED BY THE CONTRACTOR - Material purchased by the Contractor, including sales tax, freight and delivery charges as shown by original paid invoices, will be paid in full by the District plus 15% for the Contractor's profit and overhead. No percentage will be paid to the Contractor for any material furnished by the District.

(2) WAGES FOR ALL LABOR - Wages for all labor as shown on certified copies of Contractor's payroll, directly engaged in the work and including workmen's compensation insurance and such additional amounts paid by the Contractor's profit and overhead, will be paid by the District.

(3) EQUIPMENT CHARGES - Equipment will be paid for as a rental charge whether owned by the Contractor or not, and said rental rates prevailing in the District for comparable equipment will be paid by the District plus 15%. No payment will be allowed for the use of small tools and minor items of equipment which, as used herein, are defined as individual tools or pieces of equipment having a replacement value of FIFTY DOLLARS ($50.00) each or less.

(4) SUBCONTRACTOR PAYMENT - Work performed by a subcontractor will be paid for based on actual paid invoices for work done under subcontract, plus 10% on the first $2,000 of the subcontracted portion of the work and 5% on work in excess of $2,000 of the subcontracted portion of the work for the Contractor's overhead.

All labor, material, equipment, and subcontract work used under "force account" must be accepted by the Engineer at the time of its use as verified by a daily work sheet submitted by the Contractor and signed by the Engineer. The District will not pay for any items used in the performance of "force account" work not so verified by the Engineer.

SECTION 2

SPECIAL CONDITIONS

2-01 SCOPE

It is the requirement that water facilities be constructed at the location and design conforming to the plans and specifications for the Laguna Beach County Water District, Orange County, California. The Contractor shall furnish all transportation, materials, tools, equipment, labor and supplies to construct all water facilities and appurtenant work necessary or incidental to complete in a workmanlike manner the improvements as contemplated by these plans and specifications.

2-02 CONTRACTOR'S LICENSE

The Contractor shall have a valid General Engineering Contractor's Class A License or a Class C-34 Pipeline Contractor's License; in accordance with Chapter 9, Division 3, of the California Business and Profession Code. The Contractor shall also have a valid Business License issued by the governing agency within whose boundaries the work is being performed.

2-03 BEGINNING AND COMPLETION OF WORK

The Contractor shall begin work within fifteen (15) days after award of contract and shall complete all of the work within the specified contract period.

2-04 SANITATION

All parts of the work shall be maintained in a neat, clean and sanitary condition. Fixed and portable toilets shall be provided wherever needed for use of employees and their use shall be strictly enforced. All waste and refuse from sanitary facilities provided by the contractor or from any other source related to the Contractor's operations shall be taken care of in a sanitary manner satisfactory to the Engineer and in accordance with the laws and regulations pertaining thereto. The Contractor shall furnish all the facilities and means for the proper sanitation of the work and shall protect and save harmless the District, its officers and employees from any liability resulting from improper or insufficient sanitation facilities.

2-05 FIRST AID AND PROTECTIVE FACILITIES

First Aid facilities and supplies shall be kept on the work site and instructions in First Aid shall be given as required by State and Federal Regulations. The Contractor shall provide and maintain all measures required by said regulations for the safety and protection of employees.

2-06 CONTRACTOR TO PROVIDE FACILITIES FOR EMPLOYEES

The Contractor shall, at his own expense, provide all labor, materials, equipment and facilities which may be required to carry out effectively the provisions of these specifications. The Contractor shall receive no direct payment therefor, but all compensation to be received for such work shall be included in the unit price bid for the several contract items of the lump sum contract amount.

2-07 WATER SUPPLY

The District will furnish water at locations along the route of construction through metered connections. The Contractor shall give 24 hours written notice in requesting the District to move metered connections to conform to work operations.

2-08 RIGHT-OF-WAY

District shall provide necessary right-of-way for construction of the pipeline and appurtenances to be constructed under this contract.

2-09 DUST ABATEMENT

During the performance of the work included in these specifications or any operations included thereto, whether on right-of-way provided by District or elsewhere, the Contractor shall furnish all labor, equipment, materials and means required to carry out proper and efficient measures wherever and as often as necessary to reduce dust nuisance and to prevent dust originating from his operations. The Contractor will be held liable for any damages resulting from dust originating from his operations under these specifications on the District's right-of-way or elsewhere. The cost of sprinkling or other methods to reduce dust shall be included in the unit price bid in the schedule for other items of work.

2-10 PERMIT AND INSPECTION COSTS - OTHER AGENCIES

Wherever the property of the City of Laguna Beach, Orange County, or the State of California is affected by the work included in the contract, the Contractor shall bear all costs of permits, inspections and traffic regulations lawfully enacted by said City, County, State or other agency during the time of performing the work affecting said property.

2-11 UTILITIES AND SUBSTRUCTURES

The plans show the position of various pipes, conduits, poles and structures, as they are supposed to exist along the line of work. It shall be the responsibility of the Contractor to verify the existence, position and ownership of such facilities and no error or omission on said plans shall relieve the Contractor from his responsibility in protecting any such pipe, conduit, pole or other structures.

2-12 PROTECTION OF UTILITIES

Any pipeline, conduit, sewer, culvert, storm drain, pole line, overhead or underground wire or cable or any other facility or structures shall be supported or protected against damage and maintained in good operating condition at the expense of the Contractor. In no case shall any such property be disturbed or removed without the consent of the owner and the approval of the Engineer. The grades for pipeline construction are subject to revision if necessary to avoid interference with such properties. Should it be found necessary to cut any water or gas main, sewer, house connection, sewer or storm drain, the Contractor shall, at his own expense, make such temporary connections as are necessary to maintain the flow in such mains, sewers or drains, until such time as the progress of the work permits him to restore the permanent facilities.

2-13 CONSTRUCTION OF UTILITIES

The Contractor shall be responsible for providing for and in behalf of this work under this contract, at no cost to the District, all necessary utilities such as special connection to water supply, water supply pumping and storage, telephone, power line, fences, roads, watchmen, suitable storage places, etc.

2-14 APPROVAL OF CONTRACTOR'S PLANS

The approval of the Engineer of any drawings or methods of work proposed by the Contractor in accordance with Paragraph 1-09 of the Standard Specifications for Laguna Beach County Water District shall not relieve the Contractor of any of his responsibility for any risk or liability by the District, or any officer, employee or Engineer thereof.

2-15 LIQUIDATED DAMAGES FOR DELAY

It is agreed by the parties to the contract that time is of the essence and that in case all the work is not completed before or upon the expiration of the time limit as set forth elsewhere in the Contractor specifications, damage will be sustained by the District, and that it will be impractical to determine the actual amount of damage by reason of such delay, and it is agreed that the Contractor will pay to the District the sum described below for each calendar day beyond the time prescribed for completion of the work:

(A) For projects with a final contract price up to $200,000, the Contractor shall pay the sum of $500 for each calendar day beyond the time prescribed for completion of the work.

(B) For projects with a final contract price over $200,000, the Contractor shall pay the sum for each calendar day beyond the time prescribed for completion of the work in accordance with the following formula:

Liq. Dam./ calendar day = (0.15 x final contract price) / calendar days allowed for the project

2-16 STANDARD SPECIFICATIONS

Wherever standard specifications are referred to, they shall be considered to be a part of these specifications, insofar as they apply. Standard specifications from the following sources are referred to herein and shall be the latest adopted standard, unless otherwise specified.

American Institute of Steel Construction (AISC)
American Institute for Testing Materials (ASTM)
American Water Works Association (AWWA)
Federal Specification (Fed Spec)
National Electrical Manufacturers Association (NEMA)
Standard Specifications, State of California,
Department of Transportation (CALTRANS)
Uniform Building Code (UBC)
Standard Specifications for Public Works Construction,
2006 Edition (APWA, AGC)

2-17 PROGRESS SCHEDULE AND REPORTS

Before beginning work, the Contractor shall file with the Engineer a proposed schedule of progress indicating the various subdivisions of the work and the dates of commencing and finishing each. On the 25th day of each calendar month, a copy of the schedule shall be submitted with notes thereon indicating the percentage of completion of each division of the work on that date. The form of the schedule shall be approved by the Engineer.

2-18 EXCAVATION PERMITS

For all excavations which are five feet or deeper, the Contractor shall obtain a permit from the applicable agency as is required by Labor Code Section 6424 and shall prepare and submit to the Engineer a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for protections as required by Labor Code Section 6424.

Nothing contained in this article shall be construed as relieving the Contractor of the full responsibility for providing shoring, bracing, sloping, or other provisions which are adequate for worker protection.

2-19 ACTS OF GOD

The Contractor shall not be responsible for the cost of repairing or restoring damage to the work caused by an ACT OF GOD. However, the Contractor shall provide the District with insurance which indemnifies the District for any damage to work caused by an ACT OF GOD. The cost for the premiums for such insurance shall be set out as a separate bid item in the proposal. The District reserves the right to waive such insurance and to reduce the amount of the proposal accordingly.

"ACTS OF GOD" shall include only the following occurrences or conditions and effects: earthquakes and tidal waves, when such occurrences or conditions and effects have been proclaimed a disaster or state of emergency by the Governor of the State of California, or by the President of the United States, or were of a magnitude at the site of the work sufficient to have caused a proclamation of disaster or state of emergency had they occurred in a populated area.

2-20 WORKING HOURS

The working hours shall be limited to the hours of 7:30 a.m. to 5:00 p.m., Monday through Friday, in accordance with the ordinance of the City of Laguna Beach. Permission in writing from the Water District and City of Laguna Beach must be obtained for work during any hours other than stated above.

2-21 PUBLIC STREETS AND RIGHTS-OF-WAYS

All streets and public ways used by the Contractor shall be kept free from dust and mud. At least one-half (1/2) of the width of each street or public way shall be kept open to traffic, unless otherwise permitted by governing authorities. Detours, as required by governing authorities, shall be provided by the Contractor at his expense.

2-22 FLOW OF DRAINS

The Contractor shall take care of storm water and waste water reaching the right-of-way from any source, so that no damage will be done to the trench, pipe, or structures. The Contractor shall be responsible for any damage to persons or property on or off the right-of-way due to interruption or diversion of such storm or wastewater on account of his operations. Under no circumstances shall the Contractor allow dirt, mud, or other debris generated by his work to flow into any storm drain, or natural water course. Adequate means will be provided by the Contractor to stop the debris from reaching any storm drain inlet and any accumulation of debris will be cleaned up on a daily basis.

2-23 PROPERTY PROTECTION

The Contractor shall be liable for all damages and costs on account of any unauthorized removal of trees, shrubs, lawns, flower beds, and other vegetation in connection with his operations, wherever located.

2-24 BARRICADES, GUARDS AND SAFETY PROVISIONS

Adequate barricades, construction signs, flashing beacons, warning lights, and guards as required shall be placed and maintained during the progress of the construction work and until it is safe for traffic to use the trenched highways. Whenever required, flagmen shall be provided to control traffic. The rules and regulations of the State of California, and all regulations of local authorities respecting safety provisions shall be observed.

2-25 INTERRUPTION OF WATER SERVICE

No valve or other control on the existing water system shall be operated for any purpose by the Contractor without approval of the Engineer. All consumers affected by such operation shall be notified by the Contractor at least 24 hours before the operation and advised of the probable time when the service will be restored. If it becomes necessary to interrupt water service to any existing system, this interruption may be done at night and no extra compensation will be allowed by the District for doing this work outside of normal working hours. The Contractor shall notify the District forty-eight (48) hours in advance of interruption and District will post required notice.

2-26 PRESERVATION OF MONUMENTS

The Contractor shall preserve all bench marks, monuments, survey marks, and stakes. In case of their removal or destruction by him or his employees, he shall be liable for the cost of their replenishment.

2-27 WAGE RATE DETERMINATION

Pursuant to the Labor Code of the State of California, Sections 1720-1780 inclusive, as amended, the Board of Directors of the Laguna Beach County Water District has obtained, in accordance with Section 1773, the general prevailing rate of per diem wages and the general prevailing rate of per diem holiday and overtime work as determined by the Director of the Department of Industrial Relations. Copies of the above-mentioned prevailing rates are on file in the office of the Secretary of the District, and the Contractor shall have a copy posted at the job site.

2-28 CONTRACTOR'S INSURANCE

Before commencing any work, the Contractor, at Contractor's expense shall obtain for the full work period of the contract, Workers' Compensation Insurance, Comprehensive Liability, Public Liability and Property Damage Insurance and Automobile Public Liability Insurance, as specified hereinafter and shall furnish to the District certificates from insurance carriers showing that all of said insurance requirements have been fully met and complied with.

(A) COMMERCIAL GENERAL LIABILITY AND AUTOMOBILE LIABILITY INSURANCE - The Contractor shall provide and maintain the following commercial general liability and automobile liability insurance:

(1) Coverage. Coverage for commercial general liability and automobile liability insurance shall be at least as broad as the following:

(a) Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 0001)

(b) Insurance Services Office (ISO) Business Auto Coverage (Form CA 0001), covering Symbol 1 (any auto)

(2) Limits. The Contractor shall maintain limits of no less than the following:

(a) General Liability. Three million dollars ($3,000,000) per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit or products-completed operations aggregate limit is used, either the general aggregate limit shall apply separately to the project/location (with the ISO CG 2503, or ISO CG 2504, or insurer's equivalent endorsement provided to the District) or the general aggregate limit and products-completed operations aggregate limit shall be twice the required occurrence limit.

(b) Automobile Liability. Three million dollars ($3,000,000) for bodily injury and property damage each accident limit.

(3) Required Provisions. The general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:

(a) The District, its directors, commissioners, officers, employees, agents, consultants, assigns, and authorized volunteers are to be given insured status (via ISO endorsement CG 2010, CG 2033, or insurer’s equivalent for general liability coverage) as respects: liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; and automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the District, its directors, commissioners, officers, employees, agents, consultants, assigns, or authorized volunteers.

(b) For any claims related to this project, the Contractor's insurance shall be primary insurance as respects the District, its directors, commissioners, officers, employees, agents, consultants, assigns, or authorized volunteers. Any insurance, self-insurance, or other coverage maintained by the District, its directors, commissioners, officers, employees, agents, consultants, assigns, or authorized volunteers shall not contribute to it.

(c) Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the District, its directors, commissioners, officers, employees, agents, consultants, assigns, or authorized volunteers.

(d) The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

(e) Each insurance policy required by this agreement shall state, or be endorsed to state, that coverage shall not be canceled by the insurance carrier or the Contractor,

except after thirty (30) days (10 days for non-payment of premium) prior written notice by U.S. mail has been given to the District.

(4) Indemnification. Such liability insurance shall indemnify the Contractor and its sub-contractors against loss from liability imposed by law upon, or assumed under contract by, the Contractor or its sub-contractors for damages on account of such bodily injury (including death), property damage, personal injury, completed operations, and products liability.

(5) General Liability Coverage. The general liability policy shall cover bodily injury and property damage liability, owned and non-owned equipment, blanket contractual liability, completed operations liability, explosion, collapse, underground excavation, and removal of lateral support.

(6) Automobile Liability Coverage. The automobile liability policy shall cover all owned, non-owned, and hired automobiles.

(7) Policy Forms/Companies. All of the insurance shall be provided on policy forms and through companies satisfactory to the District.

(8) Deductibles and Self-Insured Retentions. Any deductible or self-insured retention must be declared to and approved by the District. At the option of the District, the insurer shall either reduce or eliminate such deductibles or self-insured retentions.

(9) Acceptability of Insurers. Insurance is to be placed with insurers having a current A.M. Best rating of no less than A-VII or equivalent or as otherwise approved by the District. The Contractor shall waive all rights of subrogation against the District, its directors, commissioners, officers, employees, agents, consultants, assigns, or authorized volunteers.

(10) Evidences of Insurance. Prior to execution of the agreement, the Contractor shall file with the District a certificate of insurance (Acord Form 25-S or equivalent) signed by the insurer's representative evidencing the coverage required by this agreement. Such evidence shall include an additional insured endorsement signed by the insurer's representative and evidence of waiver of rights of subrogation against the District (if builder's risk insurance is applicable). Such evidence shall also include confirmation that coverage includes or has been modified to include 9.a.(3) Required Provisions (a)-(e) (described above).

(l1) Delivery to District. The Contractor shall, upon demand of the District, deliver to the District such policy or policies of insurance and the receipts for payment of premiums thereon.

(12) Continuation of Coverage. If any of the required coverages expire during the term of this agreement, the Contractor shall deliver the renewal certificate(s) including the general liability additional insured endorsement and evidence of waiver of rights of subrogation against the District (if builder's risk insurance is applicable) to the District at least ten (10) days prior to the expiration date.

(13) Sub-Contractors. In the event that the Contractor employs other contractors (sub-contractors) as part of the work covered by this agreement, it shall be the Contractor's responsibility to require and confirm that each sub-contractor meets the minimum insurance requirements specified in this Paragraph 9.

(B) WORKERS' COMPENSTION AND EMPLOYER'S LIABILITY INSURACNE - By signing this Contract, Contractor certifies that Contractor is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and Contractor will comply with such provisions before commencing the performance of the work of this agreement. Contractor, at its own cost and expense, must procure and maintain during the performance of this Contract a policy of workers' compensation or employer's liability insurance for the protection of its employees (including executive, managerial, and supervisorial employees) engaged in work on the project, and must, on demand, deposit with District a certificate evidencing such policy. The Contractor and all sub-contractors shall insure (or be a qualified self-insured) under the applicable laws relating to workers' compensation insurance, all of their employees working on or about the construction site, in accordance with the "Workers' Compensation and Insurance Act", Division IV of the Labor Code of the State of California and any Acts amendatory thereof. The Contractor shall provide employer's liability insurance with limits of no less than $3,000,000 each accident, $3,000,000 disease policy limit, and $3,000,000 disease each employee.

(C) BUILDER'S RISK INSURANCE - The Contractor shall provide and maintain builder's risk insurance (or installation floater) covering all risks of direct physical loss, damage or destruction to the work in the amount specified in the General Conditions, to insure against such losses until final acceptance of the work by the District. Such insurance shall insure at least against the perils of fire and extended coverage, theft, vandalism and malicious mischief, and collapse. The District, its directors, commissioners, officers, employees, agents, consultants, assigns, and authorized volunteers shall be named insureds on any such policy. The making of progress payments to the Contractor shall not be construed as creating an insurable interest by or for the District or be construed as relieving the Contractor or its subcontractors of responsibility for loss from any direct physical loss, damage or destruction occurring prior to final acceptance of the work by the District.

SECTION 3

EARTHWORK

3-01 GENERAL

The Contractor shall perform all earthwork required for construction of the work as specified in Section 300 of the Standard Specifications for Public Works Construction, Latest Edition as hereinafter modified, and as shown on the contract plans.

3-02 PIPELINE TRENCH EXCAVATION

(A) GENERAL - Unless otherwise shown or ordered, excavation for pipelines shall be open-cut trenches. The bottom of the trench shall have a minimum width equal to the outside diameter of the pipe plus 12 inches and a maximum width equal to the outside diameter of the pipe plus 20 inches. Except when otherwise shown or ordered by the Engineer, the bottom of the trench shall be excavated uniformly to the slope of the bottom of the pipe. Each pipe joint shall be laid on two (2) firm earth mounds 6 inches wide running laterally along the complete trench width with the center of each mound placed one-fifth of the pipe length from each end. The earth mounds shall be of sufficient height to maintain a 2-inch minimum clearance from coupling to undisturbed trench bottom. Earth mounds shall be of approved backfill material tamped in place. The maximum amount of open trenches permitted in any one location shall be 300 feet. All trenches shall be fully backfilled at end of each day or, in lieu thereof, when approved by the Engineer, a heavy steel plate adequately braced and capable of supporting vehicular traffic may be used in certain locations where it is impractical to backfill at the end of each day.

(B) TRENCH OVEREXCAVATION WHERE SHOWN - Trenches shall be overexcavated where shown, to the depth shown, then backfilled to the grade of bottom of the pipe with suitable selected granular material or with sand. Said backfill shall be brought to optimum moisture content and compacted to 95 percent relative compaction where the pipeline trench passes under structures and paved areas, and 90 percent elsewhere. Work specified in this Subsection shall be performed by the Contractor at his own expense.

(C) TRENCH OVEREXCAVATION WHEN ORDERED - Trenches shall be overexcavated beyond the depth shown, when ordered by the Engineer. Such overexcavation shall be to the depth ordered. The trench shall be refilled to grade of the bottom of the pipe with either selected granular material obtained from the excavation, sand, or crushed rock, at the option of the Engineer. When crushed rock bedding is ordered, the material shall be a well-graded material of 1-1/2-inch maximum size. Bedding material shall be placed in layers, brought to optimum moisture content, and compacted to 95 percent relative compaction where the pipeline trench passes under structures and paved areas, and 90 percent elsewhere. Payment for overexcavation ordered by the Engineer will be made under separate unit price bid items for overexcavation and bedding if such bid items have been established; otherwise payment will be made in accordance with a negotiated price.

3-03 OVEREXCAVATION NOT ORDERED, SPECIFIED, OR SHOWN

Any overexcavation carried below the grade ordered, specified or shown, shall be refilled to the required grade with suitable selected granular material. Such material shall be moistened as required and compacted to 95 percent relative compaction under structures and paved areas, and 90 percent elsewhere. Such work shall be performed by the Contractor at his own expense.

3-04 DISPOSAL OF EXCESS EXCAVATED MATERIAL

The Contractor shall remove and dispose of all excess excavated material at his own expense.

3-05 PIPELINE TRENCH BACKFILL

(A) Pipeline trenches shall be backfilled to a level 6 inches above the top of the pipe with imported sandy material having a sand equivalent value of not less than 20. Cost for the imported sandfill shall be included in the bid prices for all pipeline installations. Such material shall be compacted to 95 percent of relative compaction where the trench is located under structures and paved areas, and 90 percent elsewhere. Compaction shall be obtained by mechanical means or, if approved by the Engineer, by using excess water and passing a concrete vibrator between the pipe and the side of the trench.

(B) After the initial portion of backfill has been placed as specified above, and after all excess water has been completely drained from trench, backfilling of the remainder of the trench may proceed. The remainder of the backfill shall be selected material obtained from the excavation and shall be placed in horizontal layers 8-inches in thickness. Each layer shall be moistened, tamped, puddled, rolled or otherwise compacted to 95 percent relative compaction where the trench is located under structures and paved areas, and 90 percent elsewhere. Each layer shall be flooded, jetted and pooled to secure complete saturation of the material before placing the next layer. Prior to flooding and jetting, the pipe shall be filled with water to prevent floating.

3-06 COMPACTION TESTS

Where backfill is required to be compacted to a specific density, tests for compliance may be made by the Owner, at the expense of the Owner, using the test procedure specified in Section 211 of Standard Specifications for Public Works Construction, Latest Edition.

3-07 CUTTING AND RESTORING EXISTING PAVEMENT

(A) Street resurfacing destroyed in connection with performing the work required under the contract shall be replaced with the same kind or better by the Contractor in accordance with the latest specifications, rules, and regulations, and subject to the inspection of the agency having jurisdiction. If a strip of existing pavement less than three feet is left between the

trench and a gutter or edge of pavement, it shall be removed and a new pavement placed in its stead. In cutting or breaking up street surfacing, the Contractor shall not use equipment which will damage the adjacent pavement. All asphaltic and concrete pavement surfaces shall be scored with concrete sawing equipment; however, any Portland cement base under an asphaltic mix surface will not be required to be scored by sawing.

(B) Concrete sidewalks, curbs and gutters required to be removed in connection with performing the work under the contract shall be cut to the score marks and shall be replaced with the same kind or better by the Contractor in accordance with the rules and regulations, subject to inspection of the agency having jurisdiction.

(C) Immediately after completing the backfilling of any section of pipeline in a paved area, temporary resurfacing at least 1-1/2 inches in thickness, shall be placed over the backfilled trench and maintained by the Contractor at his own expense. Upon completion of substantial parts of the project, but not before the pipeline is tested, the temporary resurfacing shall be replaced with permanent resurfacing.

(D) Paving section shall be at least 1 inch thicker than existing pavement and shall extend at least twelve (12) inches either side of the trench width per LBCWD Standard Drawing No. 122. Unless otherwise specified, asphalt concrete pavement shall conform to Section 4, "Paving" of these Specifications.

3-08 SHEETING AND SHORING

Banks of open cut trenches shall be kept vertical and where necessary the trench shall be properly sheeted and braced. On all trenches, open excavations, borings or jacking pits which are 5 feet or deeper, the Contractor shall obtain a permit from the applicable agency as required by California Labor Code 6424. All bracing, shoring and sheeting shall comply with the CAL-OSHA Construction Safety Orders.

3-09 ROCK REFILL

Should the bottom of the excavation for trenches or structures be soft or unyielding or where hard rock or groundwater is encountered, rock refill for producing an adequate foundation for the pipe and structures shall be furnished by the Contractor and placed as ordered by the Engineer. Refill shall consist of pit run gravel or crushed rock approved by the Engineer and composed of sound durable particles that will pass through a vibrating screen having 1-1/2-inch square openings and not more than 10 percent of which pass through No. 4 sieve. It shall be carefully placed and sufficiently compacted by tamping or otherwise in a manner satisfactory to the Engineer, so as to support without settlement, the pipe or structure which is placed on it. Payment for rock refill shall be at the unit price named in the Bidding Schedule and shall include payment for excavation below normal trench section or sub-base structures.

3-10 SAND BEDDING

Sand bedding shall be required on all pipeline installations unless otherwise stated on the plans or allowed by the Engineer. In rocky ground a 6-inch sand bedding is required. In stable soil where trench conditions provide uniform bottom for support, a two-inch clearance below the coupling shall be provided for sand bedding. Bedding material shall have a sand equivalent of 20.

3-11 MEASUREMENT AND PAYMENT

Payment for all earthwork and other site work, except as noted hereinafter, shall be included in the payment to be made for other bid items, such as furnishing and installing pipelines in accordance with the plans and specifications.

Overexcavation ordered by the Engineer will be measured by the cubic yard within the limits so directed. Payment therefor will be made at the unit price contained in the Bid Proposal.

Additional bedding ordered by the Engineer shall be measured by the ton for imported material delivered to the job site and placed in the work to bring the bottom of the trench to the bottom of the bedding level. The cost shall include added bedding, placement and compaction. Payment therefor will be made at the unit price contained in the Bid Proposal.

SECTION 4

PAVING

4-01 GENERAL

Paving materials and methods of construction shall be in accordance with the referenced sections of the Standard Specifications for Public Works Construction, Latest Edition, hereinafter referred to as Standard Specifications. All provisions contained in the referenced Standard Specifications involving "measurement and payment" are not applicable to work performed under this contract.

4-02 SUBGRADE PREPARATION

The subgrade shall be prepared as specified in Section 301-1 of the Standard Specifications. Two-inch by four-inch redwood headers shall be firmly staked in the proper positions along all edges other than those where pavement is to be placed against existing concrete or paved surfaces.

4-03 PRIME COAT

Where asphaltic-concrete pavement is to be constructed directly on compacted earth, a prime coat of MC-70 liquid asphalt shall be applied to the subgrade at a rate of 0.10 to 0.25 gal. per sq. yd. Prime coat shall not be applied where pavement is to be constructed on aggregate base.

4-04 CRUSHED AGGREGATE BASE

Crushed aggregate base shall be provided where shown and to the thickness shown. Materials for crushed aggregate base shall be as specified in Section 200-2.2 of the Standard Specifications. Construction of the crushed aggregate base course shall be as specified in Section 301-2 of the Standard Specifications.

4-05 TACK COAT

A tack coat shall be applied to existing paved surfaces where new asphaltic-concrete is to be placed upon existing pavement, or where it overlaps existing pavement, or where it abuts existing pavement along cut trench edges. Tack coat shall be as specified in Section 302-5.3 of the Standard Specifications.

4-06 ASPHALTIC CONCRETE

Asphaltic concrete shall be as specified hereinafter in accordance with Section 203-6 of the Standard Specifications. Where construction of the pavement is to be accomplished in a single course, Type D2-AR-4000 asphalt concrete shall be used. Where construction consists of

two or more courses, the surface course shall be Type D2-AR-4000 and the lower courses shall be Type B or C2-AR-4000. Asphalt concrete paving shall be placed as specified in Section 302-5 of the Standard Specifications.

4-07 TRAFFIC MARKING

If shown, pavement shall be striped using an approved traffic marking paint. Applications of paint shall be in accordance with the paint manufacturer's instructions.

4-08 MEASUREMENT AND PAYMENT

(A) PIPELINE TRENCHES - No separate measurement and payment for the installation of A.C. pavement and base over pipeline trenches will be made and all costs in connection therewith are to be included in the unit and lump sum prices included in the contract for the respective bid item, unless otherwise specified.

(B) AREAS OTHER THAN TRENCHES - Asphaltic concrete placed in areas other than trenches will be measured by the square foot of aggregate base and asphaltic concrete placed as shown on the Plans. Payment therefor shall be made at the unit price contained in the Bid Proposal for the respective bid item and shall include all cost in connection therewith including, but not limited to, earthwork, compaction of subbase, furnishing and placing aggregate base and asphaltic concrete, headers, traffic striping, traffic control, labor, materials, equipment, superintendence, overhead, and any and all other expenses not otherwise included in another bid item of the Contract.

SECTION 5

PIPING

5-01 GENERAL

(A) The Contractor shall furnish and install all fittings, closure pieces, supports, bolts, nuts, gaskets, jointing materials, and appurtenances as shown and specified, and as required for a complete and workable piping system.

(B) All exposed piping shall be adequately protected and supported with devices of appropriate design. Where details are shown, the supports shall conform thereto and shall be placed as indicated; provided that support for all piping shall be complete and adequate regardless of whether or not supporting devices are specifically shown.

5-02 STEEL PIPE

(A) GENERAL - Steel pipe and fittings shall be manufactured of steel plate of the thickness shown. Where not shown, the thickness shall be not less than 3/16th of an inch. Pipe materials, fabrication and shop testing of steel pipe and fittings shall conform to the requirements of Section 207-10 of the Standard Specifications for Public Works Construction, Latest Edition. All outlets, 4-inch diameter and larger, shall be provided with reinforcing designed for the water working pressure specified or shown.

(B) INSTALLATION

(1) The Contractor shall maintain the inside of the pipe free from foreign materials and in a clean and sanitary condition at all times. When the work of installing pipe is not in progress, all openings into the pipe in the trenches shall be kept tightly closed to prevent entrance of animals and foreign materials.

(2) The Contractor shall take the necessary precautions to prevent the pipe from floating due to water entering the trench from any source, shall assume full responsibility for any damage due to this cause, and shall at his own expense restore and replace the pipe to its specified condition and grade if it is displaced due to floating.

(3) The pipe sections shall be laid in place to true alignment and grade in accordance with the drawings. Special care shall be taken in placing the pipe and making the field joints. Bumping of the pipe in the trench will not be permitted. Fabric slings shall be used for handling coated pipe, and sandbags shall be used to support the pipe when stockpiled.

(4) Concrete thrust blocks shall be provided at the locations and in the size as shown. Bell holes of ample size shall be dug where joints are to be welded.

(5) In the case of mortar-lined pipe in sizes 20-inch and smaller, before the spigot is inserted into the bell, the bell end of the pipe shall be daubed with mortar containing 1 part of a nonshrink, nonmetalic cement to not more than 3 parts of sand, inserted into the bell and forced to the bottom of the bell.

(6) In the case of mortar-coated pipe, after the welding is completed and inspected by the Engineer the outside annular space between pipe sections shall be completely filled with grout. The grout shall be poured in such a manner that all exposed portions of the metal joint shall be completely protected with cement mortar. Grout used on the outside of joints shall be sufficiently fluid to permit it to be poured into the joint space. It shall be poured down one side of the pipe and allowed to flow up the other side. The outside mortar joints shall be properly formed by the use of heavy-duty diapers.

(7) Where butt straps or closure pieces are used, both the interior and exterior surfaces of the butt straps or closures pieces shall be given a coating equivalent to the factory-applied cement mortar or enamel coating of the adjoining pipe sections. Any exterior cement mortar coating in such cases shall be reinforced with wire mesh. Any interior cement mortar lining shall be similarly reinforced where the exposed length of the butt strap or closure piece, measured between the ends of connected pipe sections, exceed 4 inches.

5-03 SMALL STEEL PIPE

Unless otherwise shown, galvanized steel pipe and black steel pipe in sizes 6 inches in diameter and smaller shall conform to the requirements of the Specifications for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses (ASTM A120), and shall be standard weight. Galvanized steel pipe shall not be cement mortar lined unless otherwise shown. Fittings for galvanized steel pipe shall be of galvanized malleable iron.

5-04 STAINLESS STEEL PIPE

Unless otherwise shown, stainless steel pipe shall be Type 316 Schedule 40 threaded pipe conforming to the Specifications for Seamless and Welded Austenitic Stainless Steel Pipe (ASTM A312).

5-05 DUCTILE IRON PIPE

(A) GENERAL - Pipe, fittings and appurtenances shall conform to the thickness class

Ductile-Iron Pipe as designed on the plans. All bell and spigot end Ductile-Iron Pipe shall be new and shall conform to all requirements of Federal Specifications WW-P-421C, ANSI A21.51 (latest revision) and AWWA C151 (latest revision). All pipe and fittings shall be clearly marked with the name of the manufacturer or with a trademark of a size and type which has been approved by and filed with the District Engineer.

(B) LINING AND COATING- All Ductile-Iron Pipe and fittings, unless otherwise prescribed in another item of the Contract Documents, shall be coated with bituminous not less than one mil thick and shall be cement mortar lined as set forth in AWWA Specification C104 (latest revision).

(C) TYPE OF JOINTS - Ductile-Iron Pipe shall have any of the following types of joints as specified:

Push-on	Grip-tite
Tyton Joint	Approved Equal

(D) SPECIALS AND FITTINGS - All fittings for Ductile-Iron Pipe, unless otherwise required by the drawings or specifications, shall conform in all respects to the AWWA Specifications C-110 (latest revision).

(E) DELIVERY AND HANDLING - All pipe and fittings shall be manufactured, handled, loaded and shipped in such a manner that it is delivered undamaged, in sound condition, and conforming in all respects to these Specifications. Care shall be taken in loading and handling the pipe so as not to injure the pipe coating. No other pipe or material of any kind shall be placed inside any pipe or fitting at any time after the coating has been applied and prior to installation. All pipe and fittings installed on the work shall be new material which has never been previously used for any purpose whatsoever.

(F) INSTALLATION - Installation of Ductile-Iron Pipe and Fittings shall conform to the applicable provisions of the Publication of the Cast-Iron Pipe Research Association entitled "A Guide for the Installation of Ductile Iron Pipe", except as otherwise noted hereinafter or in another item of the Contact Documents.

(1) SUBGRADE - The subgrade beneath the centerline of the pipe shall be finished to within 0.03 feet of a straight line between pipe joints, and all tolerances shall be above the specified grade.

(2) HAMMER TEST - The pipe and fittings shall be inspected for defects and, while suspended above grade, be rung with a light hammer to detect cracks.

(3) PROTECTION OF LINING AND COATING - The asphalt coating and the cement lining shall be protected during laying operations and shall be repaired if damaged.

(4) CUTTING - The cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or cement lining and shall leave a smooth end at right angles to the axis of the pipe.

When machine cutting is not available for cutting pipe 20 inches in diameter or larger, the electric-arc cutting method will be permitted using a carbon or steel rod. Only qualified and experienced workmen shall be used on this work. The flame cutting of pipe by means of an oxyacetylene torch shall not be allowed.

(5) BELL END TO FACE DIRECTION OF LAYING - Pipe shall be laid with bell ends facing in the direction of laying, unless directed otherwise by the Engineer.

(6) PERMISSIBLE DEFLECTION AT JOINTS - Wherever it is necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, the amount of deflection shall be approved by the Engineer.

(7) POLYETHYLENE ENCASEMENT - Ductile iron pipe and appurtenances shall be encased with an 8 mil thick wrapping of polyethylene in accordance with the requirements of the American National Standard for Polyethylene Encasement for Gray and Ductile Cast-Iron Piping for Water and Other Liquids (AWWA C105).

5-06 RED BRASS PIPE

Brass pipe shall conform to the requirements of the Specifications for Seamless Red Brass Pipe, Standard Sizes (ASTM B 43). Fittings shall be of bronze conforming to the requirements of the Specifications for Composition Bronze or Ounce Metal Castings (ASTM B62).

5-07 COPPER TUBING

Copper tubing shall conform to the requirements of the Specifications For Seamless Copper Tube Water (ASTM B88), and shall be Type K (soft). Fittings shall be soldered or sweated on using lead free silver solder and shall be of cast bronze or forged brass containing 85 percent copper.

5-08 POLYVINYLCHLORIDE (PVC) PIPE

(A) GENERAL - Rigid PVC pipe shall be designed to carry water at hydrostatic pressures of 150 or 200 psi as shown on the plans. It shall have ring-gasket type couplings and fittings. Laying lengths shall be 20 feet with the manufacturer's option to supply up to 15% randoms (minimum length 10 feet). All fittings shall be of the same joint design as pipe recommended by the manufacturer. Pipe and pipe fittings shall be assembled with a nontoxic lubricant as recommended by the manufacturer. All pipe shall meet or exceed the minimum requirements of AWWA C900 for PVC pressure pipe.

(B) MATERIALS AND WORKMANSHIP

(1) EXCAVATION AND BACKFILL - Excavation and backfill shall conform to the provisions of the section herein titled "Earthwork".

(2) QUALITY OF PIPE

(a) Material Requirements - Material used to produce the pipe couplings, and fittings shall be made from Class 12454-A or B virgin compounds as defined in

ASTM D1784, with an established hydrostatic design basis rating of 4,000 psi for water at 73.4F (23 C).

(b) Conformance Requirements - All PVC pipe shall conform to the latest revisions of the ASTM standards listed in Subsection 1.3 of AWWA C900. The manufacturer shall furnish an affidavit that all delivered materials comply with the requirements of AWWA C900 and these specifications.

5-09 LOCATOR WIRE

On all nonmetallic pipelines and services a 14-gauge solid copper wire with a protective coating suitable for direct burial shall be placed longitudinally on the top center of the pipe and spliced together where necessary. Also, wire shall be connected to each copper water service or angle meter stop and each valve so that a continuous metal circuit is obtained. The locator wire shall be brought to the surface at valve locations, such wire being accessible by removal of and within 2 inches of the valve can covers. The wire shall be brought up through the outside of the valve can and valve well and be of sufficient length to be used by the District's detecting devices.

5-10 THRUST BLOCKS

Unless otherwise specified or shown on the plans, at all changes in alignment where bends and ties are installed and at reducers or fittings where changes in diameter occur, a thrust block as shown on the plans or in the District’s Standard Plans shall be installed. Thrust blocks shall be Portland cement concrete having a compressive strength of not less than 200 psi.

5-11 MECHANICAL-TYPE COUPLINGS

Mechanical-type couplings shall be designed for a water working pressure not less than the design pressure of the pipe on which they are to be installed, and shall be equipped with Grade H rubber gaskets. Couplings shall be Gustin-Bacon or Victaulic Style 44 when pipe ends are banded, and Gustin-Bacon or Victaulic Style 77 when pipe ends are grooved. Buried or submerged couplings shall be provided with Type 316 stainless steel bolts and nuts.

5-12 SLEEVE-TYPE COUPLINGS

Sleeve-type couplings shall be provided where shown, otherwise they shall not be used except for emergency repair, and shall be Rockwell, Smith-Blair, Style 411 or Style 412, equivalent styles manufactured by Dresser, or equal. Couplings shall be of steel with steel bolts, without pipe stop, and shall be of sizes to fit the pipe and fitting shown. The middle ring shall be not less than 1/4-inch in thickness and shall be either 5 or 7 inches long for standard steel couplings, and 16 inches long for long-sleeve couplings. Bolts for exposed couplings shall be hot-dip galvanized. Bolts for buried or submerged couplings shall be of type 316 stainless steel. All sleeve-type couplings shall be epoxy-coated at the factory as specified in Section 10, "Painting and Coating", of these Specifications. All buried sleeve-type couplings shall be wrapped with 8-mil polyethylene sheeting. The sheeting shall be taped in place.

5-13 GASKETS AND BOLTS

(A) Except as otherwise provided, gaskets for flanged joints shall be 1/8-inch thick rubber fabric.

(B) Wherever blind flanges are shown, the gaskets shall consist of 1/8-inch thick cloth-inserted rubber sheet which shall cover the entire inside surface of the blind flange and shall be cemented to the surface of the blind flange.

(C) Except as otherwise provided, bolts shall conform to the requirements of the section herein titled "Structural Steel and Miscellaneous Metalwork".

5-14 INSULATING BUSHINGS AND UNIONS

Pipe or fittings made of non-ferrous metals shall be isolated from ferrous metals, unless otherwise shown, by nylon insulating bushings, unions, or couplings as manufactured by Pipeline Coating and Engineering Co., Los Angeles, California; Smith Blair; Pipe Seal and Insulation Co., or equal.

5-15 INSULATING FLANGED JOINTS

Insulating flanged joints shall be provided where shown. Insulating flanged set shall have laminated phenolic gaskets and shall be provided with laminated phenolic sleeves and washers.

5-16 TEMPORARY PLUGS

Whenever pipe laying is not in progress, the exposed open end of the pipe must be plugged to prevent foreign matter from entering the pipe. This provision is applicable during working hours when laying operations are suspended as well as non-working hours.

5-17 ABANDONED CONDUITS

Whenever water lines are to be abandoned, or other abandoned conduits require interfering portions to be removed, the open ends of the abandoned conduits shall be plugged with brick and mortar or in a manner approved by the District's representative to provide a watertight plug.

5-18 MEASUREMENT AND PAYMENT

Pipe shall be measured from face to face of valves and/or connections to other pipelines or other appurtenances as shown on the plans, and shall include all fittings. Payment for pipe will be included in the unit and lump sum prices for the respective items contained in the Bid Proposal which include piping and said prices shall include all costs in connection therewith

including (but not limited to) labor materials, transportation, equipment, traffic control, supervision, and overhead.

SECTION 6

VALVES AND HYDRAULIC SPECIALTIES

6-01 GENERAL

(A) The Contractor shall furnish and install all valves and hydraulic specialties as shown on the contract plans and the standard plans an in accordance with these specifications.

(B) Valves shall be new and of current manufacture. They shall be of ample strength, to withstand and operate satisfactorily under, the working pressures, and shall be designed for normal cold water use. The manufacturer's name or trademark, the year cast, size, the working pressure and the catalog number shall be shown on the valve.

(C) Resilient wedge valves shall be used for all 4-inch through 12-inch applications and butterfly valves shall be used for all valves over 12 inches, unless otherwise shown.

(D) Valve locations, type of operation and type of ends shall be as indicated on the drawings and as specified.

(E) The contractor shall submit manufacturer's literature showing the principal dimensions, construction details, and materials used for all valve parts. Literature shall state the type of coatings applied. Submittal shall be of sufficient detail to serve as a guide in the disassembly and assembly of the valve as well as provide information for the ordering of spare parts. The Engineer may require the submittal of one or more sample valves for inspection and approval prior to installation.

(F) All wetted surfaces of valves shall be coated with fusion bonded epoxy in accordance with Section 10, "Painting and Coating", of these specifications.

(G) Valves stored at the jobsite shall be protected from damage caused by sun, rain, and physical abuse.

(H) All valves in pump stations shall be rising stem (OS&Y) valves unless specifically shown otherwise on the drawings.

6-02 RESILIENT WEDGE VALVES

(A) GENERAL

(1) Valves shall conform to AWWA C509 and the requirements listed herein.

(2) All valves shall be bubble tight at 200-psi working pressure.

(3) Flange drilling shall in accordance with ANSI B16.1 for cast-flanges.

(4) Valves shall have nonrising low zinc stems, shall open by turning left, and provided with 2-inch square operating nut.

(5) Each valve shall have a smooth unobstructed waterway free from any sediment pockets.

(6) Stuffing boxes shall be O-ring seal type with two rings located in-stem.

(7) Low friction torque reduction thrust bearings shall be located both above and below the stem collar.

(B) MATERIAL

(1) Materials of Construction shall be as follows:

Component	Material	Specification
Body, operating nut Bonnet, Seal Plate	Cast Iron	ASTM A 126 Class B
Gate	Cast Iron Ductile Iron	ASTM A 126-Class B ASTM A 536
Bonnet and Seal Plate	Cast Iron	ASTM A 276
Nuts and Bolts	Stainless Steel	Type 316
O-Rings	Synthetic Rubber	ASTM 02000

(2) All internal working parts (excluding gate) shall be all bronze containing not more 2 percent aluminum or more than 7 percent zinc. Valve stems shall be cast or forged from bronze having a tensile strength of not less than 60,000 psi, a yield point of not less 30,000 psi, and an elongation of not less than 10 percent in 2 inches.

(3) All gates shall be encapsulated in Buna-S rubber nitrile elastomer in accordance with ASTM D429.

6-03 BUTTERFLY VALVES

Butterfly valves shall conform to the Standard for Rubber-Seated Butterfly Valves (AWWA C504), subject to the following requirements. Valves shall be Dresser "450", Pratt "Groundhog", or approved equal. Valves shall be of the class shown. Flanged valves shall have 125-lb American Standard flanges and unless otherwise shown, may be either short-bodied or long-bodied. Shaft seals shall be designed for use with standard split-V type packing. All corrosive ferrous surfaces of valves, 4-inch and larger, which will be in contact with water, shall be epoxy-coated as specified in Section 10.

Valve shafts shall be fabricated from type 18-8 stainless steel or high carbon steel. The disc shall be ductile iron and "Ni-Resist" or epoxy-coated and shall rotate 90 degrees between the fully open and fully-closed position. Unless otherwise specified, valves shall be manually operated with enclosed operator, and if installed in a vault, shall be equipped with a valve position indicator, a handwheel or crank operator designed and sized to seat and unseat the valve with the maximum differential pressure of 150 psi. The stuffing box shall permit repacking without removal of the operator.

6-04 PLUG VALVES

Plug valves shall be of the tapered rotary type with resilient plug facings. The plug valves shall be of quarter turn full-on, full-off operation. The main valve body and plug shall be constructed of ASTM-126-66, Class B cast iron. These valves shall supply drip tight shut-off to 150 psi working pressure.

6-05 WAFER CHECK VALVES

Wafer check valves shall be of a wafer-type that fits between flanges with a center hinge pin supporting two spring-loaded lightweight plates. Valves bodies shall be of cast iron with positive seat shoulder; plates shall be of bronze and pins, springs, stops, bolts, and nuts of type 316 stainless steel. The seal materials shall be of Buna-N bonded to the seating areas of the body. The outside surface of the valve body shall be epoxy-coated in accordance with Section 10. Valves shall be Class 125 ASA and shall be "Duo Check" manufactured by Mission Valve and Pump Company, Houston, Texas, or equal.

6-06 SLANT (TILTING) DISC CHECK VALVES

The Slant (Tilting) Disc type check valves with the top mounted dashpot shall be designed to allow flow either forward or downstream of a pump, and suppress flow reversal. The valve shall be constructed of two body halves bolted together at a 55-degree angle forming a center flange. Inspection ports will be located in each body half. A body seat ring shall be clamped between the inlet and the outlet body halves at the center flange and will be beveled on the seating surface. The outlet body will contain a disc onto which is bolted a disc seat ring. The disc seat ring will be beveled to meet the seating surface of the body and the seat ring. The disc shall be held into place by two pivot pins that are insert through both sides of the outlet body half. The pins will hold the disc in place by bushings on the disc. The bushings are to be located in such a way that approximately 2/3 of the disc weight is below the pivot pins when seated.

The disc is to be designed so that at the fully opened position the water will flow over both the top and the bottom side of the disc. The disc will pivot away from the body seat in a manner that allows no contact of the two seat rings except at the end of the sealing stroke. The entire flow area through the valve will meet or exceed the nominal pipe diameter.

The Top Mounted Oil Dashpot will be installed through the top inspection port. The device will be directly connected to the valve disc. The dashpot will provide a controlled opening of the

valve, while also allowing two-stage control of the disc closure. Both functions will be fully adjustable in the field in order to meet specific system requirements and reduce the effects of surges and water hammer. The dashpot shall consist of a hydraulic cylinder, two external oil reservoirs, two adjustable flow control valves, and integral piping. Each cylinder shall have an internal flow control valve and two external flow controls. The dashpot shall be connected to the valve by means of a spacer containing an air gap, so that the hydraulic fluid will not enter the system. The spacer will also contain o-rings serving as "wipers" for the same result. A rod connected to the cylinder will extend down through the spacer bushing and will be attached directly to the valve disc by heavy gauge-links and pins. The valve dashpot system shall be factory tested in accordance with the AWWA specification C-508, and shall be as manufactured by APCO or Crispen-Multiplex Manufacturing Co.

6-07 FIRE HYDRANTS

Fire hydrants shall comply with AWWA C503, Fire Hydrants for Ordinary Waterworks Service, and with the following special requirements: the requirements specified herein shall control where at variance with AWWA C503. If specified in the Special Provisions, an affidavit of compliance to these specifications shall be filed with the District. Top nuts and cap nuts shall be 1-1/2" pentagon.

Hydrants shall be Clow, 8 bolt standard, bronze, model 2060 or 2050 as shown on the drawings, or an approved equal, with two 2-1/2-inch hose nozzles with National Standard Fire Thread and one 4-inch pumper nozzle with California Fire Standard Thread, and at least 4-1/4-inch main valve opening, unless otherwise shown on the drawings. In business and industrial properties, institutional. school, and family dwelling properties a 5-1/4 main valve opening shall be provided. All fire hydrants shall be provides with Clow break away check valve with fusion bonded epoxy lining.

The hydrant shall be a 6-inch for ring-groove connection to PVC or Ductile Iron pipe, unless otherwise specified or shown on the detail plans.

A double, O-ring, stem-seal, stuffing box shall be provided.

All fire hydrants shall be painted a prime coat and two finish coats. The finish shall be Rust-O-Leum Safety Yellow, or approved equal.

6-08 SERVICE CLAMPS

Service clamps for use on ductile iron pipe and asbestos cement pipe shall be double strap for all sizes. The straps or bails shall be flat and shall be manufactured of Everdur or Silnic bronze. The body shall be manufactured of bronze conforming to ASTM B62, Composition Brass or Ounce Metal Castings, and shall be tapped for a corporation stop thread. The seal with the pipe shall be effected with either a rubber gasket or O-ring.

Service clamps for use on polyvinyl chloride pipe shall meet the above except that an integral compression restrain shall be manufactured into the clamp to prevent excessive compression on the pipe material.

Service clamps for ACP and Ductile Iron Pipe shall be James Jones J-979, or approved equal. Service clamps for PVC shall be James Jones J-969, or approved equal.

6-09 CORPORATION STOPS

Corporation stops shall be manufactured of bronze conforming to ASTM B62, Composition Brass or Ounce Metal Castings. The inlet fittings shall be a male corporation stop thread and the outlet connection shall be a flair fitting for connecting to copper tubing.

Corporation stops for service laterals, chlorination assemblies or air and vacuum release valve connections shall be James Jones Company, Mueller, Ford or approved equal.

6-10 ANGLE METER STOPS

Angle meter stops shall be manufactured of bronze conforming to ASTM B62, Composition Brass or Ounce Metal Castings. The inlet connection shall be a flare fitting for connecting to copper water tubing and the outlet fitting shall be a meter coupling.

The inlet and outlet shall form an angle of 90 degrees on a vertical plane through the centerline of the meter stop. A rectangular lug and a lockwing shall be provided on the top of the fitting to operate the shutoff mechanism.

6-11 COMBINATION AIR AND VACUUM RELEASE VALVES

All air and vacuum release valves shall be designed to insure the release of air from a water line when the line pressure is above atmospheric pressure and to insure the entrance of air into a water line when the line pressure is below atmospheric pressure. These functions shall be performed automatically by the valve at all operating conditions of the water line.

Unless otherwise indicated on the drawings, the valves shall be nominal one-inch size, designed for 150 psi.

All air and vacuum air release valves shall have cast-iron bodies, stainless steel floats and working parts, APCO 143C, Crispin PL Series, or an approved equal.

6-12 TUBING

Tubing for service laterals and air and vacuum valves shall be Type K copper tubing.

Connections to angle meter stops and corporation stops shall be a flare fitting for connecting to copper tubing. All others shall be lead free silver soldered.

6-13 FLEXIBLE COUPLINGS

Flexible couplings shall be of the compression rubber gasket type as manufactured by Dresser, Style 53 (cast couplings for Cast-Iron Pipe), or by Rockwell, Type 441, or approved equal or as recommended by the manufacturer of the paraticular type pipe involved and approved by the Engineer. All flexible couplings shall be Estekoted inside and out, and shall be supplied with type 316 stainless steel bolts and nuts.

6-14 VALVE BOX AND COVER

Each buried valve shall be provided with a suitable valve box conforming to the Laguna Beach County Water District's Standard Drawing No. 105, "Valve Box and Cover".

6-15 BURIED FASTENERS

All exposed fasteners, including (but not limited to) nuts, bolts and washers used for joining valves, flanges, pipe and fittings, and/or other hydraulic specialties to be buried underground shall be manufactured of Type 316 stainless steel.

6-16 MEASUREMENT AND PAYMENT

Measurement for each item classified as a "Valve and/or Hydraulic Specialty" shall include (but not be limited to) valves, stops, couplings, valve boxes and covers, clamps, bases, hangers, plugs, restraints, thrust blocks, and any and all materials specified herein and/or approved by the Engineer, for the regulation, control and/or diversion of water flowing by gravity or under pressure.

All costs of furnishing labor, materials, tools, equipment transportation, tests, traffic control, calibration, placing in operation, adjusting, and all incidental work and services required to satisfactorily complete the project in accordance with the plans and specifications and directions of the Engineer shall be included in the applicable bid item for which such "Valves and Hydraulic Specialties" are required and necessary.

SECTION 7

STRUCTURAL STEEL & MISCELLANEOUS METALWORK

7-01 GENERAL

The Contractor shall furnish, fabricate and install all structural steel and miscellaneous metalwork as specified and shown. All structural steel shapes, plates, bars and their products shall conform to the Specifications for Structural Steel (ASTM A36). Unless otherwise shown, all miscellaneous metalwork of fabricated steel shall be galvanized after fabrication in accordance with Section 7-04 herein. Unless otherwise shown, stainless steel metalwork shall be of Type 316 stainless steel and shall not be galvanized.

Shop drawings of all structural steel and miscellaneous metalwork shall be submitted to the Engineer for review.

7-02 FABRICATION AND ERECTION

Except as otherwise shown, the design, fabrication, and erection of structural steel shall conform to the requirements of the American Standard of Steel Construction Manual of Steel Construction.

7-03 WELDING

All welding shall be by the metal-arc method or gas-shielded arc method as described in the American Welding Society's "Welding Handbook" as supplemented by other pertinent standards of the AWS. Qualification of welders shall be in accordance with the AWS Standards governing same. In assembly and during welding, the component parts shall be adequately clamped, supported and restrained to minimize distortion and for control of dimensions. Weld reinforcement shall be as specified by the AWS code. Upon completion of welding, all weld splatter, flux, slag, and burrs left by attachments shall be removed. Welds shall be repaired to produce a workmanlike appearance, with uniform weld contours and dimensions. All sharp corners of material which is to be painted or coated shall be ground smooth.

7-04 GALVANIZING

All structural steel plates, shapes, bars, and fabricated assemblies required to be galvanized shall, after the steel has been thoroughly cleaned of rust and scale, be galvanized in accordance with the Specifications for Zinc (Hot-Galvanized) Coating on Products Fabricated from Rolled, Pressed and Forged Steel Shapes, Plates, Bars and Strip (ASTM A123). Any galvanized part that becomes warped during the galvanizing operation shall be straightened and regalvanized. Bolts, anchor bolts, nuts, and similar threaded fasteners, after being properly cleaned, shall be galvanized in accordance with the Specifications for Zinc Coating (Hot Dip) on Iron and Steel Hardware (ASTM A153). Field repairs to galvanizing shall be made using "Galvaninox", "Galvo-Weld", or approved equal.

7-05 BOLTS

The Contractor shall furnish and set all bolts, and anchor bolts. Except where otherwise shown or specified, all bolts, anchor bolts and nuts shall be galvanized as described in Section 7-04.

Except as otherwise provided herein, steel for bolts, anchor bolts and cap screws shall be in accordance with Specifications for Carbon Steel Externally and Internally Threaded Standard Fasteners. Grade B (ASTM A36) and shall meet the following additional requirements:

(1) The nut material shall be free-cutting steel, and

(2) The nuts shall be capable of developing the full strength of the bolts. Threads shall be Coarse Thread Series conforming to the requirements of the American Standard for Screw Threads. All bolts and cap screws shall have hexagon heads and nuts shall be Heavy Hexagon Series.

All bolts, anchor bolts and nuts which are buried, submerged, or below the top of the wall inside any hydraulic structure shall be of Type 316 stainless steel.

Expanding-style anchors shall be steel expansion style Phillips Drill Company "Red Head" anchors, McColloch Industries "Kwik-Bolt", or equal. Lead caulking anchors will not be permitted. Size shall be as shown. Expansion type anchors which are to be buried or submerged shall be Type 316 stainless steel.

7-06 LADDERS

Ladders which may be partially or wholly submerged, or which are located inside a hydraulic structure, shall be fabricated entirely of Type 316 stainless steel. All other ladders shall be fabricated of carbon steel, galvanized after fabrication.

7-07 IRON CASTINGS

Iron castings shall conform to the Specifications for Gray Iron Castings, (ASTM A48) unless otherwise shown.

SECTION 8

TESTING AND STERILIZATION

8-01 GENERAL

All new water mains, piping, valves and fittings shall be flushed, tested, and chlorinated in conformance with these specifications before connection to the existing facilities. The Contractor shall furnish all necessary material, labor and equipment to perform this work.

8-02 FLUSHING

All new water mains shall be flushed with potable water after completion of construction and prior to disinfection. The Contractor shall provide a sufficient number of suitable outlets at the end(s) of the line(s) being sterilized in addition to those required by the plans to permit the main to be flushed with water at a velocity of at least 2.5 feet per second over its entire length. Lower velocities may be approved at the option of the District. The outlets provided shall meet the requirements for the type main being constructed. Drainage facilities shall be constructed such that the waterlines cannot be contaminated through the flushing outlet.

Whenever possible, the flushed water shall be discharged into the sewer system. It will be the responsibility of the contractor to contact the City of Laguna Beach and make the appropriate arrangements for the discharge. Only with the authorization of the City of Laguna Beach shall water flushed from the pipeline be allowed onto the street or into a storm drain. If water flushed from the pipeline is permited to be discharged into the street, the contractor shall responsible for keeping debris, silt, and other contaminants from entering storm drain inlets. A plan shall be submitted by the contractor to the District Engineer for approval prior to any discharge.

The contractor shall give LBCWD 48 hours notice prior to flushing so that the City of Laguna Beach can be notified by LBCWD.

8-03 HYDROSTATIC TESTING

(A) PIPELINES - Pipelines shall be tested, in sections or as a unit, as directed by the Engineer. Tests shall include all branch lines and services. The line, or portion thereof, to be tested shall be slowly filled with water, care being used to see that all air is released. During this time the line shall be examined for leaks and if any are found, they shall be repaired. The line shall then be tested under a minimum pressure of two hundred (200) pounds per square inch (psi) for Class 150 pipe or two hundred and fifty (250) psi for Class 200 pipe, or as directed by the Engineer, at the lowest invert elevation. This pressure shall be main-lowest invert elevation. This pressure shall be maintained to within 5 psi for two (2) hours. Satisfactory means shall be provided for measuring any leakage to 1/10 of a gallon that may occur during this part of the test. If any leaks develop, the defective pipe fittings, or joints shall be replaced or repaired and the test shall be continued until the line is tight and no detectable leakage is found.

Leakage shall not exceed the rate indicated in the following table:

TABLE 8-1

LEAKAGE ALLOWANCE

Pipe Size (Inches)	Test Pressure Class 150 (psi)	Test Pressure Class 200 (psi)	Allowable Leakage Gallons per two hours per 50 pipe joints Class 150	Allowable Leakage Gallons per two hours per 50 pipe joints Class 200
4	200	250	0.38	0.43
6	200	250	0.57	0.64
8	200	250	0.76	0.85
10	200	250	0.96	1.07
12	200	250	1.15	1.28
18	200	250	1.72	1.92
24	200	250	2.29	2.56

Regardless of the leakage rate, all detectable leakage shall be stopped. Any damage caused to pipe or appurtenances by the test shall be repaired by the Contractor at his own expense.

No leakage shall be allowed for welded joints on steel pipe or high density polyethylene pipe (HDPE).

8-04 STERILIZATION

(A) PIPELINE - The pipeline shall be sterilized by means of chlorine gas applied to the water entering the pipeline at one end at a dosage of 50 to 75 parts per million (ppm), and not to exceed 100 ppm. The chlorinated water shall be retained in the pipeline for at least 24 hours. Stronger doses for shorter retentions than 24 hours may be used in special cases if authorized by the Engineer. All services, fire hydrants, valves and blow-offs shall be operated during the chlorinating to assure sterilization of all portions of the system. At the end of the retention time, the chlorine residual at the extremities of the line and at other representative points shall be at least 25 ppm. Care must be taken to prevent the chlorine solution in the line being treated from flowing back into the line supplying the water. The line shall then be flushed until the chlorine residual in the new pipeline matches the choloine residual in the existing distribution system.

Prior to final flushing, the contractor shall give LBCWD 48 hours notice prior to flushing so that the City of Laguna Beach can be notified by LBCWD.

The contractor is responsible for dechlorinating the water being flushed from the pipeline prior to it being discharged. Whenever possible, the dechlorinated water shall be discharged into the sewer system. It will be the responsibility of the contractor to contact the City of Laguna Beach

and make the appropriate arrangements for the discharge. Only with the authorization of the City of Laguna Beach shall dechlorinated water be allowed onto the street or into a storm drain. If water flushed from the pipeline is permited to be discharged into the street, the contractor shall be responsible for keeping debris, silt, and other contaminants from entering storm drain inlets. A plan shall be submitted by the contractor to the District Engineer for approval prior to any discharge.

The use of chlorine tablets for pipeline steriliztion is prohibited.

(B) PERFORMANCE - All chlorination of pipelines shall be performed by a firm specifically specializing in this field with not less than five years' experience.

8-05 BACTERIOLOGICAL TESTING

(A) BACTERIOLOGICAL SAMPLES - The Contractor shall provide appropriate piping for sample locations for sample taking by District staff. The piping shall be clean and easily accessable to District staff. The location, number and frequency of bacteriological test samples drawn from the sterilized water main shall be as directed by the Engineer. After the pipeline is flushed of chlorinated solution and the chlorine residual out of every possible outlet is less than one (1) ppm, or the system residual, whichever is greater, the line shall set for at least twenty-four (24) hours filled with potable water before withdrawing samples for bacteriological testing. The sterilized line must be isolated from the potable water supply at all times except while actually being filled, flushed or sampled. The pipeline shall be maintained under system pressure while being sampled and enough water shall be flushed out of the sampling ports so that when the water samples are collected, they represent the water well within the main. Unless specified otherwise by the Engineer, two (2) water samples shall be taken by the District at or near each end and branch ends of the sterilized pipeline. For mains over 2,500 feet in length, two (2) additional samples shall be taken for each additional 2,000 feet, or fraction thereof.

(B) BACTERIOLOGICAL TESTS – All bacteriological samples will be taken by a Dirtrict representative and certified bacteriological tests will be made by a testing laboratory approved by the State of California. Prior to acceptance of the water main construction, the certified test results for all water samples must show the absence of coliform bacteria [less than 1 colony per 100 ml for membrane filter (MF) most probable number (MPN) less than 1.1 per 100 ml for multiple tube (MT)]. The cost of the first set of tests will be borne by the District. If any of the samples fail, the Contractor shall bear all costs related to any subsequent retesting.

8-06 WATER FOR TESTING AND CHLORINATION

Water for initial testing and chlorination will be furnished by the District at no charge. If it is necessary to dewater the pipeline to permit repairs or any other corrective work required to meet the specifications, then the replacement water to refill the pipeline will be charged to the Contractor at the current prevailing rate.

8-07 TIE-INS

The Contractor shall obtain approval from the District Engineer at least one (1) week prior to making any tie-in to the District's facilities. Prior to any tie-in, the District will give residents in the affected area 48 hours notice of disruption of their service. No tie-in will be permitted on Mondays or Fridays. Shutdowns will be limited to 4 hours, unless otherwise approved by the District Engineer. Prior to allowing any shutdown, the Contractor shall have all equipment and material on site and ready to be installed. Where connections are to be made to an existing potable water system, all fittings and portions of pipeline that were not previously sterilized per Section 8-04 shall be swabbed with a liquid chlorine solution.

SECTION 9

REINFORCED CONCRETE

9-01 GENERAL

Reinforced concrete work shall include the construction of vaults, thrust blocks, footings, supports, slabs on grade, head walls and any other concrete work described in these specifications or shown on the plans, including the installation of all joints, joint filler, waterstops or other materials.

9-02 SUBMITTALS

Before placing reinforcement steel, the Contractor shall submit for review, a reinforcing steel placing plan in accordance with Section 2-5.3 of the Standard Specification for Public Work Construction, latest edition. The Contractor shall also submit for review the concrete mix design proposed for the work.

9-03 MATERIAL

(A) PORTLAND CEMENT CONCRETE - Concrete for the various uses shall be composed of cement, aggregates and water of the quantities herein specified, and in the required proportions, well mixed and to a proper consistency. Analysis and tests in accordance with ASTM Standards will be made by the Engineer, and the Contractor will be required to produce economical concrete with proper workability, density, impermeability, surface finish and strength. Concrete shall conform with the provisions of the Standard Specifications for Public Works Construction, latest edition, Section 201-1.

The class of the concrete shall be as shown in the following table for each type of work mentioned:

Thrust Blocks:	500-C-2500
Miscellaneous Concrete:	560-C-3250

(B) STEEL REINFORCING - Steel reinforcing bars, wire reinforcement and wire mesh reinforcement shall conform to the requirements of the Standard Specifications for Public Works Construction, latest edition, Section 201-2.

9-04 CONSTRUCTION

The construction of plain and reinforced concrete shall be in accordance with Section 303-1 of the Standard Specifications for Public Works Construction, latest edition.

9-05 MEASUREMENT AND PAYMENT

No separate measurement and payment for reinforced concrete shall be made as such and all cost in connection therewith including, but not limited to, labor, materials, transportation, equipment, supervision, and overhead shall be included in the unit or lump sum bid for the pay item requiring reinforced concrete.

SECTION 10

PAINTING AND COATING

10-01 SCOPE OF WORK

The work covered by this section consists of furnishing all labor, materials, and equipment, and performing all operations in connection with painting and coating, as indicated on the drawings and as specified herein, including required preparation of surfaces to receive paint and coating finishes and the replacing or touching up of damaged or blemished surfaces, to the end that all painted and coated surfaces shall be in good condition upon completion of the work.

10-02 REQUIREMENTS

The Contractor shall furnish all labor, materials, and equipment and perform all painting and coating indicated on the drawings or specified herein. All materials specified by name, brand or manufacturer, or selected for use under these specifications shall be delivered unopened at the job site in their original containers bearing the manufacturer's brand and number or grade.

10-03 MATERIALS

(A) GENERAL - The Contractor may substitute other paint or materials for those specified herein provided that he first receives written approval from the Engineer stating that said proposed substituted materials are equal to those specified and are approved for use in the work.

(B) PRIME COAT FOR IRON AND STEEL shall be two component inorganic zinc rich primer for shop or field prime coat, or approved equal.

(C) FINISH COAT ON EXTERIOR IRON AND STEEL surfaces, except as otherwise specified, shall be polyamide cured epoxy finish coat, or approved equal.

(D) INTERIOR COATING OF VALVES shall be done using 100 percent powder epoxy and shall be 3-M Company "Scotchcoat 134", Michigan Chrome and Chemical Company "Miccron 650 or 651" or equal.

10-04 CLEANING AND PREPARATION OF SURFACES

Surfaces to be painted shall be clean before applying paint or surface treatments. All oil, grease, dirt, rust, loose mill scale, dust, and other foreign substances shall be removed. Cleaning and painting shall be so programmed that dust or other contaminants from the cleaning processes will not fall on wet, newly painted surfaces. Where required, imperfections and holes in surfaces to be painted shall be filled or obliterated in an approved manner. Surfaces not intended to be painted shall be suitably protected from the effects of the cleaning and painting operations.

Surfaces to receive epoxy coating shall be blast-cleaned in accordance with SSPC-SP-5 (White Metal Blast Cleaning).

10-05 PAINT APPLICATION

(A) SAFETY - The Contractor shall comply with Local, State and Federal regulations governing the application of volatile painting and coating materials within enclosed spaces and shall provide and maintain adequate mechanical equipment and personal safety measures to insure the protection of all workers engaged in such activities.

(B) WORKMANSHIP - All work shall be done in a professional manner, so that the finished surfaces will be free from runs, drops, ridges, waves, laps, and unnecessary brush marks. All coats shall be applied in such a manner as to produce an even film of uniform thickness completely coating all corners and crevices. All painting shall be done by thoroughly experienced workmen. Precautions shall be taken to protect plated surfaces and all other surfaces not to be painted.

(C) ATMOSPHERIC CONDITIONS - Paints shall be applied only to surfaces that are thoroughly dry and only under such combination of humidity and temperatures of the atmosphere and surfaces to be painted as will cause evaporation rather than condensation. In no case shall any paint be applied during rainy, misty weather or to surfaces upon which there is visible frost or moisture condensation.

While painting is being done, the temperature of the surfaces to be painted and of the atmosphere in contact therewith, shall be at or above 50 degrees F. All paint when applied shall be approximately the same temperature as that of the surface on which it is applied.

(D) PROTECTION OF PAINT SURFACES - Items which have been painted shall not be handled, worked on, or otherwise disturbed until the paint is completely dry and hard.

(E) METHOD OF PAINT APPLICATION - All coats for all ferrous surfaces may be either brush or spray applied. All other surfaces may be spray, brush or roller applied.

(F) COVERAGE AND FILM THICKNESS - The actual surface area covered per gallon of paint for various types of surfaces shall not exceed those recommended by the paint manufacturer. Specified coverage rates do not include spraying and other losses of material resulting from the conditions under which the coating is applied. The first coat on metal surfaces refers to the first full paint coat and not to conditioning, priming or other pretreatment applications.

Thinning of paints will not be permitted except as recommended by the paint manufacturer and approved by the Engineer.

10-06 PAINTS TO BE APPLIED - NUMBER OF COATS - COLORS

(A) GENERAL - Types of paint and coverage required for various types of surfaces and exposures are listed hereinafter.

(B) COLORS AND TINTS - shall match the respective specimens designated by, or shall otherwise be subject to, the approval of the Engineer. Unless otherwise specified, the color of all undercoats shall be different that the color of the finish paint.

(C) FERROUS METAL surfaces, both interior and exterior, including piping and appurtenances, motors, pumps, engines, hatches, fire hydrants and air and vacuum valve enclosures shall receive one coat of approved primer and two coats of approved finish paint, as specified hereinbefore.

(D) EPOXY COATINGS shall be applied per manufacturer's recommendations to provide a minimum dry coating thickness of 10 mils, except that the thickness of coating in the grooves for valves or fittings designed to receive a rubber gasket shall be 5 mils.

10-07 UNDERGROUND FLANGES, ETC.

Underground Flanges, tie rods, nuts, bolts, flexible couplings, coupling adapters and steel pipe not otherwise protected shall receive 1/8" thick coating of Husky Pipe Shield, WB-588, as manufactured by Husky Industries, Norco, California, or approved equal. After coating, wrap with 6-mil minimum plastic sheeting.

10-08 PIPING AND VALVES, ETC.

All exposed pipe, valves, fittings and appurtenances shall be painted the same as ferrous metal surfaces as hereinbefore specified. This includes all equipment in concrete vaults.

10-09 SURFACES NOT TO BE PAINTED

(A) The following surfaces shall not be painted and shall be protected during the painting of adjacent areas:

(1) Mortar-coated pipe and fittings.

(2) Stainless steel.

(3) Nameplates.

(4) Grease fittings.

(5) Brass and copper, submerged.

(6) Buried pipe, unless specifically required in the piping specifications.

(B) PROTECTION OF SURFACES NOT TO BE PAINTED - Remove, mask, or otherwise protect hardware, lighting fixtures, switchplates, aluminum surfaces, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not intended to be painted. Provide drop cloths to prevent paint materials from falling on or marring adjacent surfaces. Protect working parts of mechanical and electrical equipment from damage during surface preparation and painting process. Mask openings in motors to prevent paint and other materials from entering the motors.

10-10 MEASUREMENT AND PAYMENT

No separate measurement and payment of painting and/or coating will be made. All costs in connection with said coatings and/or painting, including, but not limited to labor, materials, transportation, equipment, taxes, supervision, and overhead shall be included in the unit or lump sum prices of the respective bid items of the work requiring painting and/or coating.

SECTION 11

CHAIN LINK FENCING

11-01 GENERAL

The Contractor shall furnish all labor, material, tools, equipment and transportation required and construct chain link fencing, gates and appurtenances as shown on the plans and in accordance with these specifications.

11-02 MATERIAL

All materials used in the construction of fencing shall conform to the requirements of Section 206-6 of the Specifications for Public Works Construction, latest edition.

At the option of the District, the chain link fabric may be polyvinylchloride coated in accordance with ASTM 668.

11-03 CONSTRUCTION

Construction of chain link fencing, including fabric, posts, gates and appurtenances, shall be in accordance with Section 304-3, "Chain Link Fence", of the Specifications for Public Works Construction, latest edition and LBCWD Standard Drawing No. 116.

SECTION 12

PIPE BURSTING

12-01 SCOPE OF WORK

This specification describes the construction methods and equipment required for the replacement of cast iron water main using trenchless technology that will burst the existing pipe while simultaneously installing a new high-density polyethylene water main. The contractor shall televise the existing cast iron pipe system prior to commencing the pipe bursting operation to check for fittings or other obstructions.

12-02 CONTRACTOR'S QUALIFICATIONS

(A) The Contractor shall be fully trained in the use of the pipe bursting equipment.

(B) The Contractor will be trained in polyethylene pipe jointing technology. All work will be performed by personnel trained in the use of butt-fusion equipment and the recommended methods for new pipe connections.

(C) The Contractor shall indemnify and hold the Laguna Beach County Water District harmless in any legal action resulting from patent infringements. If the Contractor elects to use a "Pipe Bursting Process" that is patented, the Contractor shall obtain a licensed from the holder of the pipe bursting patents before any work commences.

12-03 CONSTRUCTION MATERIALS

(A) Polyethylene pipe used for insertion shall conform to AWWA C906, high-density polyethylene pipe (HDPE). The polyethylene pipe shall be made of virgin material. No rework will be allowed. Sizes of the insertions to be used shall be as noted on the contract drawings.

(B) Prior to construction the Contractor shall submit, for approval, the manufacturer's specific technical data concerning the pipe resin, including the physical properties of the pipe and the pipe dimensions.

(C) The physical appearance of the pipe shall be homogeneous throughout, free from visible cracks, or other defects. Pipe with gashes, nicks, abrasions or any such physical damage which may have occurred during storage and/or handling that are wider or deeper than 10% of the wall thickness, shall be rejected. Any pipe that has been damaged, or does not meet with the District's approval, shall be replaced at the Contractor's expense.

12-04 PIPE BURSTING TOOL

(A) The pipe-bursting tool shall be designed and manufactured to force it's way through the existing pipe materials by fragmenting the pipe and compressing the old pipe sections into the

surrounding soil as it progresses. The bursting unit shall generate sufficient force to burst and compact the existing pipeline.

(B) The pipe-bursting tool will be attached to a cable, and a constant tension winch that shall be located at the downstream pit. The bursting unit shall pull the polyethylene pipe with it as it moves forward. The bursting head shall incorporate a shield/expander to prevent collapse of the hole ahead of the polyethylene pipe insertion.

(C) The bursting action of the tool shall increase the external dimensions sufficiently, to cause breakage of the pipe while at the same time expanding the surrounding ground. This action shall not only break the pipe but will also create the void into which the burster can be pulled and enable forward progress. The polyethylene pipe shall be directly attached to the sleeve on the rear of the burster and it shall move forward as the burster moves through the existing fractured cast iron pipe.

(D) The burster shall have its own forward momentum while being assisted by winching. The winch will provide the burster friction by which it can be moved forward. To form a complete operating system, the burster must be matched to the constant tension winch system.

12-05 PIPE BURSTING WINCH

(A) The winch cable shall be attached to the front of the bursting unit. The winch shall be sized to provide a constant cable tension to the burster in order to insure that it operates in an efficient manner. The winch shall also provide directional stability by keeping the unit on line.

(B) The winch will be fitted with a direct reading load gauge to measure the winching load. The winch shall be designed to automatically maintain a constant tension at a set tonnage reading, and have sufficient cable so that the pull will be continuous between winching points. The winch, cable and cable drum must be provided with a safety cage and supports so that it may be operated safely without injury to persons or property. The Contractor shall also provide a system of guide pulleys and bracing at the exit pit to minimize cable contact.

12-06 LAUNCHING AND RECEIVING PITS

(A) The location and number of launching and receiving pits shall be the responsibility of the Contractor and approved by the District Engineer, prior to excavation. The pipe shall be located in such a manner that the footage of the new pipe installed in a single pull shall be maximized.

(B) Before any excavation is done for any purposes, the Contractor shall contact Underground Service Alert (USA) to determine field location of existing utilities.

(C) All pit work is to be confined to the existing street right-of-way, unless otherwise approved in writing by the District Engineer and the property owner. Any damage to adjacent properties shall be repaired and restored by the Contractor.

(D) Where it is necessary to excavate to a depth greater than 5 feet, the Contractor shall furnish and install trench shoring or bracing in compliance with OSHA standards.

12-07 INSERTION OF POLYETHYLENE PIPE

(A) Prior to construction, the Contractor will provide temporary water service to any resident affected by the construction.

(B) All buried utilities adjacent to the pipe bursting operation shall be reviewed, and if necessary excavated to relieve transient loading during the insertion operation. If any utilities are within 24 inches of the pipe to be burst, the Contractor shall excavate a pit at the location to check clearance. If adequate clearance does not exist between the existing water line and the utility, the Contractor shall employ substitute means to rehabilitate the existing water line. Utility crossings within 6-inches of the existing water line to be burst, shall be excavated to relieve loading during the bursting operation.

(C) Any concrete encasements shall be excavated and broken out prior to the bursting operation to allow the steady and free passage of the pipe-bursting head. All in-line valves and fittings shall be removed prior to the bursting operation.

(D) The new polyethylene pipe shall be inserted immediately behind the bursting head in accordance with the manufacturer's recommended procedures and these specifications.

12-08 PIPE JOINING

(A) The polyethylene pipe shall be assembled and joined at the site using the butt-fusion method for a leak-proof joint. All equipment and procedures shall be used in strict compliance with the manufacturer's recommendations.

(B) The butt-fused joint shall be in true alignment and shall have a uniform rollback bead resulting from the use of proper temperature and pressure. The joint shall be allowed adequate cooling time before removing the pressure. The fused joint shall be watertight and shall have tensile strength equal to that of the pipe. All joints shall be subject to acceptance by the District Engineer or his representative, prior to insertion. Any defective joints shall be cut out and replaced. Any section of the pipe with a gash, blister, abrasion, nick, scar, or other deleterious fault greater in depth than ten percent (10%) of the wall thickness, shall not be used. If a defect is found on a pipe the defective area may be cut out and the joint fused in accordance with the procedures stated above. Any section of the pipe having other defects such as concentrated ridges, discoloration, excessive spot roughness, pitting or variable wall thickness resulting from manufacturing or improper pipe handling or storage shall not be used.

(C) Terminal sections of pipe that are joined within the insertion pit shall be connected with Central Plastics Electrofusion Couplings or connectors with tensile strength, equivalent to that of the pipe being joined.

(D) Sections of the polyethylene pipe may be assembled and joined on the job site above the ground. Joining shall be accomplished by the heating and butt-fusion method in strict accordance with the manufacturer's printed instructions. Hot fusion joining of HDPE end sections, service taps and fittings may be performed in the excavations.

(E) Service connections with the polyethylene pipe shall be accomplished by installing a saddle fitting with corporation threads in accordance with these specifications.

(F) Where the polyethylene pipe is connected to fittings or valves, an HDPE flange adapter shall be fused to the end of the pipe and the connection shall be made with bolted flange components.

(G) The District Engineer, or his representative, shall inspect all pipe joints before insertion. The pipe shall be joined on site in appropriate working lengths near the launching pits.

12-09 PRESSURE TESTING

The polyethylene pipe shall be pressure tested after all of the fittings and valves have been installed. All Connections will be left exposed for visual leak inspection. The new HDPE water line shall be pressurized to 200 psi, and allowed to stand for a period of four (4) hours, in order to allow for the expansion of the pipe. The pressure shall be checked every thirty- (30) minutes during the test period. If the pressure has dropped to below 190 psi, the line shall be checked for leaks, restored to 200 psi and a new test begun. If, during the initial 4-hour pressurization period, the pressure remains above 195 psi, (5 psi below the initial pressure), to the end of one 30-minute cycle and above 190 psi, (5% below the initial pressure), to the end of the next 30-minute cycle, without the addition of water, the line shall have passed the pressure test.

12-10 STREET REPAIR AND BACKFILLING OF PITS

All launching and receiving pits shall be backfilled to the required grade with suitable selected granular material. Such material shall be moistened as required and compacted to 90 percent relative compaction. Finished paving shall be at least 1 inch thicker than the existing pavement and shall extend 12 inches wider than the pit width. Asphalt concrete pavement shall conform to section 4, entitled "Paving" of the Laguna Beach County Water District's standard Specifications.

SECTION 13

WATER AND SEDIMENT CONTROL DURING CONSTRUCTION

13-01 GENERAL

The San Diego Regional Water Quality Control Board has adopted Orders that are intended to regulate the discharge of storm water and hydrostatic test waters from construction sites that discharge directly or indirectly into the waters of the State of California.

This specification is intended as a checklist of appropriate best management practices (BMP's) that could minimize the adverse effects associated with storm water erosion, sedimentation and hydrostatic test water discharge from construction sites.

13-02 PRE-CONSTRUCTION WATER CONTROL PREPARATION

ITEM	BMP
Scheduling	ESC1
Disposal of Surface Water	
[ ] Temporary Drains and/or Swales	ESC31
[ ] Slope Drains	ESC32
[ ] Earth Dike	ESC30

13-03 CONSTRUCTION MANAGEMENT

ITEM	BMP
Practice Good Housekeeping and Minimizing Disturbed Areas	
[ ] Dust Control*	ESC21
Contain Waste and Spoils	
[ ] Earth Dikes	ESC30
[ ] Storm Water Inlet Protection	ESC54
Control Site Perimeter	
[ ] Preserve Existing Vegetation	ESC2
[ ] Seeding and Planting	ESC10
[ ] Mulching	ESC11
[ ] Geotextiles and Mats	ESC20
Sediment Trapping/Filtering	
[ ] Silt Fence	ESC50
[ ] Sand and/or Rock Bag Barrier	ESC52
[ ] Storm Drain Inlet Protection	ESC54
[ ] Temporary Sediment Trap	ESC55

13-04 POST CONSTRUCTION MANAGEMENT

ITEM	BMP
Practice Good Housekeeping	
[ ] Temporary and/or Permanent paving	CA2
[ ] Temporary and/or Permanent Seeding	ESC10
[ ] Mulching	ESC11
[ ] Geotextiles and mats	ESC20
[ ] Dust Control When Necessary*	ESC21

*Sweeping is one method of dust control. It may be necessary to wash the construction site with water; therefore, appropriate wash water containment and disposal will be required.

APPENDIX A

Standard Notes

STANDARD NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD PLANS AND SPECIFICATIONS OF THE LAGUNA BEACH COUNTY WATER DISTRICT.

2. REVISIONS SHALL NOT BE MADE TO THESE PLANS WITHOUT THE WRITTEN APPROVAL OF THE DISTRICT ENGINEER.

3. THE CONTRACTOR SHALL HAVE A COPY OF THE PROJECT PLANS AND SPECIFICATIONS ON THE JOB SITE AT ALL TIMES.

4. UTILITY LOCATIONS HAVE BEEN OBTAINED FROM PLANS SUBMITTED BY THE UTILITY COMPANIES AND ARE SHOWN SOLELY FOR THE CONTRACTOR'S CONVENIENCE AND SHALL NOT BE CONSTRUED TO BE ACTUAL LOCATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE APPROPRIATE UTILITIES AND UNDERGROUND SERVICE ALERT FOR ACTUAL FIELD MARKING OF THE UTILITY LOCATIONS.

5. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (1-800-422-4133) TWO (2) WORKING DAYS PRIOR TO TRENCHING.

6. EXISTING UTILITIES SHALL BE MAINTAINED AND PROTECTED IN PLACE BY THE CONTRACTOR UNLESS OTHERWISE NOTED ON THE DRAWINGS.

7. TRENCH BACKFILL SHALL CONFORM TO THE SPECIFICATIONS AND SHALL BE COMPACTED TO 90% RELATIVE COMPACTION.

8. CONCRETE THRUST BLOCKS EXIST AT ALL TEES, BENDS, CROSSES AND OTHER WATER MAIN FITTINGS. THE CONTRACTOR SHALL WORK WITH CAUTION WHEN EXCAVATING IN THE VICINITY OF ANY THRUST BLOCK.

9. ALL EXCAVATIONS DEEPER THAN ONE INCH SHALL BE PROPERLY BARRICADED AT ALL TIMES AND FURNISHED WITH FLASHING LIGHTS FROM 4:30P.M. TO 7:00 A.M. DAILY, AND FROM 4:30 P.M. FRIDAY TO 7:00 A.M. MONDAY.

10. ALL OPEN EXCAVATIONS WITHIN THE STREET SHALL BE STEEL PLATED AT ALL TIMES, EXCEPT WHEN THE CONTRACTOR IS PHYSICALLY WORKING IN THE AREA.

11. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTHS OF EXISTING WATER LINES, VALVES, UTILITIES, AND CONNECTION DETAILS OF EXISTING LINES PRIOR TO NEW INSTALLATION.

12. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

13. CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL WHILE ON SITE, AND MUST CONFORM TO CALTRANS STANDARDS AT ALL TIMES.

14. ALL WATER MAIN CROSSING OF SEWER LINES SHALL CONFORM TO THE STATE OF CALIFORNIA, DEPARTMENT OF HEALTH SERVICES CRITERIA FOR SEPARATION.

15. MINIMUM COVER OVER THE TOP OF PIPE SHALL BE MAINTAINED AT 36 INCHES UNLESS OTHERWISE SHOWN.

16. PRIOR TO FINAL PAVING, VALVES SHALL BE TESTED FOR OPERATION AND PIPELINE SHALL BE TESTED PER TABLE 8-1 OF THE DISTRICT'S STANDARD SPECIFICATIONS.

17. UNINTERRUPTED SERVICE TO CUSTOMER SHALL BE MAINTAINED AT ALL TIMES, EXCEPT A 4-HOUR MAXIMUM SHUTDOWN WILL BE PERMITTED TO MAKE SERVICE CONNECTIONS, TIE-INS, ETC. COORDINATE SHUTDOWN WITH DISTRICT AND CUSTOMERS.

18. TRENCH RESURFACING SHALL CONFORM TO SECTION 3-07 OF THE DISTRICT'S STANDARD SPECIFICATIONS AND L.BCWD STANDARD DRAWING 122.

19. ATTACH TRACER WIRES FOR MAIN TO FIRE HYDRANT FLANGES, SERVICES AND THROUGH MAIN LINE VALVE CANS.

20. INSTALL 6" SAND BEDDING BELOW AND 1' ABOVE PIPE, PLACE "WATER BURIED BELOW" TAPE ON TOP OF SAND BED FOR ALL MAIN AND ALL SERVICES.

21. COAT ALL FERROUS FITTINGS WITH MIN. ¼" THICK LAYER "NO OXIDATION PIPE GREASE", AND WRAP WITH POLYETHYLENE WRAP AS PER AWWA STANDARD FOR POLYETHYLENE ENCASEMENT.

22. CONTRACTOR SHALL MAINTAIN AND PROVIDE TO THE ENGINEER AN EMERGENCY CONTACT VIA PHONE, OR OTHER MEANS, ON A 24 – HOUR BASIS FOR THE DURATION OF THE PROJECT.

24. CONTRACTOR SHALL DISPOSE OF ALL HAZARDOUS WASTE INCLUDING ASBESTOS CEMENT PIPE, IN ACCORDANCE WITH ALL STATE AND FEDERALGUIDELINES.

25. CONTRACTOR SHALL FOLLOW ALL BMP'S AS OUTLINED IN THE SPECIFICATIONS TO KEEP ANY DIRT OR DEBRIS FROM THE PROJECT FROM ENTERING STORM DRAINS OR OTHER DRAINAGE COURSES.

ROADWAY WASHDOWN PROCEEDURES

1. NOTIFY THE COLLECTION SUPERVISOR OF THE CITY OF LAGUNA BEACH ONE DAY BEFORE ANY STREET WASH DOWN BEGINS.

2. STREET WASH DOWN IS TO TAKE PLACE ONLY AFTER THROUGH SCRAPING, SWEEPING AND COLLECTION OF DEBRIS.

3. APPROVED FILTER FABRIC IS TO BE USED ON ALL EFFECTED CATCH BASINS WITHIN THE DRAINAGE AREA AS SHOWN ON THIS STD. DWG.

4. STEEL BARS ARE TO BE USED IN CONJUNCTION WITH GRAVEL BAGS TO KEEP FILTER FABRIC IN PLACE. SEE SECTION “A-A”.

5. FILTER FABRIC IS TO BE 400 MICRON / .25 MM SIZE MESH, 1-INCH THICK, FOR MEDIUM SAND GRAIN COLLECTION BY” FOSSIL FILTERS CO.” OR EQUAL.

6. FILTER FABRIC IS TO CONTAIN APPROVED OIL COLLECTION PACKETS BY” FOSSIL FILTERS CO.” OR EQUAL.

7. FILTER FABRIC IS TO EXTEND BEYOND CATCH BASIN OPENING A MINIMUM OF 12 – INCHES.

8. GRAVEL BAGS, ANGLED UPSTREAM IN LOW SIDE GUTTER, ARE TO BE USED EVERY 80 FT. BETWEEN CATCH BASINS RELATING TO ROADWAY WASH DOWN. THESE GRAVEL BAG DAMS ARE TO BE A MIN.OF 30-INCHES LONG.

9. GRAVEL BAGS ARE TO BE PLACED TO AN APPROPRIATE HEIGHT TO CONTAIN THE FLOW OF WATER ALLOWED BY THE CITY COLLECTION SUPERVISOR.

10. DISPOSAL OF SAND / SILT DEBRIS IS TO BE DONE IMMEDIATELY AFTER WASH DOWN IN AN APPROVED MANNER.