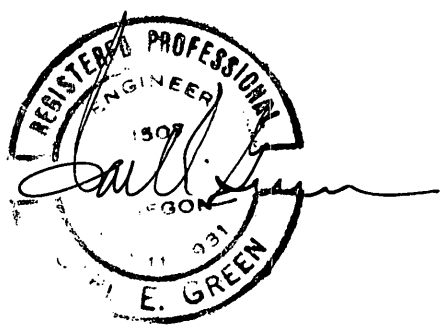
CITY OF NEWBERG
CITY RECORDER INDEX NO. 1081

CITY OF NEWBERG, OREGON

SPECIFICATIONS AND CONTRACT DOCUMENTS

4 M.G. RESERVOIR & PIPE LINE CONSTRUCTION

1960



City Officials

Dr. Homer Hester, Mayor
Thomas Beaty, City Recorder
Herbert Swift, City Attorney
G. Weller Probasco, City Supt.

Consulting Engineers

Carl E. Green & Assoc.
510 Henry Building
Portland 4, Oregon
CApitol 7-2770

INDEX

NOTICE TO CONTRACTORS

RESERVOIR AND PIPE LINE CONSTRUCTION

CITY OF NEWBERG, OREGON

Sealed proposals addressed to the Mayor and City Council of Newberg, Oregon, and endorsed "Proposal for Water Works Construction" will be received by the City Recorder, City Hall, Newberg, Oregon, until 7:30 o'clock p.m. Pacific Standard Time, September 6, 1960, and thereafter will be publicly opened and read aloud at a regular meeting of said Council at the Council Chambers in the City Hall of Newberg, Oregon.

Bids are invited for the construction of water works improvements as follows:

Section A - Reservoir Construction - 4.0 M.G. Reinforced Concrete
Section B - Pipe Line Construction - 18" & 24" Diameter, 12,145 lin. ft.

Plans and specifications and contract documents may been seen at the office of the Consulting Engineers, Carl E. Green & Associates, 510 Henry Building, Portland 4, Oregon, or at the office of the City Recorder, City Hall, Newberg, Oregon. Copies of plans and specifications will be furnished to bona fide bidders upon receipt of deposit checks as follows:

Section A - Reservoir	$ 40.00
Section B - Pipe Line	$ 35.00

Deposit checks of bidders will be returned provided a bid is submitted and the plans and specifications returned in good condition. The plans and specifications are the property of the Consulting Engineers, shall not be used by others, and shall be returned to the Consulting Engineers. If no bid is submitted by a planholder, $20.00 of the deposit check for each section will be returned upon receipt of the plans and specifications.

Prospective bidders shall submit prequalification statements of experience and financial condition to the City prior to the bid opening.

All bids shall be made on the forms furnished with the specifications and shall be accompanied by a certified check, cashier's check or bid bond payable to the City of Newberg in an amount not less than five percent (5%) of the total bid. A one hundred percent (100%) corporate public works performance bond will be required of the successful bidder to guarantee faithful performance under the contract. Payments for work are to be made monthly from cash funds.

The City reserves the right to reject any or all bids, to postpone making the award for a reasonable length of time, to waive informalities, to make separate awards for the two sections of the work, and accept the proposal or proposals deemed best in the interest of the City considering the experience, qualifications and equipment of the bidders, and the time required for completion. Time is of the essence on each section of the work.

By order of the Mayor and City Council of Newberg, Oregon

Dr. Homer Hester, Mayor
Thomas Beaty, City Recorder

First Publication: August 18, 1960
Second Publication: August 25, 1960
Last Publication: September 1, 1960

INSTRUCTIONS TO BIDDERS

1. General

The work contemplated by these specifications is divided into two sections, "A" pertaining to reservoir construction, and "B" pertaining to pipe line construction.

Reservoir work includes site clearing, excavation, grading and construction of a 4,000,000 gallon circular reservoir of reinforced concrete.

Pipe line work includes furnishing material and installing pipe line between the new reservoir and the City distribution system.

The City needs the improvements in the earliest possible time consistent with good workmanship.

The City reserves the right to make separate awards for sections A and B of the work.

2. Local Conditions

Bidders are notified that they must carefully examine the plans, specifications, form of contract, proposal, etc. and thoroughly familiarize themselves with all phases of the proposed work and all laws affecting the improvements. They must also examine and judge for themselves as to the location and character of the proposed work, the materials to be encountered in excavation and performing the work required and the conditions under which the proposed improvements may be constructed.

3. Qualifications for the Work

Bidders shall be experienced in the type of work being bid and shall have adequate equipment to carry on the work in an expeditious and workmanlike manner. They shall prequalify according to the Oregon law, ORS 279.010 and subsequent sections.

4. Certified Check or Bid Bond

Bids shall be accompanied by a certified check, cashier's check or bid bond drawn in favor of the Owner in an amount equal to or exceeding five percent (5%) of the total amount bid. Such check or bond shall be forfeited and become the property of the Owner if the bidder fails or refuses to enter into a contract for the work and furnish satisfactory performance bond within ten (10) days after notification that his bid has been accepted.

The check or bid bond accompanying the accepted bid will be retained until the contract is signed and performance bond furnished. All other checks and bid bonds will be returned promptly to the bidders.

5. Performance Bond

A one hundred percent (100%) corporate public works performance bond approved by the Owner will be required of the successful bidder.

6. Payments

Payments shall be made from cash funds on monthly estimates prepared by the Engineer, less ten percent (10%) which shall be retained until all work is completed, approved in writing by the Engineer, accepted by the Owner, and evidence presented by the Contractor that all bills and claims have been paid or settled and that all contributions and taxes payable to State and Federal governmental agencies have been paid.

7. Obscurity or Conflict in Specifications

Should any obscurity or conflict occur in the specifications which leave any doubt as to the true intent of the specifications, the matter shall be brought to the attention of the Engineer prior to the bid opening.

8. Estimate of Quantities and Balanced Bids

The estimate of quantities of work to be done and materials to be furnished under the specifications is approximate only and is given only as a basis of calculation upon which the award of the Contract shall be made. The Owner reserves the right to increase or diminish without restriction the amount of any class of material or work that may be deemed necessary, and bidders shall submit balanced bids in order that they may not be affected adversely by increase or decrease of quantities.

9. Interpretation of Plans, Specifications and Contract Documents, Conflicts, Ambiguities, Inconsistencies and Obscurities

The Engineers have endeavored to prepare plans, maps, drawings, specifications and contract documents in a manner which clearly sets forth the work to be done, the manner in which the construction is to be accomplished and the basis of payment for the various units of work. Extreme accuracy and absence of conflict is not guaranteed. Should the Bidder or Contractor discover any apparent error or conflict in the plans, drawings, specifications, or quantities upon which bids are requested, or should there be any ambiguity or doubt regarding any of the same or the interpretation thereof, such matters shall be brought at once to the attention of the Engineers for clarification or correction.

The Owner presumes that all bidders shall have read the specifications and thoroughly examined the plans and drawings before submitting a proposal to do the work; therefore, any discrepancies, omissions, conflicts and ambiguities shall be called to the attention of the Engineers before bids are submitted in order that any conflicts, misunderstandings, questions or doubts may be resolved at once.

In the event of a disagreement arising as to the true intent and meaning of the Plans and Specifications, the Engineers shall interpret the same and his interpretation shall be accepted by the Contractor as final.

10. Form of Proposal

All proposals shall be made on the forms furnished herewith, and the bidder shall fill in the proposal completely and return the entire and complete set of

Specifications and Proposal with his bid.

Proposals shall be sealed and plainly marked "Proposal for Water System Construction" and addressed to the Owner and the same shall be filed with the Owner prior to the hour and date set for receiving and opening bids.

11. Completion Time

The work included in these Specifications shall be completed in the shortest possible time commensurate with good workmanship. Bidders shall state completion time in their bid and shall take into consideration unfavorable weather and other adverse conditions. Extensions of time will be granted only under conditions for which the Owner is clearly responsible.

12. Liquidated Damages

Because of the extreme need for the improvement, the work shall be completed in the earliest possible time after construction begins. To compensate the Owner for any delay in completion of the work and to cover additional costs of supervision beyond the completion time bid, the Owner shall deduct from payments otherwise due the Contractor, liquidated damages for each calendar day the work is delayed beyond the completion time bid for the work.

The liquidated damages shall be Fifty Dollars ($50.00) per day for each section of the contract.

The damages herein set forth shall not be considered in the nature of a penalty, but shall partially reimburse the Owner for losses and extra cost due to delay.

13. Public Liability and Property Damage Insurance

The Contractor shall take out and maintain during the life of this contract such Public Liability and Property Damage insurance as shall protect him, and any subcontractor performing work covered by this contract, from claims for damages which may arise from operations under this contract, whether such operations be by himself or by any subcontractor or anyone directly or indirectly employed by either of them.

The insurance coverage shall save harmless the Owner in accordance with the minimum coverage shown hereunder, and certificates of insurance shall be furnished to the Owner.

Insurance Coverage

Liability, one occurrence	$200,000 - $300,000
Property Damage, one occurrence	$100,000

14. Quality of Materials and Equipment

Wherever in the Specifications any material, equipment, device, product, fixture, type of construction or type of process is specified by a manufacturer's name, proprietary name or catalog number it shall be understood that others of

equal quality, workmanship, materials and performance approved by the Owner will be acceptable. The Owner shall be the sole judge of equality of any material, equipment, device, product, fixture, type of construction or type of process which the Contractor may propose to substitute for that called for in the Specifications.

All workmanship, materials, equipment, supplies and articles incorporated in the proposed work and covered by this contract shall be of the best available grade of their respective kinds.

15. Workmen's Compensation Insurance

The Contractor shall take out and maintain during the life of the contract workmen's compensation insurance for all employees who will work on the project, and if any work is sublet, the Contractor shall require the subcontractor similarly to provide such insurance for all the latter's employees unless they are included under the protection provided by the Contractor.

If employees engaged in hazardous work are not protected under the workmen's compensation statute, the Contractor and any subcontractor who is affected shall provide compensation insurance with a private company in an amount which shall be equivalent to that provided by the workmen's compensation statute for the protection of employees who are so insured.

16. Basis of Awards

The Owner will take into consideration the balanced character of the unit price and lump sum item bids submitted, the experience, ability and equipment of the Contractors and the time for completion of the work as well as the extension of the estimated quantities and estimated totals at the unit prices bid.

The Owner reserves the right to reject any or all bids and to waive irregularities or technicalities not affecting substantial rights or in violation of law.

Separate awards may be made for the different sections of the work.

SPECIAL CONDITIONS & REQUIREMENTS

1. Maintenance of Water Service

Construction work shall be carried out in a manner which does not interfere with the maintenance of water service. Valve closures and interruptions of lines shall not occur except with strict conformance with instructions and approval of the City Superintendent.

2. Clearing and Grubbing

The area to be occupied by the new reservoir, the area in which the excavation material is to be dumped as fill, and the pipe line area shall be cleared and grubbed by the reservoir contractor. The area to be cleared is shown on the reservoir plot plan.

3. Surplus Excavation Material

Surplus excavated material shall be placed where and as directed by the Engineer. This shall apply to both pipe line work and reservoir work.

4. Pipe Installation, Reservoir Site

The pipe line work to be done under section B of the contract within the reservoir site area shall be accomplished immediately after clearing and grubbing and before site and reservoir excavation begins. The contractors on the two sections of the work shall cooperate to accomplish this procedure.

5. Access to Reservoir Site

The City has access to the reservoir site both from the north and the south, but it is anticipated that all heavy equipment, trucks, concrete, reinforcing steel, etc. shall use the north access.

GENERAL CONDITIONS

1. Owner

Whenever the work "Owner" occurs in the Specifications the term shall signify the principal or party to the Contract for whom the work is being done.

2. Engineer

Whenever the word "Engineer" occurs in these Specifications, the term shall signify the Engineer of the firm of engineers employed by the Owner for the purpose of having in charge and directing the design and construction work, said Engineer acting either directly or through an authorized assistant whose instructions and decisions shall be limited by the particular duties entrusted to him.

3. Contractor

Whenever the word "Contractor" occurs in these Specifications, the term shall signify the party or parties contracting to perform the work contemplated under these Plans and Specifications, as Party of the Second Part.

4. Arbitration

The Engineer shall decide all questions which may arise between the parties relative to the true intent and meaning of any of the provisions or stipulations contained in this agreement, or the amount of quantities, quality, character and classification of the work performed by the Contractor under this contract and his decision in the nature of an award shall be final and binding upon both parties to this agreement.

5. Laying Out of Work

The Contractor shall give forty-eight (48) hours notice when he shall require the services of the Engineer for laying out any portion of the work under this improvement. He shall furnish a man to assist in giving lines and levels under the direction of the Engineer. He shall carefully preserve all stakes when set, together with all bench-marks or monuments existing along the lines of this improvement. And in case any of them have to be replaced unnecessarily by the Engineer, the Contractor shall be charged the expense thereof, and the same may be deducted from his estimate.

6. Inspection

The Contractor shall not work on any part of this improvement without notifying the Engineer of his intention to do so. If an Inspector is placed in charge of the work, it is understood that he is the representative of the Engineer and it shall be his duty to direct the construction of the work and the manner of carrying on the same, within the limits of these Specifications; also to inspect all materials of any kind. Rejected material of any kind shall be removed from the work by the Contractor immediately after its rejection, and shall not be used on this improvement. Instructions given by the Inspector shall be respected and executed by the Contractor, but no Inspector shall have the power to waive the obligations resting upon the Contractor to furnish good materials or do good work,

as herein prescribed. Any omission to condemn work at the time of its construction shall not be construed as an acceptance of any defective work, but the Contractor shall at any time prior to final acceptance, upon notice from the Engineer to do so, tear out, remove and properly reconstruct, at his own cost, any portion of the improvement which may be found defective; and the Contractor will be held wholly responsible for the safety, proper construction and efficiency of the entire improvement until the same has been finally accepted by the Owner.

7. Orders Given Contractor

The Contractor shall have an authorized representative on the ground and in charge of the work, and whenever the Contractor himself is not present, orders will be given to such representative, superintendent or foreman in immediate charge, and shall by them be received and obeyed. If any person employed on the work shall refuse or neglect to obey the instructions of the Engineer in any way relating to the work, or shall appear to the Engineer to be incompetent, unreliable, negligent, disorderly or unfaithful, he shall upon written request of the Engineer, be at once discharged and not again employed upon any part of the work.

8. Subcontractors

No part of the work to be performed shall be sublet or transferred without prior written consent of the Engineer, and no such consent shall release the Contractor from any obligation either to the Owner or to persons employed by the Subcontractors, and in all cases, Subcontractors will be considered merely as foreman employed by the Contractor and liable to be ordered and discharged for incompetency, neglect of duty or misconduct.

9. Change in Plans

It is understood and agreed that the Owner shall have the right to make such changes in the amount, dimensions, or character of the work to be done as may be deemed necessary, as, in the opinion of the Engineer, the interest of the work may require. If any such changes or alterations should diminish the quantity of the work to be done, they shall not constitute a claim for damages for anticipated profits on the work that may be dispensed with. If the amount of work to be done is increased, payment shall be made according to the quantity actually done and at a price established for similar work under this contract.

10. Prosecution of Work

The work embraced in this improvement shall be begun within the shortest possible and reasonable time after the date of this Contract, and shall be prosecuted regularly and uninterruptedly thereafter, unless the Owner in writing especially directs otherwise, with such force as to secure its completion by the time bid.

If the Contractor shall fail to complete the work within the time specified, the Contractor shall reimburse the Owner for additional expense and damage incurred by reason of an extended time of engineering service due to such delay and the interest of the invested capital.

11. Taking Over Work

If, in the opinion of the Engineer, the Contractor is using defective material or improperly performing the work, and shall neglect or refuse to take up or reconstruct such work at his own cost as shall have been rejected by the Engineer as defective, or in conflict with the Plans and Specifications, or unsuitable, then the Engineer may give written notice that all work be stopped and any work performed after such notice is given shall not be accepted. After work has been ordered stopped, the Owner may, upon giving twenty-four (24) hours notice, or without giving notice if any emergency or danger to the work or public exists, take over the work or that portion which has been improperly executed and reconstruct it properly at the expense of the Contractor, and to deduct the cost thereof from the unpaid part of the contract price to be paid to the Contractor.

If it shall appear to the Engineer that the work done under this agreement has been abandoned or that the said work is unnecessarily delayed and will not be finished within the prescribed time, he shall so certify in writing to the Owner, and the Owner shall have the power to notify the Contractor to discontinue all work or any part thereof under this contract, and thereupon the Contractor shall discontinue said work and the Owner shall thereupon have the power, by contract or otherwise, as may be determined, to employ such persons, and to use such implements, tools, and materials as they may deem necessary to complete the work, and charge the expense of all labor and materials for such completion to the Contractor under and by virtue of the contract for this improvement and in case such expense is less than the sum which would have been payable under said contract if the same had been fulfilled by the Contractor, then the Contractor shall be entitled to receive the difference and in case such expense is greater, the Contractor shall pay the Owner the amount of such excess so due, and his bond shall answer and be liable therefor.

12. Suspension of Work

The Owner reserves the right to suspend operations on the work or any parts thereof, temporarily. In the event of such temporary suspension the Owner shall give the Contractor five (5) days written notice thereof and the date of completion of the contract shall be extended for a period of time equal to said temporary suspension period, but the Contractor shall have no claim for damage or anticipated profits or said work from or by reason of said temporary suspension.

13. Rights of Way

The Owner shall provide the necessary rights of way for the work. The Contractor shall confine his operations to this right of way, and shall be liable for damages from trespassing outside of right of way limits.

14. Contractor's Risk

It is understood that the whole of the work to be performed under the contract for this improvement is to be done at the Contractor's risk, that he has familiarized himself with the local conditions, weather and other conditions and contingencies likely to be encountered, and has bid accordingly and that he is to assume the responsibility and risk of all loss or damage to materials or work which may arise from any cause whatsoever prior to final completion.

15. Damage Claims

The Contractor agrees to indemnify and hold harmless the Owner from any and all claims for damages of every nature and description arising from or through the operation of the Contractor or those in his employ, including all Subcontractors, including all claims for death or injury to persons, and for injury or damages to the property or right of any person, persons or corporations, either public or private, and including any fine or penalties that may result or to be imposed by any public authority as a result of the prosecution of the work under said contract, and the Contractor further agrees to accept the requirements of the State Industrial Accident Commission and to indemnify and save the Owner harmless from any claim of the State or other authority for fees, compensation or industrial insurance for workmen injured or killed in connection with the prosecution of the work called for by this contract.

In the event of the failure of the Contractor to secure a valid release of any and all such claims before the final acceptance of the work, then the Owner be and is hereby empowered to settle or compromise such claims as best it can and charge the cost thereof to the Contractor as so paid on this Contract, provided, however, that if upon completion of the work called for by the Contract, any such claims are pending and unsettled, irrespective of whether they are in litigation or not, the Contractor shall be privleged to furnish the Owner surety bond covering the full amount of said claims, executed by a responsible surety company authorized to transact a general surety business in the State, for the purpose of indemnifying the Owner from such claims, and thereupon the Owner shall release and pay to the Contractor all moneys withheld as a protection against such claims, but such bond shall not operate to release the Contractor from the primary obligation outlined in this section of the contract.

16. Fees and Royalties

All fees and royalties for any patented machine, device, article, or arrangement that may be used upon or be connected with the work or any part of the work comprehended by these Specifications shall be paid by the Contractor. The Contractor shall and must protect and hold harmless the Owner from any and all claims, demands, damages, cost disbursement, actions and proceedings arising or resulting from the use of any patented machine, device, article, or arrangement.

17. Contractor's Bills

The Contractor shall promptly pay all payrolls and all bills for materials, supplies, outfit, equipment, machinery, appliances and expenses incurred upon or on account of the work. Prior to final settlement, the Contractor shall furnish the Owner satisfactory evidence that all payrolls and bills are paid, and if required shall give access to books and records in substantiation of such payments. Before making said final or any other payment, the Owner may pay for and charge the Contractor any unpaid bills or accounts and sums so paid shall be deducted from amounts earned by the Contractor on the work, and if such payments exceed the earnings of the Contractor on the work, the Owner shall recover such excess from the Contractor or his bondsmen.

18. Release

As a condition of final payment to the Contractor and payment of retained percentage, the Contractor shall execute and deliver to the Owner in substance and form as required by the Owner, a release and waiver of all claims against the Owner out of or connected with the contract.

19. Payments

In consideration of the faithful performance of all the covenants, stipulations and agreements in this contract to be kept and performed by said Contractor, the Owner hereby covenants and agrees to pay the Contractor, in accordance with the schedule of prices in the "Proposal" submitted by the Contractor to the Owner and dated September 6, 1960, which Proposal is attached hereto and made a part hereof.

Payments for the work shall be made on monthly estimates of the Engineer, taken about the end of each calendar month. Ten percent (10%) shall be retained by the Owner to insure the faithful completion of the work and payment of all claims. Within thirty (30) days after the work is fully completed and a certificate to this effect is given by the Engineer to the Owner and upon the execution of the release heretofore mentioned, the retained percentage shall be paid to the Contractor, unless the Contractor has failed to complete the contract within the time specified, or has been deficient or defaulted in the completion or full performance of this contract.

20. Revision of Estimates

No estimate made under this contract except the final estimate, shall be construed or considered as final or conclusive against the Owner in respect to the amount of work done or material furnished, or compensation to be allowed therefore or payments made, but all such estimates made before the final payment shall be considered only as being altogether approximate and provisional, and same shall be subject to revision and adjustments, readjustments and correction by the Engineer for the Owner for errors or omissions as to the determination of the amount of work done or material furnished under this contract, or the amounts paid, or the amounts of work unfinished, or the amounts of material unfurnished, or as to any other matter or thing connected therewith, and the values thereof, respectively, as well as the amount of compensation therefore, having reference to the uncompleted part of said material as well as the work done and the material furnished.

Any omission to disapprove of work at the time of making any monthly estimate or other estimate shall not be construed as an acceptance of any defective work, materials or equipment, and the Contractor at his own cost, must remove and rebuild or make good any work, materials or equipment which the Engineer may find defective in any way.

21. Extra Work

Any work necessary or incident to the carrying out of the work herein contracted, but which is not clearly indicated in the Plans and Specifications, nor covered by the intent and meaning of this agreement and which cannot be classified and paid for under the prices agreed to, and which may be advantageously

furnished or performed by the Contractor, shall be designated as "extra work" and shall be paid for at actual cost of said work as determined by the Contractor's account of material and labor, if and as approved by the Engineer, plus fifteen percent (15%) for the Contractor's supervision, use of tools and equipment, bond premiums and profit.

Extra work shall be performed or supplied by the Contractor only upon written order of the Engineer and all claims and demands for extra work must be made out in itemized and detailed bill form and furnished to the Engineer by the Contractor for settlement at least three days before the day upon which the monthly estimates are to be prepared by the Engineer.

22. Statutory Labor Clauses

The Contractor agrees that he will comply with all Federal and State Laws pertaining to the employment and compensation of labor.

23. Permits

The Contractor shall secure all Municipal, County and State permits incidental to or necessary in the actual performance of the work under this contract, and shall during its progress, comply with all laws, statutes and governmental regulations pertaining to or necessary to the carrying out of the work. The Owner shall, however, obtain rights of way. All highway crossings, restoration of pavement, blockading of roads and highways, and railroads, erection and maintenance of barricades, etc. shall be done by the Contractor in accordance with the requirements of the officials having jurisdiction over such matters.

24. Safety Requirements

The Contractor shall at all times conduct his work in such a manner as to comply with all requirements of the Oregon State Industrial Accident Commission and minimize the possibility of accident or injury to any of his workmen or the general public, and he shall so conduct his work, maintain his operations, and provide all reasonable safeguards so as to protect public and private property as well as to protect persons from injury.

25. Guarantee

All materials, equipment, workmanship and completed project shall be guarnateed against defects for a period of one year following acceptance of the work. This guarantee shall include restoration of settled trenches and surfaces.

26. Obligation To Furnish Good Materials, Equipment and Workmanship

No Inspector or Engineer shall have the power to waive the obligations of the Contractor to furnish good materials and equipment or perform sound and reliable work, and any failure or omission of an Inspector or Engineer to condemn any defective material, equipment or work shall not release the Contractor of the obligation to at once tear out, remove and properly reconstruct or replace the same at his own cost at any time upon discovery of a defect or upon receipt of a notice to do so.

WORKMEN'S COMPENSATION

The Contractor shall comply with Oregon State Laws pertaining to wage rates on public works. Wages shall not be less than the prevailing wages in the territory in which the work is done and for comparable trades or occupations. The Contractor, or his surety, shall furnish to the Owner wage certification forms and affidavits as required by the Oregon State Bureau of Labor.

The forms and affidavits shall conform to those designated as Form W-1 and Form W-2 on the following pages.

OREGON PUBLIC WORKS PROJECT - CONTRACTOR'S WAGE CERTIFICATION FORM Form W-1

Contractor or Subcontractor:	Project Owner or Governmental Agency:
Name _____	Name _____
Address _____	Address _____
Name & Title of Responsible Official: _____	Name & Title of Responsible Official: _____
Description of Work:	Location of Work:

Chapter 627, Oregon Laws, 1959, states as follows:

"Section 5. Before payment is made of any sum due on account of a contract for a public work, the state treasurer or the treasurer of the county, city, district, authority, public corporation or entity or any of their instrumentalities organized and existing under charter or law, or other officer charged with the disbursement of funds applicable to the contract under and pursuant to which payment is made, shall require the contractor or his surety and every subcontractor or his surety to file a statement in writing in form prescribed by the State Labor Commissioner, certifying the hourly rate of wage paid each classification of workmen employed by him upon such public work, and further certifying that no workman employed by him on such work has been paid less than the prevailing rate of wage or less than the minimum hourly rate of wage specified in the contract, which certificate and statement shall be verified by the oath of the contractor or his surety or subcontractor or his surety that he has read such statement and certificate and knows the contents thereof and that the same is true to his knowledge."

Crafts Employed and Minimum Rates Paid

Classification	Rate Per Hr.	Classification	Rate Per Hr.

AFFIDAVIT TO ACCOMPANY WAGE CERTIFICATION FORM

Form W-2

State of Oregon)
)
County of _____)

I, _____, ( ) contractor ( ) subcontractor ( ) surety for contractor ( ) surety for subcontractor, being first duly sworn, depose and say that I hereby certify the above schedule as the hourly rate of wages paid each classification of workmen employed by me (my principal) upon the public work project specified above and

I further certify that no workmen employed by me (my principal) upon said public work has been paid less than the prevailing rate of wage or less than the minimum hourly rate of wage specified in the contract for said public work.

I have read the above statement and certificate and know the contents thereof and the same is true to my knowledge.

_____
(Signature)

_____
(Title)

Subscribed and sworn to before me this _____ day of _____, 19__

_____
Notary Public of Oregon

My Commission Expires _____

MATERIALS & EQUIPMENT

1. Materials Furnished By Owner

The Owner will furnish all gate valves 6" and larger in size, all butterfly valves and all cast iron valve boxes. Necessary gaskets, follower rings, bolts and nuts for valves will be furnished with the valves.

All other materials and equipment shall be furnished by the Contractor.

2. Alternate Materials

Bids are requested for furnishing and for installing alternate kinds of pipe and fittings in the 24" and 18" pipe line work in Section B. The bids are submitted for furnishing such materials shall include all couplings, gaskets, bolts and nuts required with the pipe and fittings. Fittings required for connections to 6", 8" and 12" distribution piping shall be designed and constructed for use with cast iron pipe; if not so furnished on the 18" pipe line, the bidder shall furnish all required adapters in accordance with designs as approved by the Engineer.

The owner may elect to have the contractor furnish and install two kinds of material in the 18" pipe line work. The bid schedule has been proposed with this possibility in mind.

3. Reinforcing Steel

Steel for concrete reinforcement shall conform to the standard specifications for billet steel reinforcement of the American Society for Testing Materials, No. A-15-58T and the A.S.T.M. Specifications A-305-56T for new type reinforcement bars. All shall be of the new approved type, not twisted, and shall be new stock free from dirt, scale, rust, paint, oil or other foreign substances.

4. Structural Steel & Iron Work

Structural steel shall conform to the Specifications for Steel for Buildings of the American Society for Testing Materials (A.S.T.M.), Designation A-7-58T or revisions thereof. Structural steel shall be fabricated and erected in general conformity to the Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings of the American Institute for Steel Construction, except that welded construction shall be used as hereinafter more particularly specified or indicated.

5. Concrete Materials

Cement, fine and coarse aggregates, water, reinforcing steel and form lumber shall conform to the requirements of General Specifications for Concrete Construction which are included herewith.

6. Cast Iron Pipe

Class 150, bolted mechanical joint or Tyton "O" ring joint pipe, with 1/8" cement mortar lining. All bolts, nuts, gaskets and follower rings furnished.

7. Cast Iron Fittings - 6", 8", 10" & 12" Sizes

Class 250 bolted mechanical joint or flanged with 1/8" cement mortar lining.

Flanged cast iron fittings shall be faced and drilled 125 lb. standard. Interior surfaces shall be heavily coated with coal tar enamel immediately after casting or lined with cement mortar complying with A.S.A. standard specifications. Mortar shall be sealed with coal tar. Exterior surfaces shall be coated with coal tar.

8. Gaskets

Gaskets for flanged connections shall be full face rubber 1/8" thick.

9. Concrete Cylinder Pipe

Concrete cylinder pipe and fittings shall be Class 150.

10. Concrete Sewer Pipe & Fittings

Concrete sewer pipe shall conform to the Standard Specifications of the American Society for Testing Materials for Extra Strength Concrete Pipe designation C-14-59. "O" ring rubber gaskets shall be used.

11. Mortar Joints, Concrete Cylinder Pipe

Cement and snad shall conform to concrete materials specifications. Method of forming and form material shall be approved by Engineer.

12. Corrugated Culvert Pipe

Corrugated culvert pipe shall be 12 gauge, galvanized.

13. Gate Valves & Butterfly Valves

All valves 6" and larger in diameter will be furnished by the Owner for installation by the contractor.

14. Air Valves

Air valves shall be fabricated with all seats, rods, pins, and sleeves of bronze, brass or similar corrosion resistant metal and shall operate to remove air efficiently without appreciable loss of water. They shall be manufactured by a concern having a successful record or experience with this type of equipment.

WM 1 CAST IRON PIPE AND FITTINGS

1.1 Bell and Spigot Cast Iron Pipe

Bell and spigot cast iron pipe shall be Class 150 unless otherwise specified and shall conform to American Standards Association specifications A 21.6 or A 21.8 and American Water Works Association C 106-53 or C-108-53 for centrifugally cast iron pipe in metal or sand lined molds. No pipe shall be less than 16 feet in length.

1.2 Mechanical Joint Cast Iron Pipe

Mechanical joint cast iron pipe shall conform to the specifications for bell and spigot pipe except that bells shall be drilled or cored to receive high strength cast iron bolts and shall conform to American Standards Association Specifications A 21.11 as well as A 21.6 or A 21.8.

1.3 Rubber Ring Joint Pipe

Rubber ring joint pipe shall conform to American Standards Association Specifications A 21.6 or A 21.8 and shall in addition have hubs cast to receive Tyton or equal rubber ring gaskets. Gaskets shall be Tyton or equal.

1.4 Fittings, Bell and Spigot Cast Iron Pipe

Fittings for use with bell and spigot pipe shall conform to American Standards Association Specifications A 21.1, Class 250 lbs. per square inch.

1.5 Fittings, Mechanical Joint Cast Iron Pipe

Fittings for use with mechanical joint cast iron pipe shall conform to American Standards Association Specifications A 21.10 and A 21.11, Class 250 lbs. per square inch.

1.6 Fittings, Rubber Ring Joint Pipe

Fittings for rubber ring joint pipe shall be identical with those required for mechanical joint pipe.

1.7 Flanged Fittings and Flanges for Cast Iron Pipe

Flanges and flanged fittings for cast iron pipe shall conform to the American Standards Association specifications B 16.1-1948 and all latest revisions thereof and shall have Class 125 drilling unless otherwise specified.

Materials used in making castings shall conform to A.S.T.M. Specifications A-126-1942 and all latest revisions thereof.

Fact to face dimensions, flange thicknesses, bolt holes and flange facings shall conform to 125 lb. standards unless Class 250 is called for elsewhere in the specifications.

Bolts and nuts for use with flanged fittings shall conform with American Standards Association Specifications B 18.2 - 1941 and all latest revisions thereof.

Gaskets shall be flat ring type conforming to A.S.A. specifications B 16.1.

1.8 Concrete Mortar Lining, Cast Iron Pipe and Fittings

Concrete or cement mortar lining for cast iron pipe shall conform to American Standards Association Specifications A 21.4. Cement mortar lining shall be made with Type II Portland Cement conforming to American Society for Testing Materials Specifications, A.S.T.M. C 150, and sand shall be hard, uncoated, durable and clean. The mortar mix shall contain not less than one part cement to two parts dry sand by volume, and the minimum thickness of lining shall be 1/8" unless a minimum of 1/16" is specified elsewhere. Lining shall be spun in place and sealed with bituminous material prepared for the purpose of curing the lining and sealing the surface thereof.

1.9 Couplings for Mechanical Joint Cast Iron Pipe and Fittings

Gaskets, glands, bolts and nuts shall comply in all respects to the American Standards Association specifications A 21.11.

Bolts and nuts shall be high strength, heat treated cast iron. Glands shall be made of first quality gray iron complying with A.S.T.M. specifications A 48 and American Standards Association specifications G 25.1.

Gaskets shall be made of first grade plantation rubber.

WM 8 CONCRETE MORTAR LINED AND COATED STEEL PIPE, NOT PRESTRESSED

8.01 General

Concrete mortar lined and coated steel pipe shall comply in all respects with the specifications for materials and fabrication of pre-stressed concrete cylinder pipe in section WM 9 with certain exceptions as follows:

8.02 Class of Pipe

Steel cylinder thickness shall be no less than ten (10) gauge and fiber stress shall not exceed 13,500 p.s.i. under any circumstance under the working pressure specified. Thicker wall may be required elsewhere in the specifications.

8.03 Welding

Welding shall be done electrically in conformance with detailed fabricating procedures set forth under specifications for steel pipe and fittings.

8.04 Wire Reinforcing of Exterior Coating

Wire reinforcing of exterior coating shall be no less than No. 15½ gauge wire with a spacing of not to exceed one inch (1").

8.05 Finished Diameter

Finished diameter of pipe after interior lining is spun in place shall be of the size called for in the bid schedule, specifications or on the plans.

8.06 Thickness of Lining and Coating

Thickness of both spun interior lining and exterior coating of concrete mortar shall conform to the minimum thicknesses specified elsewhere.

8.07 Joints

Joints shall utilize "O" ring rubber gaskets which shall be furnished with pipe and fittings.

8.08 Gaskets

Joint gaskets shall be high grade plantation rubber or synthetic rubber. No reclaimed rubber shall be used in manufacture of gaskets.

8.09 Fittings

Fittings for use with mortar lined and coated steel pipe shall comply in all respects with the specifications above for this class of pipe except that fittings and specials not fabricated as a part of a length of pipe shall be designed for class 250 p.s.i. service and shall have steel cylinder thickness of no less than 10 gauge.

Connections on fittings shall conform to requirements of the particular installation and shall have rubber ring gasket joints, flanged joints, or other joints as may be specified elsewhere.

WM 9 REINFORCED, PRESTRESSED CONCRETE CYLINDER PIPE AND FITTINGS

WM 9 .01 General

Reinforced concrete pipe shall be of the prestressed or partially prestressed type having a steel cylinder and wrapped with spiral rods or wire conforming with the Tentative Specifications of the American Water Works Association, 7B.2.

Lengths of pipe shall be not less than 16 feet unless special shorter lengths are specifically called for, and the pipe shall be connected together by means of steel bell and spigot rings with a rubber gasket between the rings, or other joint approved by the Engineer. All pipe shall have a finished inside diameter of the size bid or called for in the specifications.

Plans for the type of joints proposed shall be submitted to the Engineer for approval.

WM 9 .02 Class of Pipe

Pipe shall be suitable for use under a working pressure of 150 lbs. per square inch with a factor of safety of no less than two unless a different operating pressure is called for elsewhere in these specifications. Design drawings of pipe shall be submitted to and approved by the Engineer before fabrication is begun.

Steel in the cylinder and rod wrapping shall not be stressed in excess of 13,500 lbs. per square inch, and welded steel cylinders shall have a thickness of no less than 0.0747 inches. Both horizontal and circumferential welds of cylinders shall develop the full tensile strength of the sheet steel from which the cylinders are fabricated. Cylinders shall be tested to a fiber stress of no less than 22,000 lbs. per square inch after welding is completed.

WM 9 .03 Steel Sheets, Rods and Wire

Steel sheets used for pipe cylinders shall conform to A.S.T.M. specifications for hot roller carbon steel sheets, designation A-245 and including all latest revisions and amendments thereof.

Steel rods used for spiral reinforcement bars conforming to A.S.T.M. standard specifications designated A-15, including all latest revisions and amendments thereof. Steel wire shall conform to A.S.T.M. standard specifications, A229, A227, or A82.

Wm 9 .04 Cement

Cement used in both the interior lining of the pipe and the external covering shall conform to the standard specifications of the American Society for Testing Materials, designation C-150 including the latest revisions and amendments thereof.

WM 9.05 Mortar Aggregates

All aggregates used in the mortar lining and covering shall conform to the standard specifications of A.S.T.M. designated C33, C40, C87, C109 and C136 and including all latest revisions and amendments thereof, and shall be clean, hard, uncoated and durable.

WM 9.06 Joint Rings

Joint rings shall be of the bell and spigot type which will permit adjoining sections of pipe to be telescoped together and held water tight by means of a rubber gasket between the bell and spigot. The joint shall be suitable for the application of a final protective covering of cement mortar in the field.

Rubber gaskets shall be made of all new material having a record of successful, long life for the application intended, and shall be manufactured by a concern thoroughly experienced in this special field of production.

WM 9.07 Pipe Lining

Pipe lining shall be centrifugally spun in place so as to secure maximum density and smoothness. The mortar lining in place shall have a thickness of not less than one-half inch and shall contain no less than one part of cement to two and one half parts of dry aggregate by volume. Gauge rings shall be used to insure even depth of mortar and uniform finished inside diameter. Mortar shall be placed with as little water as possible to insure maximum density of lining and maximum strength.

WM 9.08 Spiral Rod or Wire Reinforcing

Size and spacing of spiral rod or wire reinforcing shall be submitted to and approved by the Engineer before fabrication begins. Bars or wires used for spiral reinforcing shall comply with A.S.T.M. standard specifications as heretofore set forth.

Spiral reinforcing shall be continuous from end to end and shall be wrapped under tension against the cylinder wall. Maximum spacing of spiral bars shall be two inches, and ends shall be lapped welded at ends.

WM 9.09 Exterior Concrete Mortar

Exterior concrete covering of steel cylinder and spiral rod reinforcing shall be applied by grout gun or brush coating machine process which will insure a dense, strong concrete mortar covering not less than one inch (1") thick.

Mortar shall contain not less than one part of cement to three and one-half ($3\frac{1}{2}$) parts of dry sand by volume. Moisture content shall be kept as low as possible for the type of application used, but in no case shall water exceed four and one-half ($4\frac{1}{2}$) gallons per sack of cement.

Mortar mix shall be fresh and none shall be applied which has been mixed for longer than thirty minutes. A multiple number of passes may be used to apply mortar to exterior of the pipe. Special care shall be taken in removing coated pipe from machine and in handling and storage so as to prevent damage.

The exterior coating shall develop a 28 day compressive strength of not less than 4,500 p.s.i.

WM 9.10 Curing of Mortar

Pipe shall be cured by either steam curing for not less than thirty six (36) hours, by continuous exposure to moisture spray for not less than one week, or by sealing all concrete mortar surfaces with a bitumastic sealer especially designed for the purpose.

WM 9.11 Tapping Connections

If called for elsewhere in the specifications, the pipe shall be fabricated with such tapping connections as may be called for by welding threaded couplings in place in the steel cylinder before any mortar lining is applied or steel rods wrapped on the exterior. The couplings shall be of genuine wrought iron and shall be finished flush with the interior lining. The couplings shall be threaded for I.P. standard threads and a plug shall be screwed into the coupling and left during shipment.

Connections shall be located 12" from the end of the pipe lengths unless otherwise specified or called for in the plans. Sizes shall conform to the detailed requirements given elsewhere, when such tapping connections are required.

WM 10 FITTINGS FOR REINFORCED CONCRETE CYLINDER PIPE

WM 10.1 General

Fittings for use with reinforced concrete cylinder pipe shall be as called for in the specifications or bid schedule. Fittings shall be fabricated of steel cylinders encased in concrete, well reinforced and designed for a working stress of 250 lbs. per square inch. Connections shall be spigot and ring for concrete pipe, flanged or hub as called for elsewhere.

WM 10.2 Materials

Steel, cement and aggregates used in the fabrication of fittings shall comply in every way to the specifications set forth under section WM 9 pertaining to reinforced concrete pipe.

WM 10.3 Connections

Flanged connections shall be faced and drilled for standard 125 lb. flanges. Thickness of steel flanges shall be 250 lb. standard.

Hub connections for cast iron or cement asbestos pipe shall be fabricated with inside bell dimensions conforming to the standard dimensions required for the pipe to be inserted into the bell.

WM 10.4 Fabrication and Curing

Special care shall be taken in lining and coating fittings and specials with mortar so as to obtain smooth interior surfaces. All mortar shall be free from cracks or other damage. Curing methods and procedures shall comply with the specifications for curing pipe under WM 9.10.

PIPE JUNCTION HEADER LINING AND COATING

1. General

1.0 The following requirements shall apply to the steel pipe junction header to be installed in the valve control vault at the reservoir.

1.1 The entire fabricated pressure vessel shall be coated with Dimetcote No. 3 on the interior and exterior, and overcoated on the interior with Amercoat No. 86 Primer and Amercoat No. 33 top coats as manufactured by the Amercoat Corporation, 4809 Firestone Blvd., South Gate, California.

1.2 All work shall be performed in strict accordance with the manufacturer's instructions, and in a safe and workmanlike manner. All phases of the work shall be available to observation by a representative of the coating manufacturer, as well as the resident engineer or inspector.

1.3 All safety precautions stated in the manufacturer's printed instructions and in the bulletin "Amercoat Safety Precautions" shall be carefully observed.

2. Surface Preparation - Steel Surfaces

2.1 Heavy deposits of grease or oil shall be removed from the surface with Amercoat No. 57 Oil Cleaner prior to any other surface preparation. Any chemical contamination shall be neutralized and/or flushed off prior to any other surface preparation.

2.2 All welds, edges and sharp corners shall be ground to a curve on the interior of this vessel, and all weld splatter removed.

2.3 All surfaces to be coated shall be given a white metal sandblast in accordance with the Steel Structures Painting Council Specification No. 5, removing all mill scale, rust, dirt, paint or other foreign matter. The surface shall be of a uniform gray color, and shall be slightly roughened to form a suitable anchor pattern for the coating application. Do not leave blasted surfaces overnight before coating. Remove all sand from the surface by brush or industrial vacuum.

3. Coating Application

3.1 General Conditions

3.1.1 Coverage rates indicated herein are maximum rates allowable; number of coats indicated are minimum number allowable. Refer to film thickness requirements.

3.1.2 No coating work shall be done under unfavorable weather conditions unless the work is well protected from such conditions, and then only with the specific approval of the resident engineer or inspector.

3.1.3 All equipment shall be maintained in good working order, and shall be comparable to that described in the printed instructions of the coating manufacturer. All equipment shall be thoroughly cleaned before and after use with the appropriate cleaning solution as indicated by the coating manufacturer.

3.1.4 Minimum between-coat drying times, as stated in the printed instructions of the coating manufacturer shall be carefully observed.

3.1.5 Except where otherwise specified, thinning shall be done only if necessary for workability of the coating material and then in accordance with the manufacturer's printed instructions. Use only the appropriate Amercoat thinner. Addition of the wrong thinner may cause gelling or other damage to the coating material.

3.1.6 No thinner or solvent of any kind shall be added to Dimetcote No.3.

3.2 Dimetcote No. 3 Application

3.2.1 Apply one coat of Dimetcote No. 3 by spray in an even, wet film, overlapping each pass 50% to avoid thin spots. Welds, seams, corners, rivets and rough spots should be given special attention to be certain they are covered. Warning: Care should be taken not to apply Dimetcote No. 3 too heavily. A thick film will not cure properly and may also crack, check or peel. However, an even single pass spray coat will normally develop the proper thickness with no difficulty.

3.2.2 When applied, Dimetcote No. 3 is a dark reddish-gray color. After 15 minutes to an hour the color will change to a lighter gray. Allow a minimum of one hour after the coating has turned to the lighter color then apply one coat of D-3 Curing Solution by brush or spray, wetting the surface thoroughly. Approximately the same number of gallons of D-3 Solution shall be applied to the surface as Dimetcote No. 3.

3.2.3 The dry film thickness of the finished coating shall be 2½ to 3 mils, as determined by the Elcometer thickness gauge or comparable instrument. Should the total thickness be more than 3 mils, apply an additional coat of D-3 Curing Solution. Note: Dimetcote No. 3 will not cure in thickness of 5 mils or more. Any areas found to be 5 mils or more in thickness shall be reblasted and recoated.

3.2.4 Dimetcote No. 3 should not be exposed to moisture for a period of 24 hours after the application of the D-3 Curing Solution. If it is not possible to protect the coating for this period, allow the first coat of D-3 Curing Solution to dry for at least one hour, then apply a second coat of D-3 Curing Solution.

3.2.5 On the interior where the Dimetcote No. 3 is to be overcoated, it is essential to remove all residual Curing Solution from the surface. The Curing Solution must remain on the surface for a minimum of 24 hours. The surface shall then be thoroughly scrubbed with stiff brushes and water.

3.3 Priming - Metal Surfaces

3.3.1 One coat of Amercoat No. 86 Primer shall be applied by brush in an even, wet coat.

3.3.2 Coverage of the prime coat must not exceed 200 square feet per gallon per coat.

3.4 Intermediate and Finish Coating

3.4.1 Apply at least two coats of Amercoat No. 33 in heavy, wet spray coats, overlapping each pass 50% to avoid thin spots. Special attention should be given to all welds, seams and rough areas to be certain they are covered.

3.4.2 Coverage must not exceed 250 square feet per gallon per coat.

3.4.3 Each coat shall be applied in a different color from the preceding coat, the finish coat to be light gray. Note: when a white finish is desired, the last two coats shall be white.

3.4.4 Amercoat No. 33 may be applied by hot spray methods, using equipment such as is manufactured by De Vilbiss, Spee-Flo or Bede. This technique will aid in developing the required thickness in the minimum number of coats.

4. Inspection

4.1 All work performed under this specification shall be subject to inspection in the following manner:

4.2 The inspector or resident engineer shall approve all surface preparation prior to application of any coating.

4.3 Each coat shall be inspected prior to application of the next coat. Areas found to contain runs, overspray, roughness or other signs of improper application shall be repaired or recoated in accordance with the manufacturer's recommendations.

4.4 On the exterior, the completed coating shall be a minimum dry film thickness of 3 to 4 mils, and on the interior, the completed coating shall be a minimum dry film thickness of 6 to 7 mils, as determined by the Elcometer thickness gauge or comparable instrument. In areas where this thickness is not developed, sufficient additional coats shall be applied to produce it.

4.5 The completed coating on the interior and exterior shall be inspected for pinholes and holidays with a Tinker & Rasor or other low voltage (under 100 volts) holiday detector. Areas found to contain pinholes shall be repaired or recoated in accordance with the manufacturer's recommendations.

4.6 The completed coating shall be inspected for runs, overspray and roughness, and any areas found to show these or other signs of improper application shall be repaired or recoated in accordance with the manufacturer's recommendations.

SPECIFICATIONS FOR CONCRETE CONSTRUCTION - GENERAL

1. General

These specifications shall apply to plain and reinforced concrete throughout the work. They shall be superseded only by applicable special clauses written into the detailed construction specifications, or by special notation on the plans.

Additional specifications relative to order of placement, type of forms, finish, etc. will be found in the detailed construction specifications elsewhere in the complete set of job specifications.

The proportioning, mixing, placing and finishing of concrete shall be done under the direction of the Engineer and in conformance with the best practice required to secure the objectives of strength, density, water-tightness and good surface appearance.

2. Cement

All cement shall be of a standard and accepted brand and shall conform to the Standard Specifications for Type 1 Portland Cement of the American Society for Testing Materials, Serial Designation C-150-49 and subsequent revisions thereof. The cement shall be delivered in sacks marked with the brand unless specific approval is given for bulk shipments. A sack of cement shall contain not less than ninety-four (94) pounds of cement, net and shall be deemed equivalent to one (1) cubic foot in volume.

3. High Early Strength Portland Cement

High early strength cement shall be used only where expressly called for in the specifications or approved by the Engineer, and shall conform to the Standard Specifications for Portland Cement, Type 111, of the American Society for Testing Materials, C-150-49 and revisions thereof.

4. Admixtures

Admixtures shall be used only by special permission of the Engineer and for particular locations. They shall be considered only as a means of improving the workability of the concrete and facilitating its placement, and in no case shall be a reason for reducing the cement content below the amount specified.

5. Air Entrainment

In order to obtain concrete which will adequately withstand weathering and exposure to extremes of freezing and thawing, the Engineer may require the use of an air entraining agent having a record of satisfactory use. Such materials shall be (1) sulphonated hydrocarbon, (2) resin from distillation of wood, or (3) grease especially manufactured for the purpose.

Air entraining agents when used shall be sufficient to keep the air content between three and five per cent (3% - 5%).

6. Water

Water for concrete shall be clean and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances.

7. Fine Aggregate

Fine aggregate shall consist of natural sand, sand prepared from the product obtained by crushing stone, rock or gravel, or other approved inert materials with similar characteristics, or a combination thereof, having clean, hard, strong, durable, uncoated grains and free from injurious amounts of dust, lumps, soft or flaky particles, shale, alkali, organic matter, loan, or other deleterious substances.

Fine aggregate shall be uniform in fineness and quality and shall not show a variation in fineness modulus greater than 0.20 plus or minus.

Fine aggregate shall conform to the pertinent sections in the Standard Specifications for Concrete Aggregates of the American Society for Testing Materials, C-33-49 and revisions thereof.

8. Coarse Aggregate

Coarse aggregate shall consist of crushed stone, gravel, or other approved inert materials with similar characteristics or combinations thereof, having clean, hard, strong, durable, uncoated particles free from injurious amounts of soft, friable, thin, elongated or laminated pieces, alkali, organic or other deleterious matter. The maximum size of aggregate for general concrete work, such as reinforced walls, beams, columns, slabs, etc., shall be a size which will pass a 1½" square opening.

Coarse aggregates shall conform to the pertinent sections in the Standard Specifications for Concrete Aggregates of the American Society for Testing Materials, C-33-49 and revisions thereof.

9. Reinforcing Steel

Steel for concrete reinforcement shall be intermediate grade deformed (not twisted) bars, conforming to the Standard Specifications for Billet Steel Bars for Concrete Reinforcement of the American Society for Testing Materials, A-305-50T and A.S.T.M. A-15-50T and all latest revisions thereof. Bars shall be new stock, free from dirt, excessive scale, rust, paint, oil or other foreign substances.

10. Wire Fabric

Steel wire fabric or mesh used for reinforcement shall conform to the Standard Specifications for Welded Steel Wire Fabric of the American Society for Testing Materials A-185-37, and to the Standard Specifications

for Cold Drawn Steel Wire, A-82-34, and the latest revisions thereof. Any make or style of mesh conforming to the Specifications and giving equal or greater sectional areas may be substituted for the one on the plans if approved by the Engineer.

11. Form Lumber

Form lumber shall be straight, well manufactured shiplap, boards or plywood, surfaced at least on one side and two edges and free from loose knots, cracks or roughness which will show on the surface of the finished concrete. Lumber which is cupped or twisted shall not be used. Form lumber may be re-used provided that it has been thoroughly oiled, cleaned, all nails withdrawn, and is the equivalent in usefulness of new lumber. Framing lumber for forms shall be true and straight and free from defects that will reduce the strength for the purpose intended. Studs shall be surfaced on one edge. Wherever the forms may stand for some time before use, the lumber shall be sufficiently dry to avoid shrinkage or warping after erection.

Undressed lumber may be used for unexposed surfaces and rough work if approved by the Engineer.

Forms for exposed surfaces shall be of new material or the equivalent thereof approved by the Engineer.

12. Forms for Special Finishes

For exposed surfaces requiring a special finish the Engineer may specify the use of matched lumber or form lining. Forms for special finishes shall be matched lumber which is straight, well manufactured flooring, grade "C" under the rules of the West Coast Lumberman's Association, free from warping or cupping; or full thickness Concrete Form Plywood conforming to the specifications of the Douglas Fir Plywood Association; or regular board forms lined with $\frac{1}{4}$ inch plywood or hard pressed board suitable for the purpose and which will not warp or buckle.

Plywood shall be true and free from defects on the side next to the concrete and shall be used in as large sheets as practical unless otherwise specified. Lining material may be re-used, provided that it is in good condition and thoroughly cleaned between pours.

13. Form Construction

Forms shall conform to the shape, lines, grades and dimensions of the concrete, as called for on the drawings. Joints shall be horizontal or vertical, and adjacent surfaces shall be in substantially true planes to permit the concrete to be finished with a minimum of grinding. Forms shall be sufficiently tight to prevent leakage of mortar and formation of fins.

Forms shall be adequately supported by studding and walling to carry the maximum concrete pressures and shall be braced against distortion from any cause during or after the placing of concrete.

Form ties shall generally be bolts or rods with spacers, so arranged that when the forms are removed no metal will be within one inch of any surface. Wire ties shall not be used unless specifically approved by the Engineer.

Floor slabs and horizontal members shall be adequately supported, allowing not only sufficient strength but also rigidity to prevent deflection when the forms are loaded, and where necessary the forms shall be cambered so that the finished members shall conform accurately to the desired line and grade. If adequate foundation for shores cannot be secured, trussed supports shall be provided. Shores supporting successive stories or pours shall be placed directly over those below, or so designed and placed that the load will be transmitted directly to them.

Chamfers. Unless otherwise specified, outside or inside corners which are for convenience shown square on the drawings shall be chamfered by the use of suitable moldings or bevels placed in the angles of forms. The tops of exposed walls shall generally be finished to a molding inside the forms which shall be accurately leveled and lined.

Temporary openings shall be provided at the base of columns and wall forms, and otherwise where necessary to facilitate cleaning and inspection immediately before depositing concrete, and other openings shall be placed where necessary for spading or vibrating.

Pipes passing through walls shall be placed in walls before concrete is poured, or block-outs shall be provided through which pipes may later be installed and grouted in place.

The inside of forms shall be coated with an approved non-staining mineral oil or other material, or wooden forms not to be re-used shall be thoroughly wetted. Form oil shall be applied before steel reinforcement is placed.

Removal of forms shall be subject to the approval of the Engineer, and shall not be started until the concrete has attained the necessary strength to support its own weight and any construction live loads.

14. Bending and Placing Reinforcement

Metal reinforcement, before being positioned, shall be thoroughly cleaned of mill and rust scale and of coatings that will destroy or reduce bond with concrete. Reinforcement appreciably reduced in section shall be rejected. Where there is delay in depositing concrete, reinforcement shall be re-inspected, and, when necessary, cleaned. Reinforcement shall be carefully formed to the dimensions indicated on the plans.

Bends in bars shall be made around pins having diameters not less than the following:

For stirrups and tie bars	2 bar diameters
Bars 1" or less	6 bar diameters
Bars exceeding 1"	8 bar diameters

Metal reinforcement shall not be straightened or rebent in a manner which will injure the metal, and bars with kinks or bends not called for on the drawings shall not be used. All bars shall be bent cold except in special cases where the entire operation of heating and bending is specifically approved by the Engineer.

Metal reinforcement shall be accurately positioned, and secured against displacement by using annealed iron wire of not less than No.18 gauge, or suitable clips, at intersections, and shall be supported by concrete or metal chairs or spacers, or metal hangers. The minimum clear center to center distance between parallel bars shall be $2\frac{1}{2}$ times the bar diameter, but in no case shall the clear spacing between the bars be less than $1\frac{1}{2}$ times the maximum size of the coarse aggregate, nor less than 1 inch in beams and girders, nor less than $1\frac{1}{2}$ inches in columns. Bars parallel to the exterior face of any member not exposed to water or weather shall be embedded at least one bar diameter for round bars or diagonal dimension for square bars, but in no case less than 3/4 inch from the exterior surface. In walls exposed to water pressure, the embedment shall be not less than $1\frac{1}{2}$ inches and in footings in contact with the ground not less than 3 inches.

Splices in steel reinforcement bars shall be lapped not less than 30 diameters for top bars or 25 diameters for other bars. The use of splices shall at all times be subject to the approval of the Engineer. Splices shall not be made at points of maximum stress, except in the case of hoops, and splices in adjacent bars shall be well staggered. Splices in hoop steel bars shall be welded if called for on the plans or in the detailed specifications.

15. Storage of Materials.

Cement to be used for on-the-job concrete mixing shall be delivered on the work a sufficient length of time in advance of use to permit sampling and testing. It shall be stored in a dry shed or a platform elevated above the ground and covered with a tent, tarp, or canvas in such a manner that the canvas does not come in contact with the sacks. Cement must come up to the specification requirements at the time of use, and shall not be released from storage without the express permission of the Engineer. Sacks shall be tiered up in such a manner as to facilitate counting and shall be hauled away only with the knowledge and approval of the Engineer.

Fine and coarse aggregate shall be kept in separate piles and in such a manner as to avoid the inclusion of dirt or foreign materials. Frozen aggregate shall be thawed by the use of steam.

16. Quality of Concrete

Concrete shall be homogeneous in the structures, and upon having set and hardened, shall have the strength required, and shall be resistant to weathering under the conditions of its intended use.

The quantity of cement used per cubic yard shall be specified, and that quantity shall not be reduced even though tests of concrete indicate a higher strength than may have been specified or required for the work.

17. Sampling and Testing

The Contractor shall cooperate with the Engineer in furnishing typical samples of aggregate and cement for testing purposes. He shall also facilitate the collection of samples of mixed concrete for testing purposes.

All sample collecting and testing procedures shall comply with the latest A.S.T.M. specifications pertinent to the particular tests being made.

Actual sampling and testing shall be at the expense of the Owner unless otherwise specifically stated in the detailed specifications of construction.

18. Proportioning Concrete

The classification of concrete used in different parts of the work shall be indicated on the plans or covered by the detailed specifications for construction. It shall be based upon 3 factors, Namely:

1. The minimum number of 94 pound sacks of cement per cubic yard of finished concrete, which number shall be the class designation.

2. The maximum permissible water-cement ratio.

3. The maximum size of coarse aggregate, referring to square opening test screens.

For general work and unless modified by the detailed plans and/or specifications, the following proportions shall be used:

Maximum size of coarse aggregate: $1\frac{1}{2}$"

Class of Concrete	Sacks of Cement Per Cu.Yd. Concrete	Maximum Water Cement Ratio	Maximum Permissible Water in Gallons Per Cu.Yd. of Concrete
4	4	8	32
5	5	7	35
6	6	6	36
7	7	5	35

Note: Above water amounts based upon dry aggregate.

Subject to these fixed factors, the proportions of fine and coarse aggregates and the water content shall be subject to the control and approval of the Engineer, with the objectives of securing the maximum

strength, durability, density, and watertightness reasonably practicable for the location and conditions of placement. The fact that concrete has more than adequate strength for the design requirements shall not be a reason for increasing the water cement ratio, and if the Contractor desires added workability to suit the particular equipment and methods of placement that he uses, this shall be attained by increasing the cement content or the addition of an admix, provided the proposed change in mix is first approved by the Engineer. Any such increase in cement per yard or the addition of an admix shall be at the Contractor's expense.

For small jobs, requiring less than 100 cubic yards at a given plant setup, the fixed proportions of aggregates may be controlled by volumetric measurements, and a measuring box of exactly one cubic foot volume shall be provided for checking the contents of wheelbarrows or buggies. For larger jobs, materials shall be measured by weighing, using approved apparatus especially designed and constructed for the purpose. The mixing water shall in all cases be measured by volume or by weight. The tolerance of uniformity in aggregate weights shall be plus or minus one percent (1%) from the desired amount and the tolerance of accuracy for water measurement shall be plus or minus one half of one percent (½%).

19. Consistency of Concrete

The consistency of concrete to be used in different sections of the work shall be determined by the Engineer and shall in all cases have the lowest water-cement ratio which can reasonably be placed, using the best available equipment together with mechanical vibration as hereinafter specified. As a guide in the field, standard slump cones shall be provided and used by the Contractor and generally the following slumps will be required.

Type of Concrete Placement	Slump in Inches	
	Maximum	Minimum
Reinforced foundation walls and footings	3½	2
Plain footings and substructure walls	3	1
Slabs, beams and reinforced walls	4	2
Building columns	4	2
Pavement	2	1½
Heavy mass construction	2	1

20. Mixing Concrete

Unless otherwise specifically authorized by the Engineer, the mixing of concrete shall be done in a batch mixer of approved type which will insure a uniform distribution of the material through the mass. Hand mixing shall be permitted only for very small and isolated structures and under approved methods. The equipment at the mixing plant shall be so constructed that all materials entering the drum, including the water, can be accurately proportioned within the tolerances heretofore provided. The entire batch shall be discharged before recharging and the mixer shall be cleaned at frequent intervals during use. The volume of the mixed material per batch shall not exceed the manufacturer's rated capacity.

The mixing period shall be not less than one and one-half (1½) minutes for mixers having a rated capacity of one (1) cubic yard or less, and two (2) minutes for larger mixers, the mixing periods being measured from the time when all solid materials are in the mixer drum, provided that all of the water shall be added before one-fourth of the mixing time has elapsed.

Retempering of concrete or mortar which has partially set, that is, remixing with or without additional cement, aggregate or water shall not be permitted.

21. Truck Mixing

Truck mixers may be used in connection with batching plants which will insure proportioning of materials within the tolerances stated above. Truck mixers shall be provided with a tank for carrying mixing water, and only the prescribed amount of water shall be placed in the tank. Mixers shall be of the revolving drum type, water tight, and so constructed that the concrete can be mixed to insure a uniform distribution of materials throughout the mass. The maximum batch shall not exceed the manufacturer's rating. The Engineer may require that truck mixers be provided with a timing device. Mixing shall continue for not less than fifty revolutions at a speed of not less than 4 r.p.m. after all ingredients, including the water, are added. Mixing shall begin within 30 minutes after the cement has been added to the batch, and the batch shall be discharged within one and one-half (1½) hours after the cement has been added to the batch.

During hot weather and for rich mixes or mixing using high early strength cement, the time between addition of cement and placement in forms shall not exceed one (1) hour or less if required by the Engineer.

22. Ready Mixed Concrete

If ready mixed concrete is used, it shall conform in all respects to the standard specifications of the American Society for Testing Materials designated C-94-48 and all latest revisions thereof.

23. Hauling Ready Mixed Concrete

Concrete may be hauled from a central mixing plant only for distances and under conditions which will insure that there be no segregation of materials, and strictly subject to the approval of the Engineer. The use of a truck mixer or a truck equipped with agitating blades may be required. The volume of mixed concrete transported in an agitator shall be in accordance with the manufacturer's rating. Concrete shall be discharged from the agitator or other transportation device within one and one-half (1½) hours after the cement has been added to aggregates at the batching point, or in one hour or less if required by the Engineer for special mixes or during hot weather.

24. Depositing Concrete

Under these specifications concrete shall be placed only in the dry. Underwater work requiring special methods shall be covered by detailed specifications therefor. Any water flowing into the excavation shall be diverted to a sump or removed by other approved methods which will prevent it from coming in contact with the freshly deposited concrete.

Before beginning the placement of any run of concrete, surfaces of contact at construction joints shall be thoroughly cleaned and prepared, as hereinafter specified. Forms shall be cleaned and wetted or oiled. All debris and foreign materials shall be removed from the space to be occupied by the concrete. Placement and tying of reinforcement shall be finally checked. Mixing and conveying equipment shall be clean. Concreting shall begin only after all conditions have been inspected and final approval given by the Engineer.

Concrete shall be handled from the mixer to the place of final deposit as rapidly as practical by methods which prevent the separation or loss of the ingredients. It shall be deposited in the forms as nearly as practicable in its final position to avoid rehandling. It shall be so deposited as to maintain, until the completion of the unit, a plastic surface approximately horizontal. Forms for walls or other thin sections of considerable height shall be provided with openings, or other devices, that will permit the concrete to be placed in a manner that will prevent segregation or accumulations of hardened concrete on the forms or metal reinforcement. If required by the Engineer, trunks shall be used for placing concrete in deep walls.

Under no circumstances shall concrete which has partially hardened be deposited in the work.

For ordinary structures, the preferred method of placing concrete shall be by the use of buggies or other approved containers or bottom dump buckets. Chuting shall be done only after the plant set-up has received specific approval of the Engineer, and with equipment of such size and design as will insure a continuous flow in the chute. Chutes shall be metal or metal lined, with a uniform slope of not less than one vertical to two horizontal. The discharge end of the chute shall be provided with a baffle plate, and if the height of the discharge end above the surface of the concrete is more than three (3) times the thickness of the layer being deposited, a spout or trunk shall be used and the lower end shall be kept close to the surface. When the operation is intermittent, the chute shall discharge into a hopper. It is the intent of these specifications that no segregation of concrete shall take place between the mixing plant and the point of final placement in the forms, and the methods of handling shall be strictly under the control of the Engineer.

Placement of concrete in wall forms in a manner dependent upon horizontal flow shall not be permitted.

25. Special Methods of Placing

Concrete may be placed by pumping with equipment which is suitable in construction and adequate in capacity for the work. An agitating hopper shall be provided immediately ahead of the pump. The operation shall be such that a continuous flow of concrete without air pockets is produced. The length of discharge lines shall be limited to 1,000 feet with a minimum number of bends. Special pipe with detachable couplings shall be used. All precautions shall be taken to avoid segregation at the point of discharge, and an air booster at the end of the line shall be used only with great care and subject to the approval of the Engineer. When pumping is completed, the concrete remaining in the line shall be ejected by methods which will avoid addition of water to the concrete or separation of its ingredients. After this operation and before re-use, the entire equipment shall be thoroughly cleaned.

26. Depositing Concrete in Cold Weather

Concrete when deposited shall have a temperature of not less than 50 degrees nor more than 120 degrees F. When the air temperature is below 40 degrees at any time during the day or night, concreting shall be carried on only under special precautions which shall meet the approval of the Engineer, and the concrete in place shall receive special protection. For moderate cold weather conditions, the mixing water shall be heated, but not to a higher temperature than 140 degrees F. When necessary the aggregates shall also be heated by the use of steam. Forms shall be free from frost or ice, and after the concrete is placed, it shall be protected on all exposed sides by the use of straw, sawdust, tarpaulins or other means, and heat shall be provided if necessary during the entire curing period, as hereinafter specified. Salts, chemicals, or other foreign materials shall not be mixed with the concrete for the purpose of preventing freezing.

27. Depositing Concrete Under Water

Concrete deposited under water shall be done in strict compliance with the Engineer's requirements. It shall not be placed in water having a temperature below 35 degrees F. Concrete temperature shall be not less than 60 degrees F. nor more than 120 degrees F.

Underwater concrete shall contain seven (7) sacks of cements per cubic yard, and the volume or weight of coarse aggregate shall be not less than one and one-half, nor more than twice the volume or weight of the fine aggregate. Slump shall be not less than four (4) nor more than seven (7) inches.

Insofar as it is possible to accomplish, no flow of water shall pass over the concrete during deposition and until hardening takes place. If this cannot be prevented, the current shall in no case exceed ten (10) feet per minute in the space occupied by the concrete.

Concrete shall be deposited continuously until all is brought to the required height.

28. Compacting Concrete

As concrete is placed, it shall be thoroughly compacted by means of mechanical vibrators to secure a dense structure without voids, close bond with reinforcement, and smooth exposed surfaces. The use of hand tools for spading or roding the concrete shall not be permitted except in locations where the use of mechanical equipment may prove impractical, and the Engineer gives specific approval.

Methods, and the extent of compaction, shall be subject to the control of the Engineer. Any tendency to accumulate water or fines at the surface shall be offset by adjustment in the mix.

29. Construction Joints

Concrete shall generally be deposited continuously, or in layers of such thickness that no concrete which has hardened sufficiently to prevent bond or create planes of weakness shall come in contact with fresh concrete.

Construction joints shall be used wherever it is neither feasible nor desirable to place concrete in a continuous operation, or wherever it is necessary or desirable to provide for shrinkage. Construction joints shall be located as called for in the plans and construction specifications or as required and approved by the Engineer. Construction joints shall be keyed and provided with water stops if called for in the plans or required by the Engineer. Construction joints shall be so located and built as to prevent weakening of the structure and not interfere with the finished appearance.

Joints in columns shall be made at the underside of floor members and at floor levels. Haunches and column capitals shall be considered as part of and continuous with the floor or roof. At least two (2) hours must elapse after depositing concrete in the columns or walls before depositing in beams, girders, or slabs. Construction joints in floors shall be located near the middle of span of slabs, beams or girders, unless a beam intersects a girder at this point, in which case the joints in the girders shall be offset a distance equal to twice the width of the beam. Adequate provisions shall be made for shear by use of inclined reinforcement.

Construction joints which do not serve as expansion joints shall be made so as to insure bonding of the new concrete to the old. The surface of the hardened concrete shall be roughened to expose the solidly embedded particles of aggregate. Loose or damaged concrete, foreign matter, and laitance shall be removed, and the surface thoroughly washed. Forms shall be tightened, and to insure an excess of mortar at the juncture of the old and new concrete, the cleaned surfaces, including vertical and inclined surfaces, shall be coated with a layer of mortar or neat cement grout against which the new concrete shall be placed before it has attained its initial set. If additional strength or resistance to shear is required at construction joints, it shall be provided through the use of concrete keys or additional dowel bars, or both.

30. Watertight Structures

Walls or floors in structures to contain water shall be given special care in the location and workmanship of construction joints. Generally a keyway will be required to increase the length of the leakage path, and a continuous metal plate or water stop will be placed in the middle of the keyway. Joints not shown on the plans and placed to suit the operations of the contractor shall be in every way equal to those definitely shown, and it shall be the responsibility of the Contractor to secure complete watertightness in the finished structure. Otherwise, methods used shall correspond to those specified for other construction joints.

31. Removal of Forms

Forms shall not be removed until the concrete has attained a strength fully adequate to support itself and carry any superimposed loads, and also to permit the removal of forms without breaking corners or defacing the surface. Subject to these limitations, and the seven (7) day curing period specified hereinafter, the forms for exposed surfaces shall be removed as early as possible, to permit repair of defects and surface grinding while the concrete is still green. The time for form removal shall be subject to the approval of the Engineer, and shall take into account the location and character of the concrete, weather and curing conditions. Beams, elevated slabs, domes, etc. shall be supported for at least 14 days. Where local codes require a longer period, they shall apply. Such support may be provided by reshoring the structure after the removal of the forms.

32. Curing Concrete

All concrete shall be protected so that there will be no loss of moisture from the surface for at least seven (7) days when normal cement is used. When high, early strength cement is used, the minimum period shall be three (3) days. Protection of loss of moisture from the surface of concrete shall be accomplished by keeping the surface continuously wet.

On vertical and bottom faces the forms generally shall be kept in place and kept wet. If the forms are to be removed earlier, the method of curing shall be approved in advance by the Engineer. The upper surfaces of slabs or floors shall be protected from evaporation by the use of burlap or other absorbent material which shall be kept wet by spraying. The surfaces of walls shall be cured in the same manner as floors. Sealing compounds may be used if they do not discolor the concrete, and if the compound and its application are approved by the Engineer. The use of calcium chloride or other salts will not be permitted.

33. Surface Finish

Concrete that is to have a showing face, even though no particular finish is called for, shall be mixed, placed and compacted in a manner that will insure a uniform distribution of aggregates, freedom from void spaces, and a uniform texture. Existence of rock pockets, air or water bubbles, shall be evidence of improper mix or handling and shall be

corrected. After the forms are removed, all defects shall be repaired at once. The same cement shall be used as in the original work, and color shall be added if necessary for matching. Holes left by tie rods shall be hammer-packed with stiff, dry mortar, and the surfaces shall be leveled. Rock pockets shall be similarly filled and finished. Honeycombed areas shall be cut out to a depth at which sound concrete is exposed and filled with concrete matching that of the structure. Offsets, fins and irregularities due to defective forms shall be filled and ground off to a reasonably true surface in keeping with the location in the structure and subject to the approval of the Engineer.

Exterior and interior walls and surfaces of structures, where matched flooring or plywood forms are called for, shall have a true allignment, free from streaks or discoloration and uniform finish with no form marks of any sort. This result shall be secured by special care in the construction of forms and placing the concrete. Only a minimum of pointing up will be permitted, and there shall be no plastering. Irregularities shall be removed by mechanical grinding or by hand rubbing with a carborundum brick.

Top surfaces of walls, etc. not subject to wear shall be struck off evenly to screeds which have been set with a level. Generally a beveled molding shall be used to finish top corners in preference to a curbing edger. Excess water shall be drained off and the surface finished with a wood float.

Floors and other wearing surfaces shall be finished as one course work to accurately set screeds or templates. The concrete proportions and consistency and the methods of compaction shall be such that only sufficient mortar is available for finishing and there is no excess water. During the preliminary finishing operation the surface shall be worked only as necessary to insure a layer of mortar at the surface. While the concrete is still soft, the surface shall be checked with a straight edge or template, and inaccuracies corrected. Final troweling shall be delayed until the surface can no longer be dented with the finger.

Floors of substantial area shall be finished by the use of a rotary finishing machine. Smaller areas shall be given a steel trowel finish by experienced cement finishers, to give a dense, hard surface meeting the approval of the Engineer. Joints and edges shall be finished with proper tools and surplus mortar cleaned away. The finished surface shall be immediately covered and protected from sun and rain, and shall be cured under moist conditions as hereinbefore provided.

Floors to have a non-slip surface shall be broomed or otherwise finished as required by the Engineer.

CONSTRUCTION SPECIFICATIONS FOR CONCRETE RESERVOIR, VALVE VAULT & APPURTENANCES

1. Scope of Work & Local Conditions

The work covered by these specifications consists of furnishing all labor and materials for the construction of a 4 million gallon concrete covered reservoir to be located on the Owner's property north of the City of Newberg, Oregon. The work includes inlet and outlet piping, underdrainage, valves, fittings, appurtenances, grading of site and provision for surface water drainage.

The Contractor shall confine his operations entirely within the property lines at the site unless otherwise authorized in writing and under no circumstances shall the Contractor encroach upon adjacent private property without authorization.

Adequate toilet and sanitary facilities shall be provided for the workmen as required and approved by the Engineer and all employees shall be required to use such facilities.

2. Clearing and Grubbing

Clearing and grubbing shall include the removal of all trees and brush on the site within the area shown on the plans. The Contractor shall dispose of trees, brush, stumps, etc. by burning or hauling away, all subject to approval of the Engineer. If the material is burned, the Contractor shall comply with all fire regulations pertaining to burning and obtain any permit which may be required for burning.

3. Site Excavation & Grading

Material from site excavation and grading shall be dumped on the property as required by the Engineer. Fill shall not be made over pipe line location until the pipe line is installed from the valve vault to a point outside of the reservoir property. Fill areas shall be cleared and grubbed before fill is placed.

Upon completion of reservoir construction, the entire site area shall be graded, provision being made for the handling of surface water drainage so as not to damage the newly filled area.

4. Structural and Trench Excavation

Below site graded elevations as shown on the drawings, structural and trench excavation will apply. Test pits have been dug on the site by the Owner. None show evidence of solid rock, but excavation has not been made to full depth required by construction. Solid rock is not expected, but its absence is not guaranteed. If solid rock as defined on page RC-2 of these specifications is encountered, the contractor shall be paid for same at the price previously established and included in the proposal section. The unit price shall apply to both structural and trench excavation.

The Contractor will not be permitted to make an open cut through the "dish" of the reservoir for the purpose of hauling and removing excavated material. Cut through the "dish" shall be only wide enough to permit installation of necessary piping. Maximum width shall be 6' 4".

Structural and trench excavation shall be classified as either common or solid rock as follows:

A. Solid Rock
All rocks in ledges or mass that cannot be removed without blasting, or boulders containing more than 8 cu. ft. in volume shall be classified as solid rock.

B. Common
This classification shall include all other material not described as solid rock, including hardpan, slate, shale, clay, sand, gravel and loose rock.

It is anticipated that the reservoir excavation will be taken out primarily by machinery but all excavation for sloping wall sections and bottom slab shall be finished to fine grade by hand as hereinafter provided.

Excavation for floor and sloping slab sections, expansion joint beams, and footings shall be made accurately to lines and slopes shown on the plans or staked on the ground. Except with special written permission by the Engineer, excavation by machinery shall not be carried closer than three (3) inches from the neat lines of the finished excavation and the remainder shall be finished by hand. Any excavation inadvertently carried below grade shall be replaced with Class "4" concrete at the expense of the Contractor. No filling under concrete slabs shall be permitted except for crushed rock or gravel around the underdrains. The Contractor may elect to fill overbreak in solid rock with Class "6" concrete during sloping slab and bottom slab pours, but he shall be compensated only for the yardage of concrete called for in the plans.

The Contractor shall make provision for the removal of all water from the site and the cost thereof shall be absorbed in his bid prices, provided, however, that underdrainage lines shown on the plans and ditches and pipe for interception of surface water and carrying reservoir overflow and drainage shall be paid for in accordance with prices bid.

Structural excavation shall be measured to a vertical plane at the outer edge of the heel of vertical walls and distance of excavation shall be determined by measurement to the bottom of the wall footings, sloping slab sections and bottom slabs. Excavation for expansion joint ribs or beams and underdrainage lines shall be in accordance with the sections shown on the plans.

Alignment and depth of cut for all pipe trenches shall be in accordance with the plans. Should any solid rock be encountered, excavation shall be carried not less than 2 inches (2") nor more than 6 inches (6") below the indicated depth to provide a sand cushion or concrete bed for the pipe.

The width of the trench shall be such as will permit the careful laying and jointing of the pipe.

In calculating pay quantities for trench excavation, the depth of trenches outside the lines of structures shall be measured from the ground levels established after site grading. Trenches excavated within area of structures shall be calculated from neat bottom lines of concrete. All depths shall be to outside bottom grade of pipe disregarding bell holes, but including extra depth for sand or gravel cushion in rock.

The fixed pay width of trench shall be as follows:

For 6 inch pipe	1 ft. 8 in. (1' 8")
For 8 inch pipe	1 ft. 8 in. (1' 8")
For all larger sizes	1 ft. wider than the nominal inside diameter of pipe.

Pay width of trench containing outlet pipe, overflow pipe and underdrain pipe shall be 6' 4" and excavation shall not be wider.

For types of pipe requiring bell holes, the cost of excavation thereof shall be included and absorbed in the price paid for pipe laying. At trench intersections, or where trench and structures overlap, the excavation shall be paid for only once.

The bid price for excavation shall cover and absorb the cost of pumping, draining and otherwise taking care of any water encountered. It shall also cover the cost of providing, placing and removing any sheeting, bracing or shoring necessary to protect the excavation until concrete is placed and cured and until pipe is installed and backfilled. Excavation bid price shall also include backfilling in trenches and around the structure.

5. Trench Backfill

Backfilling of trenches outside of structure shall be placed with special care to a point six inches (6") above the pipe to secure full support and avoid displacement. Material around and over the pipe shall be carefully tamped in place by mechanical methods to a point six inches (6") over the top of the pipe. The remainder of trench backfill may be settled with water or tamped to insure thorough compaction. Cost of backfilling shall be included in the price for trench excavation and backfill.

Pipe trench under reservoir shall be backfilled with either Class "4" concrete or with pit run sand and gravel thoroughly compacted to prevent settlement. The Engineer shall determine which shall be used. If concrete is used, it shall be poured to a vertical plane from the outer heel of the wall footing. From the later point, granular material shall be placed from the outer heel outward.

6. Disposition of Excavated Material

Material from structural and trench excavation shall, as provided under site excavation, be dumped as fill on the site. The bid prices for site excavation, structural excavation and trench excavation shall include all costs of dumping, placing and grading of such materials on the site.

7. Embankment

After construction of the reservoir, material shall be placed over the footings and around the reservoir. Such materials shall be properly compacted with the aid of water if necessary in order to prevent any settlement after completion of the work. Care shall be taken not to damage the wall of the reservoir during embankment operations. Embankment close to the reservoir wall which cannot be properly placed by mechanical equipment shall be hand tamped in accordance with the instructions of the Engineer.

No special payment shall be made for embankment and the costs of piling, rehandling material, placing and compaction shall be included and absorbed in the price bid for structural excavation.

8. Surface Water Drainage

Surface water on the site shall be intercepted by means of pipes and ditches as shown on the plans. Shallow ditches shall be included in site grading work. Pipe lines shall be paid for in accordance with the unit prices for trench excavation, furnishing and laying pipe and furnishing and placing gravel.

9. Installing Pipe and Fittings

Pipe trenches shall be fine graded to give each length of pipe full support and allow equal deflection for successive lengths in either horizontal or vertical curves. If the bottom of the trench is in solid rock, a cushion of either gravel or pit run sand and gravel shall be provided as directed by the Engineer. Pipe joints shall be adjusted so as to give a uniform space around the entire pipe prior to making of the joint. Bell holes shall be excavated of sufficient size to permit the making of proper joints.

All flanged connections shall be bolted up with full face rubber gaskets not less than 1/16 inch thick, and bolts of proper size and length. Fittings and valves shall be assembled without strain.

All water pipe will be subject to pressure tests in accordance with the requirements of the Engineer and any defective pipe or fittings found by such tests

shall be taken out and replaced. Joints shall be absolutely water tight and shall not be covered until approved by the Engineer.

Concrete sewer pipe shall either be installed with open joints in gravel or crushed rock filled trenches or with tight mortar or rubber gasket joints as called for in the plans.

10. Pipe Alignment

Pipe lines or runs intended to be straight shall be so laid. Deflections from a straight line or grade made necessary by vertical or horizontal curves or offsets shall not exceed the maximum deflections shown in the following table:

Size of Pipe In Inches	Maximum Deflection in Inches per 10 Ft. of Pipe
Mechanical Joint Cast Iron Pipe:	
4"	17"
6"	15"
8"	11"
10"	11"
12"	11"
14"	7"
16"	7"
18"	6"
Steel Pipe, Dresser Couplings:	
4" through 18"	8"
Concrete Cylinder Pipe:	
12"	6"
14"	5½"
16"	4½"
18"	4"

Deflections in excess of the foregoing shall be accomplished by the use of fittings or specials.

11. Laying Cast Iron Pipe and Fittings

Pipe trenches shall be fine graded to give each length of pipe full support and allow equal deflection for successive lengths in either horizontal or vertical curves. If the bottom material in the trench is unsuitable for pipe support, a cushion of pit run sand and gravel shall be provided. Pipe joints shall be adjusted so as to give a uniform space around the entire pipe prior to making of the joint. Bell holes shall be excavated of sufficient size to permit the making of proper joints.

Care shall be taken to keep dirt, gravel and all foreign material from entering the pipe or the bell, and each length shall be checked before being placed.

Mechanical, bolted joints shall be taken up evenly with a rachet wrench. Gasket and follower ring shall fit snugly and firmly to prevent leakage.

12. Laying Concrete Cylinder Pipe

The trench shall be fine graded to give each length of pipe full and uniform support from end to end. Sufficient clearance at joints shall be provided for placing concrete mortar collars around joints after laying.

Concrete pipe shall be handled with wide belt slings and handled carefully so as to prevent damage. Ends of pipe shall be "buttered" with cement mortar before they are pulled together and the interior shall be carefully swabbed clean and clear of any excess mortar. An approved rubber lubricant shall be used to assist in placing the rubber ring gasket and sliding the collar in place over the gasket.

Each joint shall be covered on the outside to exterior diameter of the pipe with cement mortar. Mortar shall be 1:2 mixed as dry as possible and still be workable. In no instance shall the mortar covering of the joint be less than the thickness of the concrete covering the pipe itself.

Any damage to concrete mortar covering of concrete pipe shall be repaired by the Contractor using 1:2 dry packed mortar.

13. Cutting Cast Iron Pipe and Steel Pipe

Cutting of cast iron and steel pipe for closure pieces or for other reasons shall be done in a neat and workmanlike manner, by a method which will give a smooth end and not damage the pipe, lining, coating or wrap.

14. Pipe Junction Header

A steel pressure vessel for present and future outlet pipe connections is to be installed with a reinforced concrete control vault and valve chamber. Flanged connections are required for four reservoirs. The entire unit shall be shop fabricated in accordance with the plans and carefully installed in the valve chamber.

Specifications for coating of the prefabricated steel unit are given in another section of these specifications.

15. Reservoir Underdrainage

Gravel or crushed rock packed, open joint sewer pipe underdrains are to be provided as shown on the plans. The quantity of underdrainage to be so placed may be increased or decreased at the discretion of the Engineer after excavation of the site is complete and the materials are available for inspection.

All underdrainage pipe shall be either four (4) or six (6) inch bell spigot concrete sewer pipe as shown on the plans and shall be placed in a gravel or crushed rock packed trench. The pipe shall be surrounded and covered with gravel

or crushed rock. A strip of Kraft paper shall be placed over the top of the gravel of all underdrainage lines under concrete in order to prevent penetration of mortar during concrete placement. All joints in underdrainage lines shall be laid without any joint material except a short length of yarning material for centering pipe. Gravel or rock for underdrainage shall be clean and sound and shall pass a one inch (1") round opening and be retained on a four mesh screen.

16. Concrete

The General Specifications for Concrete Construction shall govern, but in addition the Contractor shall comply with the supplemental requirements herein described. All structural concrete shall be Class "6".

The Engineer shall have rigid control over concrete mixes and shall determine proportions of fine and coarse aggregate to be used for each class of concrete and for each area in which it is to be placed. Careful controls shall be exercised by the Contractor in regulating the mix and amount of water used. Slump tests will be used by the Engineer for the regulation, control and modification of water-cement ratios. All concrete shall be placed as dry as reasonably possible to obtain a workable mix and secure maximum density, strength and impermeability in place. Test cylinders shall be taken by the Engineer for testing in a laboratory.

All concrete shall be vibrated in accordance with the requirements of the Engineer and the Contractor shall so conduct his forms and conduct his concrete placing operations as to obtain concrete of maximum density, strength and water tightness. No topping of slabs will be permitted.

Dome of the reservoir may be either of monolithic pour construction or of gunite concrete construction. In either case, the amount of concrete to be placed and the thickness of the dome shall conform to the plans. The contractor may also elect to place sloping slab concrete by guniting; if so, thickness and design shall conform to requirements for poured concrete. Dome concrete placed by guniting need not be trowelled provided the application is uniform in thickness and appearance.

No concrete pouring operations shall begin unless the Contractor has on hand and in good mechanical condition at least two (2) vibrators suitable for use on the concrete placement operation to be undertaken.

17. Order of Concrete Placement in Reservoir

Subject to modification by the Engineer for special conditions which may be encountered during the work, the order of placing concrete in the reservoir shall be as follows:

A. Sloping slabs and wall footing
B. Bottom slabs
C. Vertical walls between vertical bulkheads in designated sections
D. Dome

18. Placing Reinforcing Steel

Reinforcing steel shall be accurately placed both as to spacing and alignment in conformity to the Plans and "General Specifications for Concrete Construction."

Vertical bars in wall sections shall be extended into the footing or spliced to dowels. All splices in reinforcing steel no matter where located shall be lapped no less than the amount called for in concrete specifications.

Reinforcing steel shall be continuous through all construction joints, but no bars shall extend through expansion joints.

19. Form Ties

Rigid form ties and spacers of steel rods shall be used which permit unscrewing or breaking off one inch (1") beneath the finished surface of concrete. Wire ties will not be permitted.

20. Sloping Slab and Vertical Wall Footings

The reservoir wall footing and sloping slab section shall be placed without horizontal construction joints. Alternate sections shall be placed in accordance with a program approved by the Engineer. Alternate sections may be placed on the same day. Following sections shall not be placed until the previously placed sections have set thoroughly and shrinkage has taken place.

The moisture content of the concrete shall be as low as possible in order to permit the driest concrete attainable with a workable mix. No forms shall be used for the sloping sections and the surface of the concrete shall be screeded accurately with heavy rods and the surface given a steel trowel finish. An absolutely true surface shall be required on all sloping sections. No topping or addition of cement drier shall be permitted.

21. Expansion Joint Sills or Beams

Expansion joint sills or beams shall be provided under all expansion joints in slabs as shown on the plans. Concrete for sills shall be Class "6". The surface of all ribs shall be finished true to line and grade with a steel trowel finish.

The top surface of sills shall be coated with a primer and finish coat of asphalt material approved by the Engineer after the concrete has thoroughly cured and before slabs are placed. Asphalt surface of sills shall be thoroughly cleaned before concrete is placed in floor slabs. The cost of asphalt coating applied to top of expansion joint ribs shall be included in the price bid for expansion joints.

22. Construction Joints

Hortizontal construction joints will not be permitted in reservoir wall. No construction joints in bottom slabs or sloping slabs will be permitted between expansion joints.

Vertical construction joints in wall and construction joints in dome shall be keyed and include galvanized iron water stops. All reinforcing steel shall be continuous through all construction joints. Construction joint between vertical wall and footing section shall be constructed with offset and provided with galvanized iron water stop.

23. Reservoir Bottom Slabs

Floor slab sections shall be placed in alternate checkerboard fashion to allow for shrinkage during setting of concrete. Expansion joints shall be supported on sills or beams. Floor shall be warped to slope to outlet pipe.

Screeds shall be substantial and carefully and accurately set. Rods shall be heavy and straight and shall be provided with handles to facilitate their use. All concrete shall be worked down to a smooth plane and rodded to accurate lines and grades. The bottom slab shall be given a steel trowel surface finish and a power driven, rotary finishing machine or other approved equipment and methods shall be used for this purpose. Neither cement drier nor mortar topping shall be used in finishing slabs.

24. Vertical Walls, Reservoir

Vertical wall sections of the reservoir shall be placed to full height above footings in one continuous run, and forms shall be of ample strength and rigidity to permit such an operation. Wall section lengths shall be determined by the Engineer, or as indicated on the plans. Bulkheads shall not be located in line with construction joints in footings and sloping slab sections. No hortizontal cold joints shall be permitted.

Openings shall be provided in the bottom of vertical wall forms through which all dirt, debris, sawdust, wood chips, etc. can be and shall be removed by high pressure water nozzles immediately before concrete placing starts.

Concrete in lower half of vertical walls shall be placed by means of trunks to prevent segregation of aggregate.

Forms for walls shall be new plywood, new T. & G. or equivalent which will result in smooth, attractive finish surfaces, wherever exposed in finished structure. Exterior walls to be covered with earth may be formed with shiplap or similar material.

Rigid form ties and spacers of a type approved by the Engineer shall be used. They shall be such as to permit cutting off or unscrewing one inch (1") beneath the finished surface of the concrete walls. Wire ties will not be permitted.

Every possible precaution shall be taken during concrete placing to secure a water tight wall free from any voids or gravel pockets. After forms are removed, both surfaces shall have all fins and pronounced offsets, if any, removed and form tie recesses shall be dry packed with 1:2 mortar immediately after forms are stripped.

25. Reservoir Dome

Dome of reservoir may either be constructed of Class "6" concrete placed by crane, boom and bucket or it may be gunite concrete. The procedure for placing concrete shall be reviewed and approved by the Engineer before concrete placement begins. The extent of placement per day and the number and location of construction joints shall be determined in advance and approved by the Engineer. Construction joints shall be keyed wherever thickness of dome is sufficient to permit keys, and in addition, all construction joints in dome shall contain galvanized iron metal water stops placed above reinforcing steel.

See plans for notes re. concrete placing and construction joints in dome.

Centering and forms for the roof dome shall be adequate in strength, substantially tight, and of a design permitting them to be readily removed without damage to the structure.

The surface of the dome roof made with Class "6" concrete shall be carefully screeded and rodded to proper thickness, and the surface shall be finished with modern tools. A smooth (but not steel troweled) surface shall be required. Neither topping nor drier shall be used.

All concrete in the dome roof shall contain six sacks (1.50 barrels) of cement per cubic yard, and shall be placed with the least amount of water consistent with proper workability.

Forms supporting the dome roof shall not be stripped in less than twenty-one (21) days.

26. Concrete Finish, Reservoir

The interior surface of walls and underside of dome of reservoir, and the wall exterior above finished grade shall be free of fins or roughness, depressions and form tie recesses shall be dry packed and pointed up with 1:1 1/2 mortar immediately following stripping of forms. Grinders or carborundum blocks shall be used to rub down fins, rough and uneven spots, etc.

The top surface of dome shall be struck off to screeds and given a wood float finish, being tamped and vibrated to bring mortar to the surface and finished as one course work without added topping.

27. Expansion Joints

Expansion joints in bottom and sloping slabs shall be made of mastic asphaltic material with neoprene rubber tubing in base of joint. Mastic shall be Paraplastic or equal approved by the Engineer and shall be heated under controlled

temperature in accordance with recommendations of the manufacturer. Flame shall not be applied direct to container in which mastic is to be melted. A double kettle, oil bath heating unit shall be used.

Expansion joints shall be made in accordance with the following procedure:

1. Joints shall be made after all concrete slab work is completed, forms stripped and removed, and the slabs and joints thoroughly cleaned and dried.

2. Strip form material from joints.

3. Thoroughly clean and wire brush vertical surfaces of joint with power-driven wire brush.

4. Blow dust, dirt, etc. from joints with compressed air.

5. Apply cut back primer to dry, clean, surfaces and allow primer to dry thoroughly.

6. Place neoprene rubber tubing in joint and caulk down hard.

7. Ends of rubber tubing shall be carefully lapped at ends of material and at intersections of joints so as to prevent flow of mastic downward under pressure.

8. Check joints for cleanliness and coverage of primer.

9. Pour heated mastic at recommended temperature to completely fill joint flush with concrete slab surfaces.

28. Structural Steel and Iron Work

Structural steel and iron work such as step rungs, frames, grating, straps, ladders, railings, etc. shall be furnished and installed as shown on the plans. All steel or iron work shall be galvanized.

29. Reservoir Outlet and Vent Screens

Outlet and vent screens for reservoir shall be constructed as shown on the plans. Vent screen shall consist of 16 mesh stainless steel.

30. Cleaning, Washing and Disinfecting Reservoir

After completion of the work the Contractor shall remove all trash, debris, dirt, excess material, etc. from the reservoir and wash out the entire surface through the drain by means of water under pressure. Following a thorough cleaning of the reservoir, the Contractor shall disinfect all reservoir surfaces with a hypo-chlorite solution applied by means of a sprayer in accordance with the requirements of the State Board of Health. Following this procedure the reservoir shall be filled and tested for leakage.

31. Tests of Workmanship, Reservoir

It is intended the concrete walls, sloping slab, bottom slab, dome, construction joints and contraction joints, when complete, shall be thoroughly water tight without porous spots, voids, or honeycomb sections which may permit leakage. Because of the high cost of water to the Owner , it is imperative that a water tight reservoir be obtained and the reservoir will be tested for water tightness by means of a hook gage to determine any drop in elevation of the water surface during testing. The reservoir shall be tested for a period of at least seven (7) days. Actual checking for leakage shall not take place until sufficient time has elapsed to allow for absorbtion of water by the concrete.

If any leakage occurs, the Contractor shall remedy the defects at his own expense in accordance with methods approved by the Enginser.

32. Grading and Cleaning Up

It is intended that the reservoir site upon completion of the work shall present a neat and finished appearance which will permit the planting of grass and shrubs on the embankments and surrounding ground. Surfaces shall be leveled to blue top stakes and finished and sloped by hand. Form lumber and debris shall be removed, burned, or disposed of as directed by the Engineer. Piles of excess concrete material, construction roadways, and other surface evidence of construction work shall be regraded and settled areas shall be refilled. All clean-up work shall be to the satisfaction of the Enginser and the cost thereof shall be included and absorbed in other unit bid prices.

33. Sanitary Facilities

The Contractor shall provide and maintain adequate, clean sanitary toilet facilities for his workmen, and all workmen shall be required to use such facilities. Urination and defecation within the reservoir construction area shall not be permitted and any workman refusing to comply with these requirements shall be discharged and not again employed on the work.

34. Guarantee

The entire improvement, including all materials, equipment and workmanship shall be guaranteed against any defects for a period of one year following date of acceptance.

PRESTRESSED RESERVOIR CONSTRUCTION

1. General

All specifications for concrete reservoir, valve vault and appurtenances which are applicable and included in the RC Section of the specifications shall apply. In addition, the specifications pretaining to prestressed reservoir construction set forth herein shall also apply.

2. Qualifications of Prestressing Contractor

The contractor or prestressing sub-contractor shall have had at least five years experience in the application of the circumferential prestressed reinforcement by the method specified; or shall be a licensee of a company having such experience. Furthermore, any method of prestressing shall have been used on tanks of similar size and capacity that have been in successful service for a minimum of three years.

3. Wall Forms

In all cases, wall forms must be sufficiently rigid and well braced that they will not tremble or distort in a high wind. Lumber used in forms for surface shall be dressed to uniform thickness and free from loose knots or other defects, and shall be thoroughly cleaned before reuse. Forms shall be sufficiently tight to prevent leakage of mortar and shall be braced and tied together so as to maintain the desired position and shape during and after placing of the material.

Wall forms shall not be removed until the material has hardened sufficiently to safely support its own weight, possible construction loads and wind forces. If forms can be removed without small pieces of mortar adhering to them the above condition will be assumed to apply. In no case, however, shall forms be removed prior to the expiration of an 18-hour period unless high early strength cement or its equivalent has been used, and then only with the approval of the Engineer.

Form ties with effective waterstops shall be used to maintain accurately the specified wall thickness. These ties shall be either of the threaded or the snap-off type so that no form wires or metal pieces will be left at the surface of the wall. The holes left by such form ties are to be carefully cleaned and patched with cement mortar containing 15 lbs. of Embeco, or equal, per bag of cement used.

Forms shall be constructed so that there will be no horizontal construction joints in the tank wall unless specifically indicated in the plans. Suitable provisions must be made for stripping, moving and bracing wall forms.

Vertical construction joints between sections of the wall shall be arranged for each days' pour. Wooden forms shall be thoroughly wetted before concrete is placed. Temporary openings shall be provided at the base of the forms to facilitate cleaning and inspection immediately prior to depositing concrete.

Pipe sleeves, inserts for pipe connections, anchors and forms for pipe holes must be accurately placed and securely fastened to the forms in such a

manner that the placing of cement and stripping of forms will not alter their alignment or location. Openings may be formed at sleeve locations, and sleeves placed and grouted with cement mortar containing 15 lbs. of Embeco, or equal, per bag of cement after wall concrete is placed. Wall sleeves may be placed after horizontal prestressing. The location of all pipe sleeves or holes for same is to be checked by the Engineer before placing the concrete. Maximum projection of pipe sleeves from outside face of tank shall be 3 inches. All pipe sleeves or holes for same are to be provided with an approved type waterstop.

4. Dome Forms

For dome forms, the posts, ledgers and joists shall be so proportioned, spaced and braced that all dead loads and live loads during construction will be supported safely without material distortion. Dome sheathing shall be thoroughly wetted before placing concrete or pneumatic mortar. The upper surface of sheeting under the load of wet concrete must remain truly spherical in shape throughout, as shown on plans. Dome forms are not to be stripped until the hoop reinforcements on the dome ring have been placed and stressed in sufficient amount to compensate for the horizontal thrust due to deadload and an approved portion of the live loads on the dome shell, and covered with pneumatic mortar. Before actual stripping, the load on the supporting posts are to be relieved by removing wedges or blocking under the posts, working outward from the center.

A tolerance from true spherical shape of underside of the dome will be permitted in the dome formwork, checked just prior to concrete placement, of 1/360th of the span between main supports, with a maximum tolerance of one inch allowed between the apex of the dome and the spring line of the dome.

5. Concrete, Reinforced Concrete and Pneumatic Mortar

The general specifications for concrete construction shall apply, and all concrete other than gunite or pneumatic mortar shall contain no less than six sacks of cement per cubic yard.

A retarding densifier shall be used following the manufacturer's recommendations. It shall be a non-hygroscopic powder free of calcium chloride, foaming or air entraining agents. Care shall be taken to correlate the amount used with existing temperature conditions and the design of formwork or other dependent portions of the structure.

Admixtures may be used with approval of Engineer.

Curing compounds shall not be used on surfaces to which pneumatic mortar is to be applied.

As soon as practical after circumferential prestressing steel has been installed and stressed, it shall be covered with pneumatic mortar of such thickness as to provide a minimum of $1\frac{1}{2}$" cover over the outer layer. Where more than one layer of steel is required, under layers shall be provided with a minimum $\frac{1}{4}$" thick cover of pneumatic mortar.

6. Construction Joints

Construction joints in the wall foundation shall conform with the details shown on the drawings. Unless otherwise specified, all joints shall be provided with waterstops.

Horizontal construction joints will not be permitted in the tank core wall; however, in order to provide for the contingency that unforeseen circumstances may make it necessary to form such a joint, the hardened surface of the concrete shall be thoroughly cleaned of foreign matter and laitance, wetted and 1½" of grout (regular concrete less coarse aggregate) placed thereon before resumption of the concrete pour.

Rubber pad joints if used shall be constructed as shown on the drawings.

To form the cavities adjacent to the rubber pads in these joints, damp sand, clay or other material acceptable to the Engineer may be used as the forming medium.

Pads may be natural rubber, synthetic rubber or neoprene. The rubber shall be of a durometer as indicated on the drawings with a minimum tensile strength of 2,000 psi, 500% elongation, 50% max. compressive set as outlined in ASTM specifications made by Gates Rubber Company, Servicised Products Corp., or equal; and shall be affixed to the foundation by the use of rubber cement or other approved means.

Nailing will not be permitted. Splices in rubber pads shall be well butted and sealed with rubber cement approved by the Engineer.

Lubricated sliding base joints, if used, shall be carefully prepared in order to assure uniform sliding. At least 3 alternate layers of Barrett's Elastigum or approved equal and 30 lb. building paper shall be the minimum requirements for a sliding base. Other methods may be used if justified by actual use.

Rubber or neoprene waterstops or other materials approved by the Engineer shall be used in joints between wall and wall foundation, in all vertical joints of wall construction and wherever else as indicated in the drawings. Type and size of waterstop shall be as indicated on the drawings, and wall-to-wall foundation joint shall have an open center bulb. They shall meet the requirements of Specifications of the Gates Rubber Company, Servicised Products Corp., or equal, and shall be supported during concrete placement to prevent dislodgement and to insure that ends remain at right angles to the construction joint. Joints and intersections of waterstops shall be sealed by vulcanizing, rubber cementing, or other approved means.

Dome shall be constructed by applying concrete or pneumatic mortar in rings of selected width starting from the outside. Circumferential construction joints between successive rings shall be made as follows:

(A) Pneumatic mortar shall be applied to full shell thickness and sloped 30-45 degrees at the joints, except for a minimum ¼" at the top and bottom which shall be at 90 degrees to the surface.

(B) Concrete shall be placed with a t"/2 x t"/2 lap joint where t equals the thickness of the dome shell. Joint shall be coated with mortar before placement of new concrete. The tolerance in thickness of the dome shall be + $\frac{1}{4}$", - 0.

7. Prestressed Reinforcing Material

The physical characteristics of wire used for circumferential prestressing shall be:

(1) Oil dipped, hard drawn, 0.160 to 0.235 inch diameter.

(2) Minimum ultimate strength of not less than 210,000 psi.

(3) Stress at 0.010 inch per inch elongation not less than 180,000 psi.

(4) Elongation under load at fracture not less than 0.025 inch on a 10 inch gage length.

The wire shall be non-welded wire delivered to the site in paper-wrapped coils containing a minimum weight of 250 lbs.

The physical characteristics of high strength alloy steel bars, if used for vertical prestressing, shall be:

(1) Minimum guaranteed ultimate of assembled unit - 145,000 psi.

(2) Minimum stress at 0.2% offset from tangent - 130,000 psi.

(3) Minimum elongation in 20 diameters at ultimate stress - 4%.

(4) Minimum modulus of elasticity - 25,000,000 psi.

Two copies of mill certificate and stress-strain curve based on a representative specimen of steel furnished shall be submitted to the Engineer.

Required elongation for vertical prestressing shall be determined from the stress-strain curve.

8. Circumferential Prestressing

Circumferential prestressing of the tank wall shall be accomplished by applying uniformly stressed steel to the concrete core wall so as to provide the cross-sectional area of prestressing wire or prestressing force per lineal foot of height as shown on the drawings. The contractor shall furnish apparatus, satisfactory to the Engineer, capable of measuring steel stress to a tolerance within 10,000 psi and which is provided with a dial and corresponding calibration chart. Measurement of stress by releasing the stress in the steel and measuring the resulting retraction will not be permitted.

Wire shall be spirally wound on the tank wall by a self propelled machine running on and around the tank wall and shall be applied at its specific stress, plus or minus 10,000 psi, by drawing the wire through a die in such a manner that

during and after stressing of the wire, the wire is not required to move circumferentially relative to the face of the concrete wall or pass through intermediate deflection devices between the stressing mechanism and the concrete wall. Splicing of the wire shall be permitted only to join complete coils of wire and to replace breakage caused by defective wire.

Embedment of circumferential prestressing elements in the concrete core wall will not be permitted.

Circumferential prestressing shall not be started until the tank wall concrete has attained a strength equal to 90% of the 28 day concrete strength, unless otherwise specified by the Engineer.

All vertical construction joints shall be closed by grouting or tamping with cement mortar, containing Embeco or equal, in an amount recommended by the manufacturer of the mix used before the start of circumferential prestressing if their total accumulated width over the whole circumference exceeds .02% of the total circumference.

9. Vertical Prestressing

Vertical prestressing tendons, if required, shall be furnished to provide the final prestressing force and spacing required by the drawings. Any of the methods approved and used for State or Federal highway bridge construction may be used. Procedures shall follow the manufacturer's recommendations.

BASIS OF PAYMENT

Section A - Reservoir

Item

1. Clearing & Grubbing - lump sum for area shown on plan
2. Site Excavation - per cubic yard
3. Structural & Trench Excavation, Common - per cubic yard; includes spreading on site.
4. Structural & Trench Excavation, Solid Rock - $9.00 per cubic yard if any is encountered. See specifications for rock description.
5. Class "4" Backfill Concrete - per cubic yard
6. Class "6" Concrete in Slabs, Sills, Footings - per cubic yard
7. Class "6" Concrete in Reservoir Wall - per cubic yard
8. Dome Class "6" Concrete or Gunite - per cubic yard
9. Gunite Exterior Wall - lump sum, includes neat cement final wash coat
10. Class "6" Concrete, Valve Vault & Chlorinator House - per cubic yard
11. Concrete Block - lump sum
12. Steel Reinforcing - per lb. in place and called for in plans
13. Welded Mesh Reinforcing - per lb. in place and called for in plans
14. Prestressed Steel - lump sum, includes earthquake-resistant ties
15. Header Tank - lump sum
16. Coating of Header Tank - lump sum
17. Structural Steel & Iron - lump sum, including required galvanizing or painting
18. Aluminum Roof Vent - lump sum
19. Aluminum Door - lump sum
20. Aluminum Grating - lump sum
21. Chlorinator Bldg. Carpentry, Doors, Roof - lump sum
22. Chlorinator Bldg. Sheet Metal & Vent Work - lump sum

23. Chlorinator Bldg. Electric Work - lump sum, includes wiring, conduit, fixtures, switches, etc. complete with power from present source.

24. 2" & Smaller Piping - lump sum, includes all pipe, fittings, couplings, valves, etc.

25. Concrete Cylinder Pipe & Fittings - lump sum for furnishing and installing in addition to payments for excavation.

26. Cast Iron Pipe & Fittings - lump sum for furnishing and installing in addition to payments for excavation

27. Install 16" Butterfly Valves - per each for installation; valves, bolts and gaskets furnished by Owner

28. Install 8" Gate Valves - per each for installation; valves, bolts and gaskets furnished by Owner

29. Install 6" Gate Valves - per each for installation; valves, bolts and gaskets furnished by Owner

30. 6" Concrete Sewer Pipe - per lineal foot

31. 6" Concrete Sewer Pipe, Open Joints - per lineal foot

32. 4" Concrete Sewer Pipe - per lineal foot

33. 4" Concrete Sewer Pipe, Open Joints - per lineal foot

34. Gravel or Crushed Rock - per cubic yard

35. Pit Run Sand & Gravel, Compacted - per cubic yard, measured in place

36. Roadway Base Rock - per cubic yard, measured in place

37. Roadway 3/4" Minus Rock - per cubic yard measured in place

38. Neoprene Expansion-Contraction Joints - per lineal foot

39. Rubber Pads - lump sum

40. Plastic Water Stops - lump sum

41. 2" Air-Vacuum Relief Valve Assembly - lump sum includes 2" piping, gate valve & air-vacuum valve.

Section B - Pipeline Work

Items

1, 3, 5 Alternate Kinds of Pipe - per lineal foot net length including all couplings, gaskets, bolts, nuts

2, 4, 6 Fittings For Alternate Kinds of Pipe - lump sums for the portions of the 18" and 24" lines shown; price includes all couplings, gaskets, bolts, nuts

7, 8, 9 Cast Iron Pipe - per lineal foot net laying length

10. M. J. Cast Iron Fittings - per lb. weight of fittings; price includes all gaskets, follower rings, bolts, nuts

11. Excavation & Backfill, Common - per cubic yard using pay widths of trench in specifications, price includes disposition of surplus as approved by Engineer.

12. Excavation & Backfill, Solid Rock - $10 per cubic yard; price includes disposition of surplus as approved by Engineer.

13. Compaction of Backfill - No payment for compaction to point 6" above top of pipe; above that elevation, per cubic yard if required by Engineer; pay width of trench excavation used for yardage.

14. Crushed Rock or Gravel Bedding - per cubic yard if directed by Engineer; trench pay width used for yardage

15. Pit Run Sand & Gravel Backfill - per cubic yard if directed by Engineer; trench pay width used for yardage

16, 17, 18 Cut & Restore Paving - per square yard; price includes 10" base rock and 2" of 3/4" minus rock; pay width 6" wider than excavation pay width

19. Furnish & Install 30" Corr. Culvert Pipe Under R.R. R/W - per lineal foot includes all costs except laying 18" water line inside of culvert

20. Furnish & Install 12" Sewer Pipe - per lineal foot; trench excavation paid in addition

21 a, b, c Lay 24" Pipe & Fittings - per lineal foot

22 a, b. c Lay 18" Pipe & Fittings - per lineal foot

23. Lay 10" C.I. Pipe & Fittings - per lineal foot

24. Lay 8" C.I. Pipe & Fittings - per lineal foot

Items

25. Lay 6" C.I. Pipe & Fittings - per lineal foot

26, 27, 28, 29 Install Gate Valves & Valve Boxes - per each valve box, both valves and boxes furnished by Owner

30. Furnish & Install 2" Air Valve Assemblies - per each; price includes piping, fittings, 2" shut-off valve, air valve & box

31 & 32 Removal & Reinstall 18" & 12" Culvert - per lineal foot in addition to payments for excavation & backfill and cutting and restoring pavement

PROPOSAL

Mayor Homer Hester and City Council
City of Newberg, Oregon

The undersigned Bidder declares that he has examined the Plans and Specifications, has visited the sites, and made such investigations as are necessary to determine the character of the work and the conditions to be encountered, and if this Proposal is accepted, he will contract with the City for the work described in these Specifications in a form of Contract hereto appended, will provide all necessary equipment, labor, materials, tools and apparatus required and as specified, and under the requirements of the Engineer, at the prices hereinafter written. The Bidder further understands that the estimated quantities are approximate only, and that quantities may be increased or decreased within reasonable limits without affecting bid prices.

The Bidder further agrees that the work shall be completed in all respects within the time written hereunder, such time being in calendar days from signing of the Contract.

Section A - Reservoir - 270 calendar days

Section B - Pipe Line Work - no bid calendar days

Should the Bidder fail to complete the work within the time limits as set forth above, liquidated damages in the amount of seventy-five dollars ($75.00) per day for each section of the contract shall be deducted from moneys otherwise due the Contractor.

Accompanying this Proposal is a certified check, cashier's check or bid bond drawn on The Aetna Casualty & Surety Co. of Hartford, Conn. in the amount of 5% of amount of bid guaranteeing that the Bidder shall enter into a contract for the work if so awarded by the City.

SECTION A - RESERVOIR CONSTRUCTION

Item	Unit or Lump Sum Price	Estimated Quantity	Amount
1.	Clearing and Grubbing, the lump sum of Four Thousand and no/100 Dollars ($ 4000.00)	l.s.	$ 4,000.00
2.	Site Excavation - Common, the sum of One and no/100 Dollars ($ 1.00) per cu. yd.	2,560	$ 2,560.00
3.	Structural & Trench Excavation, Common, the sum of One and 50/100 Dollars ($ 1.50) per cu.yd.	6,340	$ 9,510.00
4.	Structural & Trench Excavation, Solid Rock, the sum of Nine & no/100 Dollars ($ 9.00) per cu.yd.		
5.	Class "4" Concrete Backfill, the sum of Thirty and no/100 Dollars ($ 30.00) per cu.yd.	42	$ 1,260.00
6.	Class "6" Concrete in Bottom Slabs, Sills, Sloping Slabs, and Wall Footings, the sum of Forty and no/100 Dollars ($ 40.00) per cu.yd.	450	$ 18,000.00

Item	Unit Or Lump Sum Prices	Estimated Quantity	Amount
7.	Class "6" Concrete in Reservoir Wall, the sum of Seventy-five and no/100 Dollars ($ 75.00) per cu.yd.	265 ~~416~~	$ 19,875.00
8.	Class "6" Concrete or Gunite in Reservoir Dome, the sum of One Hundred and no/100 Dollars ($ 100.00) per cu. yd.	300 ~~556~~	$ 30,000.00
9.	Gunite Coating of Exterior Wall After Prestressing, the lump sum of Eleven Thousand and no/100 Dollars ($ 11,000.00)	l.s.	$ 11,000.00
10.	Class "6" Concrete in Valve Vault and Chlorinator House, the sum of Sixty-five and no/100 Dollars ($ 65.00) per cu. yd.	65	$ 4,225.00
11.	Concrete Block in Chlorinator House, the lump sum of Seven Hundred and no/100 Dollars ($ 700.00)	l.s.	$ 700.00
12.	Steel Reinforcing in Place, the sum of Thirteen Cents ($0. 13) per lb.	90,700	$ 11,791.00
13.	Welded Wire Mesh Reinforcing, the sum of Eighteen Cents ($0. 18) per lb.	18,000 ~~36,000~~	$ 3,240.00

Item	Unit or Lump Sum Prices	Estimated Quantity	Amount
14.	**Prestressed Steel in place, the lump sum of** Forty Thousand and no/100 **Dollars** ($40,000.00)	l.s.	$ 40,000.00
15.	**Fabricate Header Tank, the lump sum of** Two Thousand One Hundred and no/100 **Dollars** ($2,100.00)	l.s.	$ 2,100.00
16.	**Coating of Header Tank, the lump sum of** Four Hundred and Fifty and no/100 **Dollars** ($ 450.00)	l.s.	$ 450.00
17.	**Structural Steel & Iron Work, Complete in Place, the lump sum of** Three Thousand and no/100 **Dollars** ($3,000.00)	l.s.	$ 3,000.00
18.	**Aluminum Vent Complete in Place, the lump sum of** Two Hundred and no/100 **Dollars** ($ 200.00)	l.s.	$ 200.00
19.	**Aluminum Sidewalk Door, Complete in Place, the lump sum of** Five Hundred and no/100 **Dollars** ($500.00)	l.s.	$ 500.00
20.	**Aluminum Grating in Place, the lump sum of** One Hundred and no/100 **Dollars** ($ 100.00)	l.s.	$ 100.00

Item	Unit or Lump Sum Prices	Estimated Quantity	Amount
21.	**Chlorinator Bldg. Carpentry Work, Doors, Roof, Complete,** the lump sum of Six Hundred Fifty and no/100 **Dollars** ($ 650.00)	l.s.	$ 650.00
22.	**Chlorinator Bldg. Sheet Metal and Vent Work, Complete,** the lump sum of Two Hundred and no/100 **Dollars** ($200.00)	l.s.	$ 200.00
23.	**Chlorinator Bldg. Electric Work, Complete,** the lump sum of Three Hundred and no/100 **Dollars** ($ 300.00)	l.s.	$ 300.00
24.	**2" and Smaller Piping & Drainage, Chlorinator Bldg. & 2" To Reservoir, Complete,** the lump sum of Two Hundred and no/100 **Dollars** ($ 200.00)	l.s.	$ 200.00
25.	**Concrete Cylinder Pipe and Fittings,** the lump sum of Two Thousand Nine Hundred and no/100 **Dollars** ($2,900.00)	l.s.	$ 2,900.00
26.	**Cast Iron Pipe and Fittings,** the lump sum of Two Thousand Eight Hundred and no/100 **Dollars** ($ 2,800.00)	l.s.	$ 2,800.00
27.	**Install 16" Butterfly Valves,** the sum of One Hundred and no/100 **Dollars** ($ 100.00)	4	$ 400.00

Item	Unit or Lump Sum Prices	Estimated Quantity	Amount
28.	Install 8" Gate Valve, the sum of _____ Fifty and no/100 Dollars ($ 50.00 each)	1	$ 50.00
29.	6" Gate Valve, the sum of Thirty and no/100 Dollars ($ 30.00 each)	1	$ 30.00
30.	6" Concrete Sewer Pipe, Rubber "O" Ring Gaskets, the sum of One Dollar and 50/100 _____ Dollars ($ 1.50 per lin. ft.)	100	$ 150.00
31.	6" Concrete Sewer Pipe & Fittings, Open Joints, the sum of One and no/100 _____ Dollars ($ 1.00 per lin. ft.)	485	$ 485.00
32.	4" Concrete Sewer Pipe, Rubber "O" Ring Gaskets, the sum of One and no/100 _____ Dollars ($ 1.00 per lin. ft.)	26	$ 26.00
33.	4" Concrete Sewer Pipe & Fittings, Open Joints, the sum of No and 80/100 _____ Dollars ($ 0.80 per lin. ft.)	375	$ 300.00
34.	Gravel or Crushed Rock in Place Around Pipe, the sum of Six and no/100 _____ Dollars ($ 6.00 per cu. yd.)	27	$ 162.00

Item	Unit or Lump Sum Prices	Estimated Quantity	Amount
35.	Pit Run Sand & Gravel Compacted in Place, the sum of Four and no/100 Dollars ($ 4.00) per cu. yd.	60	$ 240.00
36.	Roadway Base Rock, in Place, the sum of Five and no/100 Dollars ($ 5.00) per cu. yd.	110	$ 550.00
37.	Roadway Crushed Rock, 3/4" minus, in Place, the sum of Six and no/100 Dollars ($ 6.00) per cu. yd.	40	$ 240.00
38.	Neoprene Expansion-Contraction Joints, the sum of One and no/100 Dollars ($ 1.00) per lin. ft.	1,237	$ 1,237.00
39.	Rubber Pads, the lump sum of Eight Hundred Seventy-Five and no/100 Dollars ($ 875.00)	l.s.	$ 875.00
40.	Plastic Water Stops, the lump sum of Two Thousand and no/100 Dollars ($ 2,000.00)	l.s.	$ 2,000.00
41.	2" Air-Vacuum Relief Valve Assembly, Complete, the lump sum of One Hundred and no/100 Dollars ($ 100.00)	l.s.	$ 100.00
	TOTAL - Section A - Reservoir		$ 176,406.00

If this Proposal shall be accepted by the Owner, and the undersigned shall fail to execute a satisfactory contract and bond, as stated in the Instructions to Bidders hereto attached, within ten (10) days (Sundays excepted) from the date of notification, then the Owner may at its option determine that the undersigned has abandoned the contract and thereupon this proposal shall be null and void, and the cashier's or certified check accompanying this Proposal shall be forfeited to and become the property of the Owner, otherwise the check accompanying this Proposal shall be returned to the undersigned.

The full name and residence of all persons and parties interested in the foregoing bid as principals are as follows:

NAME	ADDRESS
L. F. Henshaw	2260 Olive Street, Eugene, Oregon

The name and business address of the Surety Company which will furnish the required bond insuring the construction is:

The undersigned bidder has heretofore completed the following pieces of work of a similar nature to that contemplated:

JOB	LOCATION	DATE
2,000,000 Prestress Tank	Redding, California	1960
1,000,000 " "	Eugene, Oregon	1960
1,000,000 " "	Springfield, Oregon	1959
1,000,000 " "	Coquille, Oregon	1957

Name of Bidder L. F. Henshaw

( ) Corporation
( ) Partnership
(x) Individual

Address of Bidder 2260 Olive Street, Eugene, Oregon

Signature of Authorized Agent _____ Title: _____

Date September 6, 1960

AGREEMENT

FOR CONSTRUCTION OF WATER WORKS IMPROVEMENTS

CITY OF NEWBERG, OREGON

The City of Newberg, Oregon, herein called "Owner" and L. F. Henshaw _____, herein called "Contractor", agree as follows:

1. Commencement and Completion of Work

The Contractor shall commence work in the field within ten calendar days after signing of Contract and shall complete the work on or before the following dates:

Section A - Reservoir _____

Section B - Pipe Line Work no bid

2. Performance of Work

The Contractor shall furnish all labor, material, equipment and instrumentalities to perform all the work necessary or incidentally required for full compliance with the Specifications and Contract Documents issued to the Contractor and included with his proposal for the improvements shown in detail on the following plans:

Section A - Reservoir		Section B - Pipe Line Work	
Title	Plan No.	Title	Plan No.
Site Plan	11-A-15	Site Plan	11-A-15
Floor Slabs, Piping & Structural Metal	11-A-16	Plan-Profile Sheet #1	11-A-21
Sections & Misc. Details	11-A-17	" " " #2	11-A-22
Sections & Struct. Details	11-A-18	" " " #3	11-A-23
Valve Vault	11-A-19	" " " #4	11-A-24
Chlorinator Building	11-A-20	" " " #5	11-A-25
		" " " #6	11-A-26
		" " " #7	11-A-27
		" " " #8	11-A-28
		Miscl. Details	11-A-29

The Plans, Instructions to Bidders, Special and General Conditions, all specifications, Basis of Payment and the Contractor's Proposal dated September 6, 1960 are hereby made a part of this Agreement as though set forth herein. If such documents and this Agreement are in any respect in conflict or inconsistent, the provisions of this Agreement shall control.

3. Bond and Insurance

(a) The Contractor shall furnish a 100% contract public works performance bond in a form satisfactory to the Owner.

(b) The Contractor agrees to obtain and continuously maintain, until completion of all the above work, such insurance as the Owner considers

necessary for the proper protection of the parties hereto and in form approved by the Owner.

(c) Contractor shall require, before commencing work, all insurance companies issuing any policies of insurance to Contractor which the Contractor is required to procure hereunder, to certify to the Owner in writing that such policies have been issued and are in force and will not be cancelled or annulled except upon ten (10) days notice in writing to Owner. Contractor shall not cancel any policies of insurance required hereunder either before or after completion of the work, without the consent of the Owner in writing.

4. Indemnity

The Contractor shall indemnify Owner against all claims, costs, expenses, losses and liabilities of every kind, including attorney fees, arising out of or in any manner connected directly or indirectly with the acitivties of the Contractor under this Agreement, including claims for infringement of any patent rights or damages by reason of the construction.

5. Compliance with Applicable Laws

The Contractor shall comply with all applicable Federal, State and local laws and regulations.

6. Payment for Labor

The Contractor shall promptly make all payments to all persons supplying the Contractor with labor, materials and supplies, for the prosecution of the work or in connection therewith. Any such payment not made by the Contractor when due may be made by Owner and such payments deducted from any moneys due Contractor under this agreement.

7. Assignment

The Contractor shall not assign or sublet this contract, or any part thereof, without the prior written consent of Owner.

8. Completion of Work

If the Contractor shall fail to commence the work within the specified time, or to prosecute said work continuously with sufficient workmen and equipment to insure its completion within the time herein specified for completion, or to perform said work according to the provisions of this Agreement, or if for any other cause or reason whatsoever Contractor shall fail to carry on the said work in a manner acceptable to Owner or its Engineers, Owner may elect to give notice in writing of such default, specifying the same, and if the Contractor within a period of 72 hours after such notice, shall not proceed in accordance therewith, then Owner shall have full power and authority without process of law and without violating this Agreement, to take the prosecution of the work out of the hands of the Contractor and complete it with its own forces, or contract with other parties for its completion, or use such other measures as in Owner's opinion are necessary for its completion, including the use of the equipment and other property of the Contractor on the job site.

8. Completion of Work (Cont.)

Neither by the taking over of the work nor by its completion in accordance with the terms of this provision shall Owner forfeit its right to recover damages from the Contractor or from Contractor's surety for failure to complete or for delay in such completion. Should the expense incurred by Owner in taking over and completing the work be less than the sum that would have become payable under this Agreement if said work had been completed by the Contractor, then the Contractor shall be entitled to the difference, and should such expense exceed the said sum then the Contractor and Contractor's surety shall be liable to Owner for the amount of such excess. Upon the taking over of the work by Owner as herein provided, no further payment will be made to the Contractor until the work is completed, and any moneys due or that may become due the Contractor under this Agreement will be withheld and may be applied by Owner to payments for labor, materials, supplies and equipment used in the prosecution of the work, and for the payment of rental charges on equipment used therein, or to the payment of any excess cost to Owner of completing said work.

9. Payments

(a) Contractor shall be paid monthly, based on the prices set forth in Contractor's Proposal dated September 6, 1960 and the Basis of Payment, less 10% retention. All payments shall be based upon the estimates made by Owner's Engineers as to the amount of work done by the Contractor, which estimates shall be final and binding upon the parties hereto and shall conclusively establish the amount of work done by the Contractor. The Contractor will receive no compensation for any work done by him which is not approved and accepted by Owner's Engineers.

(b) Final payment shall be made when all work is approved in writing by the Engineers, accepted by Owner, and evidence presented by the Contractor that he has paid all bills and claims, withholding taxes, contributions to both State and Federal Governments for payroll withholding, workmen's compensation, F.I.C.A., Income taxes and any other payments required by law, and a general release furnished to Owner by the Contractor.

10. Completion and Delays

(a) The Contractor shall complete all work herein required by the following dates:

Sec. A - Reservoir _____ Sec. B - Pipe Line no bid

(b) No extensions of time shall be allowed or claimed by Contractor for any cause whatever unless Contractor shall have made a written request upon Owner for such extension within 48 hours after the cause of such extension occurred and unless Contractor and Owner shall have agreed in writing that such allowance will be made.

(c) The Contractor shall comply with the instructions given by Owner including any instruction requiring him to delay herein, and the Contractor will not be entitled to any extra compensation or damages because of any such suspension or delay not specifically allowed and paid for by Owner.

10. Completion and Delays (Cont.)

(d) Time is of the essence of this Agreement and Contractor agrees to perform said work within the time and in the manner specified, or within the time of such extensions as may be granted and Contractor shall be liable, in the event of failure to complete the work within the time limits set forth herein, for liquidated damages at the rate of seventy-five dollars ($75.00) per calendar day for each section of the work.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be duly executed.

CITY OF NEWBERG, OREGON

By Homer Hester
Dr. Homer Hester Mayor

ATTEST:

Thomas Beaty
Thomas Beaty City Recorder

Approved as to Form:

Herbert Swift
Herbert Swift, City Attorney

L. F. HENSHAW
CONTRACTOR

By L F Henshaw

Title owner

Dated this 16th day of SEPTEMBER, 1960.

UNITED PACIFIC

Insurance Company

TACOMA, WASHINGTON

CERTIFICATE OF INSURANCE

In Effect on Date of This Certificate

This is to certify that the policy described below has been issued by the UNITED PACIFIC INSURANCE COMPANY, as Insurer, to the Insured designated in this certificate. Any requirements or provisions in any contract or agreement between the Insured and any other person, firm or corporation will not be construed as enlarging, altering or amending the definition of insured or any other terms or conditions of this certificate or the policy designated. Such policy, subject to the limits of liability, coverages, hazards, exclusions, provisions, conditions and other terms thereof, is in full force and effect as of the date the certificate was issued.

Name of insured LAMOND F. HENSHAW AND LEILA G. HENSHAW

Address of insured 2260 OLIVE ST., EUGENE, OREGON.

Policy Number CLP. 30575 Effective 7-26-60 Expires 7-26-61

COVERAGES	HAZARDS		LIMITS OF LIABILITY		
BODILY INJURY	Automobile	$ 200,000.	Each Person $ 300,000.		Each Occurrence
LIABILITY	Other than Automobile	$ 200,000.	Each Person $ 300,000.		Each Occurrence
			$ 300,000.		Aggregate Products - Completed Operations
PROPERTY DAMAGE	Automobile	$ 100,000.	Each Occurrence		
LIABILITY	Other than Automobile	$ 100,000.	Each Accident $ 100,000.		Aggregate

In accordance with the above, the policy covers the operations and locations described as follows:

ALL OPERATIONS BY OR ON BEHALF OF THE INSURED AND ALL PREMISES OR PROPERTY USED BY OR ON BEHALF OF THE INSURED, SUBJECT HOWEVER, TO THE TERMS OF THE POLICY.

THE POLICY INCLUDES COVERAGE FOR ALL LIABILITY OF OTHERS ASSUMED BY THE INSURED UNDER ANY CONTRACT OR AGREEMENT WHOLLY IN WRITING, SUBJECT HOWEVER, TO THE TERMS OF THE POLICY.

PROJECT: CONSTRUCTION OF RESERVOIR FOR THE CITY OF NEWBERG.

This certificate is not a policy and does not afford any insurance coverage. Nothing contained in this certificate shall be construed as extending coverage not afforded by the designated policy or by endorsement thereto. Except as specifically provided for in this certificate, United Pacific Insurance Company shall have no duty to notify the party to whom this certificate is addressed as to any change in, or cancellation of, the policy and shall not be responsible for any failure to do so.

Date SEPTEMBER 27, 1960.

To CITY OF NEWBERG

Address NEWBERG, OREGON.

Harold L. Baird
PRESIDENT

Countersigned by J. W. Ward
AUTHORIZED REPRESENTATIVE

0-284 3-60

BOND DEPARTMENT

RAY D. POLLARD AGENCY

21 West 11th Avenue
Eugene, Oregon
Phone 5-0167

RAY D. POLLARD
JACK WARD

CONTRACTOR'S PREQUALIFICATION QUESTIONNAIRE

"Oregon Law requires a statement as to financial ability, equipment, and experience to be completed and submitted by prospective contractors bidding on contracts for public improvement, the estimated costs of which is $10,000 or over. No contractor is eligible to bid until his statement has been submitted. Violation of the provisions of the law can result in conviction of a misdemeanor with a fine of not more than $5,000.00, or imprisonment in the County jail not longer than six months, or by both such fine and imprisonment."

The signatory of this questionnaire guarantees the truth and accuracy of all statements and of all answers to the interrogatories herein made.

1. Submitted by L. F. HENSHAW
2. Address 2260 Olive, Eugene, Oregon
3. How many years have you been in business as general contractor(s)? 13
4. List of Projects you have completed in the last 3 years:

CONTRACT AMOUNT	CLASS OF WORK	Date Completed	NAME AND ADDRESS OF OWNER
PLEASE SEE ATTACHED SCHEDULE			

5. List of construction projects you have underway at the present time:

CONTRACT AMOUNT	CLASS OF WORK	PERCENT COMPLETED	NAME AND ADDRESS OF OWNER
NONE			

6. Have you (or any members of your organization) ever failed to complete any work awarded you? NO. If so when and where?
7. For what public bodies have you performed work and to whom do you refer? Cities of Sweet Home, Tillamook, McMinnville, Woodland, Scapoose, White Salmon, etc.
8. The work, if awarded you, will have the personal supervision of whom? L. F. Henshaw
9. Have you all necessary equipment for the proposed work? Yes. If not, do you intend to buy or rent additional equipment necessary?

JOB RECORD*
L. D. Donahoe

22,105.75	Pipe Line - Port of Portland	1940 Port of Portland
10,592.70	Seaposse Water Line	1940 City of Seaposse, Oregon
38,798.50	Drewsville Reservoir	1940 City of Drewsville, Ore.
68,631.92	Detroit Sewage Plant, U.S.E.D.	1940 U. S. Engineers
126,136.72	Sweet Home Sewage Plant & Sewer	1943 City of Sweet Home, Oregon
19,000.77	Sewage Plant	1948 City of White Salmon
11,657.23	Reservoir Repair	1940 City of Camas
25,400.02	Wells	1940 Tillamook Peh. District
0,647.10	Pumping Station	1949 City of Tillamook, Oregon
101,360.54	Reservoir	1949 City of Grants Pass, Ore.
45,430.29	Reservoir	1949 City of McMinnville, Oregon
90,510.98	Dam for Eugene Water Board	1949 Eugene Water & Electric Board
69,927.77	Sewage Plant	1949 City of Tillamook, Oregon
72,560.07	Levee Construction U.S.E.D.	1949 U. S. Engineers
1,030,644.50	Other jobs (principally Booth-Kelly Lumber Company 1940-56)	
49,054.32	St. Johns Pumping Station	1950 City of St. John
208,033.04	S. P. & S. Station Facilities, McNary Dam	1950 U. S. Engineers
8,994.03	Amazon Drainage	1953 U. S. Engineers
16,910.00	Building, Ore. Game Comm.	1954 Ore. State Game Commission
14,500.00	Dock Repair	1955 Booth-Kelly Lbr. Co.
47,000.00	Building, Shop & Office	1955 Big Mac, Eugene, Oregon
33,000.00	Dwelling, Footing, etc.	1955 Various
197,000.00	Swimming Pool	1956 City of McMinnville
72,000.00	Concrete Reservoir, Pumping Station	1956-57 City of Coquille, Oregon
130,462.40	Addns to Sewage Treatment Plant	1957 City of Tillamook
137,000.00	Warehouse	1957 McGrathon Bros. Motor Freight, Eugen
29,093.00	Water Chlorination & Flow Control	1958 City of Salem, Oregon
136,613.00	Sewage Treatment Plant	1958 City of Klamath Falls, Ore.
117,129.00	Treatment Plant	1959 City of Cornelius, Oregon
50,360.00	Rainbow Water Dist. Conc. Reservoir	1959 Rainbow Water Dist., Springfield, Ore
77,360.00	Pumping Plant	1959 City of Redding, California
150,932.00	Reservoir	1959 City of Redding, California

10. Give condensed current financial statement as follows:

(Bidder's or Contractor's) FINANCIAL STATEMENT

Condition at close of business on 30TH day of NOVEMBER, 19 59

ASSETS

1.	Cash (A) on Hand $ ..... (B) in Bank $ 2,610.37 Elsewhere $	$ 2,610.37
2.	Deposits for bids or other guarantees	
3.	Accounts receivable from completed contracts exclusive of claims not approved for payment	
4.	Sums earned on uncompleted contracts shown by engineers or architects	
	(A) Amount receivable after deducting retainage	93,334.54
	(B) Retainage to date due on completed contracts	15,016.21
5.	Accounts receivable from sources other than construction contracts	1,350.69
6.	Notes receivable	
7.	Interest accrued on loans, securities, etc.	
8.	Real Estate	
	(A) Used for business purposes	
	(B) Not used for business purposes	47,500.00
9.	Stocks and bonds	
10.	Material in stock not included in item 11	3,179.00
	CASH VALUE - LIFE INSURANCE	21,629.37
11.	Equipment — Book Value	35,450.35
12.	Other assets	1,016.00
	TOTAL ASSETS	$ 173,694.42

LIABILITIES

1.	Notes payable	$ 15,000.00
2.	Accounts payable	
	(A) Not past due	
	(B) Past due	
3.	Amount Due Sub-Contractors	28,477.72
4.	Encumbrances on equipment	
5.	Encumbrances on real estate	18,742.99
6.	Other liabilities — accrued taxes	3,500.00
7.	Reserves	20,207.00
8.	Capital Stock paid up	
	(A) Common	
	(B) Preferred	
9.	Surplus (net worth)	87,966.71
	TOTAL LIABILITIES	$ 173,694.42

CONTINGENT LIABILITIES

1. Liabilities on notes receivable, discounted or sold $_____

2. Liability on accounts receivable, pledges, assigned or sold _____

3. Liability as bondsman _____

4. Liability as guarantor on contracts or on other accounts _____

5. Other contingent liabilities _____

TOTAL CONTINGENT LIABILITIES $_____

9. Give name of surety that will furnish your performance bond in case the contract is awarded you.

Dated this 24TH day of AUGUST, 1960

Firm Name L. F. HENSHAW
Name of Organization

Signature L. F. Henshaw

By: OWNER

State of OREGON } ss.
County of LANE }

I, L. F. HENSHAW, being duly sworn, deposes and says that he is OWNER of L. F. HENSHAW
Name of Organization
and that the answers to the foregoing questions and all statements therein contained are true and correct.

L. F. Henshaw

Sworn to before me this 24TH day of AUGUST, 19 60

Margaret R. Dayton
(Notary Public)

My commission expires 4/24/64

The Ætna Casualty and Surety Company

Hartford, Connecticut

CONTRACT BOND
(Public Work in State of Oregon)

KNOW ALL MEN BY THESE PRESENTS, That We, L. F. HENSHAW, 2260 OLIVE STREET, EUGENE, OREGON as Principal, and The Ætna Casualty and Surety Company, a corporation organized under the laws of the State of Connecticut and authorized to transact a surety business under the laws of the State of Oregon, as Surety, are jointly and severally held and bound unto THE CITY OF NEWBERG, OREGON as Obligee, in the sum of ONE HUNDRED SEVENTY-SIX THOUSAND FOUR HUNDRED SIX AND NO/100THS - - -($ 176,406.00) Dollars, for the payment of which we jointly and severally bind ourselves, our heirs, executors, administrators and assigns, and successors and assigns, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT

WHEREAS, The above bounden Principal has entered into a contract with the said Obligee, dated SEPTEMBER 16, , 19 60, to do and perform the following work, to wit:

FURNISH ALL LABOR AND NECESSARY MATERIAL FOR THE CONSTRUCTION OF WATER WORKS IMPROVEMENTS AS FOLLOWS: SECTION A - RESERVOIR CONSTRUCTION - 4.0 M.G. REINFORCED CONCRETE, ALL IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.

in accordance with the terms, conditions and specifications set out in said contract.

NOW, THEREFORE, if the above bounden Principal shall well and truly perform the work contracted to be done under the said contract and shall promptly, as due, make payment to all persons supplying him with labor or materials for any prosecution of the work provided for in said contract and shall pay all contributions or amounts due the State Industrial Accident Fund and all contributions or amounts due the State Unemployment Compensation Trust Fund from such contractor or subcontractor incurred in the performance of said contract and all sums of money withheld from the employees and payable to the State Tax Commission pursuant to Sections 315.575 and 316.575 of Oregon Revised Statutes and Amendments thereof, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

SIGNED, sealed and dated this 16TH day of SEPTEMBER , 19 60

L. F. HENSHAW

L. F. Henshaw

OWNER (Principal)

THE ÆTNA CASUALTY AND SURETY COMPANY

Countersigned at EUGENE, OREGON

Ray D. Pollard

By Ray D. Pollard

RAY D. POLLARD
(Resident Agent)

RAY D. POLLARD, ATTORNEY-IN-FACT

(S-1782-A) Rev. 11-57

L-247

RAY D. POLLARD AGENCY
INSURANCE and BONDS
59 E. 14TH EUGENE, OREGON
TELEPHONE DI 5-0187
"We Sell Insurance That Works"
RAY POLLARD JACK WARD

PRINCIPAL:

L. F. HENSHAW
2260 OLIVE STREET
EUGENE, OREGON

OBLIGEE:

CITY OF NEWBERG, OREGON
NEWBERG, OREGON

CITY OF NEWBERG
CITY RECORDER INDEX NO. 1081

CERTIFICATE

STATE OF OREGON)
) ss.
County of Yamhill)
CITY OF NEWBERG)

I, THOMAS BEATY, the duly appointed, qualified and acting Recorder of the City of Newberg, Oregon, do hereby certify that the within and attached copy of Ordinance No. 1273 of said City, passed by the Council September 16, 1960, has been by me compared with the original thereof in my custody and control, and the same is a true, correct and complete copy thereof and of the whole thereof.

DATED this 3rd day of October, 1960.

Thomas Beaty

(SEAL) CITY RECORDER

ORDINANCE NO. 1273

AN ORDINANCE ACCEPTING PROPOSALS TO CONSTRUCT A WATER RESERVOIR AND PIPELINE AND ASSOCIATED FACILITIES FOR THE CITY OF NEWBERG, OREGON AND TO PROVIDE ALL MATERIALS, EQUIPMENT, CONSTRUCTION AND LABOR THEREFOR IN ACCORDANCE WITH PLANS, SPECIFICATIONS AND CONTRACT DOCUMENTS PREVIOUSLY APPROVED BY THE COUNCIL OF THE CITY OF NEWBERG, OREGON; AUTHORIZING THE MAYOR AND RECORDER OF SAID CITY TO CONTRACT IN ACCORDANCE WITH SAID PROPOSAL SO ACCEPTED, AND DECLARING AN EMERGENCY.

WHEREAS, the Council of the City of Newberg, Oregon has heretofore determined and decided to proceed with certain improvements to the Water Supply and Distribution System of said City, and has approved plans, specifications and Contract Documents therefor, to include the construction and completion of a water reservoir and water pipeline and associated facilities for said Water Supply and Distribution System, said improvements having been designated by the Council as "Plans, Specifications and Contract Doouments, Section A - Reservoir Construction, and Section B - Pipeline Construction." Said Plans, Specifications and Contract Documents having been heretofore expressly approved by the Council of said City by Ordinance, and the Council having provided for the financing thereof from certain funds heretofore designated by Ordinance; and

WHEREAS, pursuant to Ordinance No. 1272 of the said City of Newberg, duly passed by the Council thereof, the City Recorder of said City has heretofore published Notices to Bidders in the Newberg Graphic, a newspaper of general circulation, printed and published in the City of Newberg, County of Yamhill, State of Oregon, said Notices having been published for the time required by said Ordinance, and said Notices having provided for the opening of bids on said water reservoir and water pipeline construction on the 6th. day of September, 1960 at 7:30 o'clock Pacific Standard Time on said day, and proof of publication of said Notice has been heretofore filed with the City Recorder of said City; and

WHEREAS, said Council met in a regular meeting at the time and place provided by said Notices, for opening said bids, and received, publicly opened and read and considered bids thereon from the following:

NAME & ADDRESS	SECTION A, RESERVOIR & TIME OF COMPLETION -	SECTION B, PIPELINE & TIME OF COMPLETION -
Riverside Const. Co. Portland, Oregon	$184,597.50 - 390 days	All Concrete Cyl. Pipe 24 in. & 18 in. - $156,611.50 - 300 days All Mortar Lined/coated 24 in. & 18 in. - No Bid. All Cast Iron Pipe - No Bid. 18 In. Cast Iron Part - & Conc. Cyl. Pipe Part - No Bid.
Lord Bros. Const. Portland, Oregon	$206,584.00 - No time stated.	All Concrete Cyl. Pipe 24 in. & 18 In. - $155,235.15. No Time Stated All Mortar Lined/coated 24 in. & 18 in. - $151,602.62. No Time Stated All Cast Iron Pipe - $188,790.91. No Time Stated 18 In. Cast Iron Part & Conc. Cyl. Pipe Part - No Bid. No Time Stated.
Teeples & Thatcher & Lee Hoffman, Inc. Portland, Oregon	$176,323.50 - 240 days	All Concrete Cyl. Pipe 24 in. & 18 In. - $145,248.00. 240 days. All Mortar Lined/coated 24 in. & 18 In. - $142,807.00. 240 days. All Cast Iron Pipe - $211,454.00. 240 days. 18 In. Cast Iron Part & Conc. Cyl. Pipe Part - No Bid.

NAME & ADDRESS	SECTION A, RESERVOIR & TIME OF COMPLETION	SECTION B., PIPELINE & TIME OF COMPLETION -
Schrader Const. Co.	$187,872.75 - 300 days	All Concrete Cyl. Pipe 24 in. & 18 in. - $135,616.00- 300 days. All Mortar Lined/coated 24 in. & 18 in. - $132,516.00- 300 days. All Cast Iron Pipe - $160,677.50. 300 days. 18 in. Cast Iron Part - & Conc. Cyl. Pipe Part - $138,440.00. 300 days.
L. B. Read, Portland, Oregon.	$177,996.75 - 300 days	All Concrete Cyl. Pipe 24 in. & 18 in. - $156,203.30. 300 days. All Mortar Lined/coated 24 in. & 18 in. - $156,203.30. 300 days. All Cast Iron Pipe - $203,482.75. 300 days. 18 in. Cast Iron Part - & Conc. Cyl. Pipe Part - No Bid.
L. F. Henshaw, Eugene, Oregon.	$176,406.00 - 270 days	No Bid
Max J. Kuney Co., Portland, Oregon.	$183,460.50 - 240 days	No Bid
Richard L. Martin, Inc., Oswego, Oregon.	$194,923.60 - 320 days	No Bid
James G. Robertson, Clackamas, Oregon.	No Bid	All Concrete Cyl. Pipe 24 in. & 18 in. - $125,896.90. 180 days. All Mortar Lined/coated 24 in. & 18 in. - No Bid. All Cast Iron Pipe - No Bid. 18 in. Cast Iron Part & Conc. Cyl. Pipe Part - $131,824.40. 180 days
Frank Mathews & Raymond L. Davidson, Portland, Oregon.	No Bid	All Concrete Cyl. Pipe 24 in. & 18 in. - $138,538.25. 180 days. All Mortar Lined/coated 24 in. & 18 in. - No Bid.

NAME & ADDRESS	SECTION A, RESERVOIR & TIME OF COMPLETION	SECTION B., PIPELINE & TIME OF COMPLETION -
Frank Mathews & Raymond L. Davidson, Continued -		All Cast Iron Pipe - $173,633.05. 180 days. 18 in. Cast Iron Part - & Conc. Cyl. Pipe Part - $143,327.10. 180 days.
Loy Clark Pipeline Co. Beaverton, Oregon.	No Bid.	All Concrete Cyl. Pipe 24 in. & 18 in. - $137,464.22. 195 days. All Mortar Lined/coated 24 in. & 18 in. - $145,656.93. 195 days. All Cast Iron Pipe - $187,744.12. 195 days. 18 in. Cast Iron Part - & Conc. Cyl. Pipe Part - $145,651.32. 195 days.
Salem Sand & Gravel Co., Salem, Oregon.	No Bid.	All Concrete Cyl. Pipe 24 in. & 18 in. - $135,256.30. 100 days. All Mortar Lined/coated 24 in. & 18 in. - No Bid. All Cast Iron Pipe - $175,587.20. 100 days. 18 in. Cast Iron Part - & Conc. Cyl. Pipe Part - $142,031.80. 100 days.
Montag & Son, Portland, Oregon.	No Bid.	All Concrete Cyl. Pipe 24 in. & 18 in. - $148,308.50. Time not stated. All Mortar Lined/coated 24 in. & 18 in. - $148,308.50. Time not stated. All Cast Iron Pipe - $179,541.25. Time not stated. 18 in. Cast Iron Part - & Conc. Cyl. Pipe Part - $150,761.95. Time not stated.
Tedrick Const. Co. McMinnville, Oregon.	No Bid.	All Concrete Cyl. Pipe 24 in. & 18 in. - $129,531.55. 285 days.

NAME & ADDRESS	SECTION A, RESERVOIR & TIME OF COMPLETION	SECTION B., PIPELINE & TIME OF COMPLETION *
Tedrick Const. Co. Continued	No. Bid	All Mortar Lined/coated 24 in. & 18 in. - $126,833.95. 285 days. All Cast Iron Pipe - $172,157.10. 285 days. 18 in. Cast Iron Part - & Conc. Cyl. Pipe Part - $137,534.65. 285 days.

and said Council reserved a decision on the successful bidder pending consideration and tabulation of bids until an Adjourned Meeting of said Council to be held at 7:00 o'clock A. M. on the 9th day of September, 1960; and

WHEREAS, said bids were thereafter tabulated and were considered at said Adjourned Meeting, which was duly held at the time and place aforesaid, and it was found that further information was necessary and that the Council was not fully advised, whereupon said meeting was adjourned without action on said bids pending further consideration thereof; and

WHEREAS, said bids have now been fully considered and tabulated, and it has been determined that the said bids of Teeples & Thatcher & Lee Hoffman, Inc., a joint venture, of Portland, Oregon, in the amount of $176,323.50 and of L. F. Henshaw of Eugene, Oregon, in the amount of $176,406.00, are the two lowest bids on Section A, Reservoir Construction, and the Council having fully investigated said two lowest bidders and being fully informed relative to each of them, and it appearing that the funds designated for this project are now earning interest for the City of Newberg until needed for progress payments and that the bid of said Teeples & Thatcher and Lee Hoffman, Inc. required an early payment of $10,000.00 for clearing and grubbing land, and whereas the said bid of L. F. Henshaw

required payment of only $4,000.00 for the same purpose, whereby the City of Newberg would save interest on funds earmarked for this project; and

IT FURTHER APPEARING that the best interests of the people of the City of Newberg would be served by accepting the said bid of L. F. Henshaw of Eugene, Oregon in the amount of $176,406.00 for said Section A, Reservoir Construction, being the construction of a water reservoir, and said last mentioned bid being in due and regular form and in accordance with the Notice to Contractors herein; and

WHEREAS, it has been further determined by the Council that the said bid and proposal of James G. Robertson of Clackamas, Oregon on Section B, Pipeline Construction, in the amount of $131,824.40 for 18 inch Cast Iron, Sta. 0 + 00 to 20 + 83, and Concrete Cylinder Pipe, Sta. 20 + 83 to Reservoir, being alternate number D. of the specifications for said Section B, Pipeline Construction, is the lowest and best bid thereon, and that said bid is in due and regular form and in accordance with the Notice to Contractors; and

WHEREAS, the Council has selected the said alternate D. of the specifications for said Section B, Pipeline Construction, as the alternate to be adopted for the work.

NOW THEREFORE,

THE CITY OF NEWBERG ORDAINS AS FOLLOWS:

Section 1: That the City of Newberg has and does hereby accept the above mentioned bid and proposal of L. F. HENSHAW of Eugene, Oregon in the amount of $176,406.00, based upon unit price bids, for the furnishing by said bidder of the materials, equipment, construction and labor for the construction and completion of the aforesaid Section A, Reservoir Construction, being the construction of a water reservoir, all in accordance with certain Plans, Specifications and Contract Documents hereinabove referred to and previously approved by the Council of said City, and subject to the unit price bids and quantities specified in said bid.

Section 2: That the Council of the City of Newberg has and does hereby adopt the certain alternate specifications entitled Sub-section D. under Section B, Pipeline Construction, and generally described as requiring 18 inch Cast Iron Pipe from Sta. 0 + 00 to 20 + 83, and Concrete Cylinder Pipe from Sta. 20 + 83 to Reservoir, as the alternate and specifications to be followed in the construction and completion of said Section B, Pipeline Construction.

Section 3: That the City of Newberg has and does hereby accept the above mentioned bid and proposal of JAMES G. ROBERTSON of Clackamas, Oregon in the amount of $131,824.40, based upon unit price bids, for the furnishing by said bidder of the materials, equipment, construction and labor for the construction and completion of said alternate D. of Section B, Pipeline Construction as hereinabove referred to, all in accordance with the certain Plans, Specifications and Contract Documents hereinabove referred to and previously approved by the Council of said City, and subject to the unit price bids and quantities specified in said bid.

Section 4: That the Mayor and Recorder of the City of Newberg, Oregon be, and they hereby are, authorized and directed to enter into a contract with the said L. F. HENSHAW of Eugene, Oregon, in accordance with his said bid, for said Section A, Reservoir Construction, and in the form provided and approved by said Council as a part of the Contract Documents for said Reservoir Construction which are now on file in the office of the Recorder of said City. Said contract shall provide for the completion of work herein specified in accordance with said bid, and shall in all respects require compliance with the plans and specifications for the work, heretofore approved by the Council.

Section 5: That the Mayor and Recorder of the City of Newberg, Oregon be, and they hereby are, authorized and directed to enter into a contract with the said JAMES G. ROBERTSON of Clackamas, Oregon, in accordance with his said bid, for the construction and completion of said Section B, Pipeline Construction under alternate No. D. as hereinabove specified, in accordance with his said bid, and in the form provided and approved by said Council as a part of the Contract Documents for said Pipeline Construction which are now on file in the office of the Recorder of said City. Said contract shall provide for the completion of work herein specified in accordance with the said bid, and shall in all respects require compliance with the plans and specifications for the work, heretofore approved by the Council.

Section 6: WHEREAS, the above described Reservoir and Pipeline Construction Projects are essential in order to provide for the protection of the people of the City of Newberg against fire losses and for their sanitary requirements, and it is essential that immediate action be taken thereon in order that the construction therein specified may be completed in time for the next summer season, and it is necessary for the peace, health and safety of the people of the City of Newberg that this Ordinance should be immediately effective; NOW THEREFORE, an emergency is hereby declared to exist, and this Ordinance shall be in full force and effect immediately upon its passage by the Council.

PASSED BY THE COUNCIL this 16th day of September, 1960.

AYES: 5 NAYS: 0 ABSENT: 3

APPROVED BY THE MAYOR:

Homer Ikeler

ATTEST:

Thomas Beaty

RECORDER