

CITY OF NEWBERG
CITY RECORDER INDEX NO. 1007

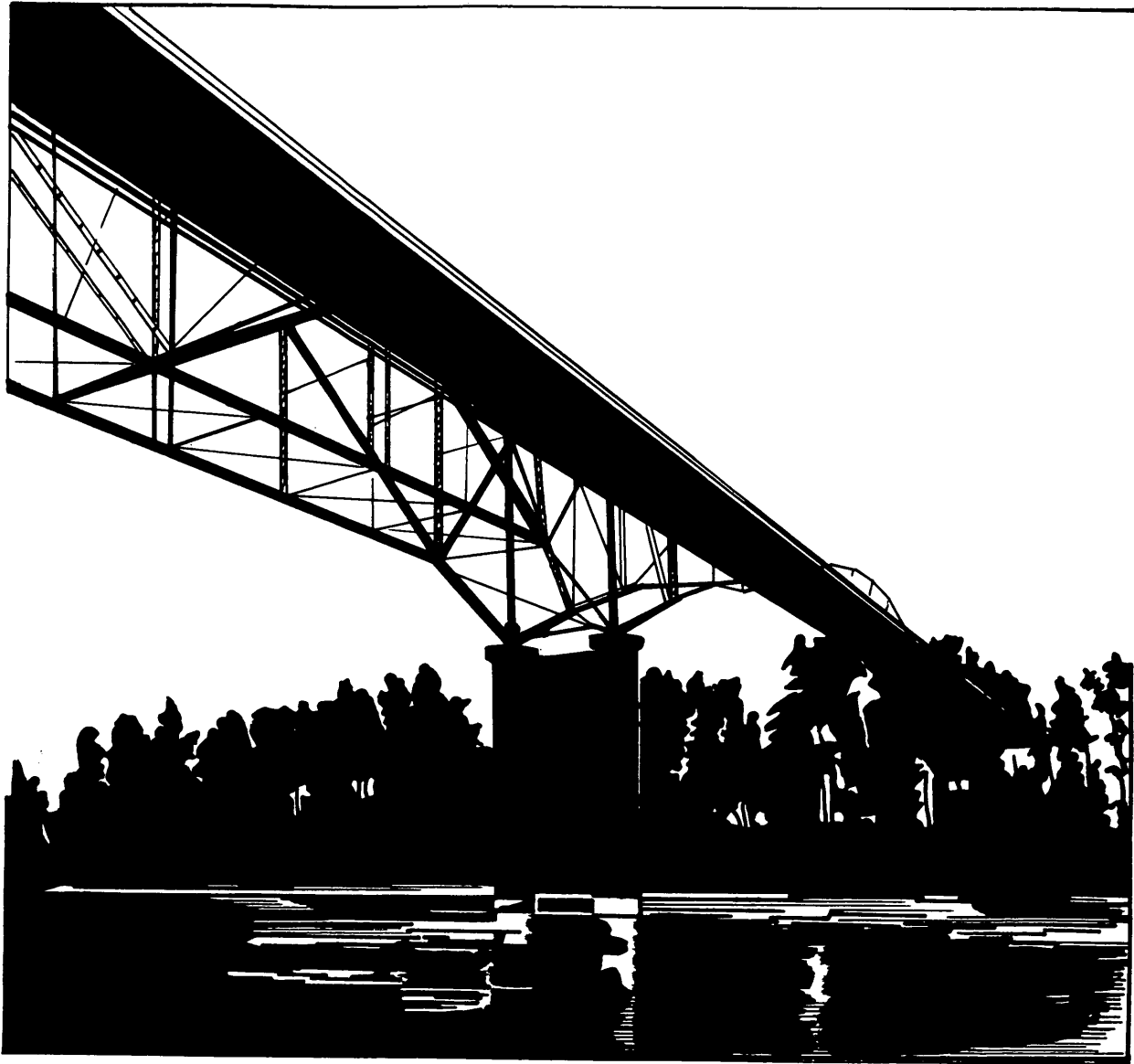
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Schedule A

Bill Page

CITY OF NEWBERG, OREGON

WATER SYSTEM IMPROVEMENTS



TRANSMISSION LINE

Construction Specifications



Kramer, Chin & Mayo, Inc.
Consulting Engineers, Applied Scientists
10 S. W. Ash Street, Portland, Oregon 97204
Phone (503) 221-1814

CONSTRUCTION SPECIFICATIONS FOR
CITY OF NEWBERG
NEWBERG, OREGON

September 1980

WATER SYSTEM IMPROVEMENTS
WATER TRANSMISSION LINE

CITY OF NEWBERG

Mayor - Elvern Hall

City Council

Maurice Chandler

Roger Gano

Tom Tucker

Robert Hurford

Fred LaBonte

Jack C. Nulsen Jr.

Janet Nybakke

Alan Halstead

City Administrator - M. C. Gilbert

Public Works Director - Robert Sanders

Public Works Superintendant - Hal Turpin



Kramer, Chin & Mayo, Inc.
Consulting Engineers, Applied Scientists, and Planners
10 Southwest Ash Street
Portland, Oregon 97204

ADDENDA

Addenda, in the order of issuance, shall be inserted and fastened in place immediately before the Table of Contents.

September 24, 1980

ADDENDUM NO. 1

The following items shall be made part of the drawings and specifications for the subject job.

Acknowledgement of this addendum is called for on the proposal form.

A. CHANGES TO SPECIFICATIONS

<u>Item No.</u>	<u>Page No.</u>	<u>Location and Description of Change</u>
1.	01010-3	Section 01010, SUMMARY OF WORK, Paragraph 1.06, Coordination of Work with Owner and Others; add the following: "Schedule B, Contractor shall provide the couplings and make the connection between Schedule A and Schedule B pipeline work. Schedule A Contractor shall coordinate the scheduling of his work so that access to the north end of the bridge remains open to the Schedule B Contractor."
2.	05500-2	Section 05500, MISCELLANEOUS METALS, Paragraph 2.01, Steel Items; delete Subparagraph H, Steel Edger.
3.	05500-4	Section 05500, MISCELLANEOUS METALS, Paragraph 3.02, Installation; delete Subparagraph C, Steel Edger.
4.	05500-5	Section 05500, MISCELLANEOUS METALS; delete Paragraph 3.03, Replacement of Existing Rivets.
5.	05120-1	Section 05120, STRUCTURAL STEEL Paragraph 1. General, Subparagraph B; delete reference to "Section 09910, Bridge Painting."
6.	05120-3	Section 05120, STRUCTURAL STEEL, Paragraph 2.04, Surface Treatment-Field Applied, Subparagraph B; delete the words "as specified in Section 09910, System No. 3," and replace with "as specified in Section 05500, 2.03-B."

City of Newberg
Water System Improvements
Contract Drawings and Specifications for:
TRANSMISSION LINE
Page 2

<u>Item No.</u>	<u>Page No.</u>	<u>Location and Description of Change</u>
7.	05500-1	Section 05500, MISCELLANEOUS METALS, Paragraph 1.03, Storage and Handling, Subparagraph A; delete the words "as required in Section 09910," and replace with "as required in Paragraph 2.03."

B. CHANGES TO DRAWINGS

<u>Item No.</u>	<u>Drawing No.</u>	<u>Location and Description of Change</u>
1.	7	Add the following general note: "The existing 12-inch water line is to remain in the existing location except at the Approach Section where it shall be relocated."

-End of Addendum No. 1-

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UNITED STATES FIDELITY AND GUARANTY COMPANY



BID BOND

BOND NUMBER 63-0120-108-79

KNOW ALL MEN BY THESE PRESENTS:

THAT BILL PAGE CONSTRUCTION, INC.
..... of NEWBERG, OREGON
....., as Principal, and UNITED STATES FIDELITY AND
GUARANTY COMPANY, a Maryland corporation, as Surety, are held and firmly bound unto.....
CITY OF NEWBERG, OREGON

as Oblige, in the full and just sum of.....
TEN PERCENT (10%) OF TOTAL AMOUNT BID Dollars,

lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors,
administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal is herewith submitting its proposal

FOR: WATER SYSTEM IMPROVEMENT TRANSMISSION LINE
SCHEDULE A

THE CONDITION OF THIS OBLIGATION is such that if the aforesaid Principal shall be awarded the contract the said Principal will, within the
time required, enter into a formal contract and give a good and sufficient bond to secure the performance of the terms and conditions of
the contract, then this obligation to be void; otherwise the Principal and Surety will pay unto the Oblige the difference in money between
the amount of the bid of the said Principal and the amount for which the Oblige legally contracts with another party to perform the work
if the latter amount be in excess of the former, but in no event shall liability hereunder exceed the penal sum hereof.

Signed, sealed and delivered..... 10/1/80
(Date)

BILL PAGE CONSTRUCTION, INC. (SEAL)

Jim Page Vice Pres. (SEAL)

UNITED STATES FIDELITY AND GUARANTY COMPANY

Nancy P. Smith
NANCY T. SMITH Attorney-in-fact

GENERAL POWER OF ATTORNEY

No. 90029

Know all Men by these Presents:

That UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation organized and existing under the laws of the State of Maryland, and having its principal office at the City of Baltimore, in the State of Maryland, does hereby constitute and appoint

Nancy T. Smith

of the City of Portland, State of Oregon, its true and lawful attorney in and for the State of Oregon

for the following purposes, to wit:

To sign its name as surety to, and to execute, seal and acknowledge any and all bonds, and to respectively do and perform any and all acts and things set forth in the resolution of the Board of Directors of the said UNITED STATES FIDELITY AND GUARANTY COMPANY, a certified copy of which is hereto annexed and made a part of this Power of Attorney; and the said UNITED STATES FIDELITY AND GUARANTY COMPANY, through us, its Board of Directors, hereby ratifies and confirms all and whatsoever the said

Nancy T. Smith

may lawfully do in the premises by virtue of these presents.

In Witness Whereof, the said UNITED STATES FIDELITY AND GUARANTY COMPANY has caused this instrument to be sealed with its corporate seal, duly attested by the signatures of its Vice-President and Assistant Secretary, this 26th day of October, A. D. 1979

UNITED STATES FIDELITY AND GUARANTY COMPANY.

(Signed) By Thomas A. Zecha Vice-President

(SEAL)

(Signed) Robert G. Bruce Assistant Secretary

STATE OF MARYLAND, } ss: BALTIMORE CITY, }

On this 26th day of October, A. D. 1979, before me personally came Thomas A. Zecha, Vice-President of the UNITED STATES FIDELITY AND GUARANTY COMPANY and Robert G. Bruce, Assistant Secretary of said Company, with both of whom I am personally acquainted, who being by me severally duly sworn, said that they, the said Thomas A. Zecha and Robert G. Bruce were respectively the Vice-President and the Assistant Secretary of the said UNITED STATES FIDELITY AND GUARANTY COMPANY, the corporation described in and which executed the foregoing Power of Attorney; that they each knew the seal of said corporation; that the seal affixed to said Power of Attorney was such corporate seal, that it was so fixed by order of the Board of Directors of said corporation, and that they signed their names thereto by like order as Vice-President and Assistant Secretary, respectively, of the Company.

My commission expires the first day in July, A. D. 1982...

(SEAL) (Signed) Margaret M. Hurst Notary Public

STATE OF MARYLAND } Sect. BALTIMORE CITY, }

I, William Allen, Clerk of the Superior Court of Baltimore City, which Court is a Court of Record, and has a seal, do hereby certify that Margaret M. Hurst, Esquire, before whom the annexed affidavits were made, and who has thereto subscribed his name, was at the time of so doing a Notary Public of the State of Maryland, in and for the City of Baltimore, duly commissioned and sworn and authorized by law to administer oaths and take acknowledgments, or proof of deeds to be recorded therein. I further certify that I am acquainted with the handwriting of the said Notary, and verily believe the signature to be his genuine signature.

In Testimony Whereof, I hereto set my hand and affix the seal of the Superior Court of Baltimore City, the same being a Court of Record, this 26th day of October, A. D. 1979

(SEAL) (Signed) William Allen Clerk of the Superior Court of Baltimore City

COPY OF RESOLUTION

That Whereas, it is necessary for the effectual transaction of business that this Company appoint agents and attorneys with power and authority to act for it and in its name in States other than Maryland, and in the Territories of the United States and in the Provinces of the Dominion of Canada and in the Colony of Newfoundland.

Therefore, be it Resolved, that this Company do, and it hereby does, authorize and empower its President or either of its Vice-Presidents in conjunction with its Secretary or one of its Assistant Secretaries, under its corporate seal, to appoint any person or persons as attorney or attorneys-in-fact, or agent or agents of said Company, in its name and as its act, to execute and deliver any and all contracts guaranteeing the fidelity of persons holding positions of public or private trust, guaranteeing the performances of contracts other than insurance policies and executing or guaranteeing bonds and undertakings, required or permitted in all actions or proceedings, or by law allowed, and

Also, in its name and as its attorney or attorneys-in-fact, or agent or agents to execute and guarantee the conditions of any and all bonds, recognizances, obligations, stipulations, undertakings or anything in the nature of either of the same, which are or may by law, municipal or otherwise, or by any Statute of the United States or of any State or Territory of the United States or of the Provinces of the Dominion of Canada or of the Colony of Newfoundland, or by the rules, regulations, orders, customs, practice or discretion of any board, body, organization, office or officer, local, municipal or otherwise, be allowed, required or permitted to be executed, made, taken, given, tendered, accepted, filed or recorded for the security or protection of, by or for any person or persons, corporation, body, office, interest, municipality or other association or organization whatsoever, in any and all capacities whatsoever, conditioned for the doing or not doing of anything or any conditions which may be provided for in any such bond, recognizance, obligation, stipulation, or undertaking, or anything in the nature of either of the same.

I, **George R. Downer**, an Assistant Secretary of the UNITED STATES FIDELITY AND GUARANTY COMPANY, do hereby certify that the foregoing is a full, true and correct copy of the original power of attorney given by said Company to

Nancy T. Smith

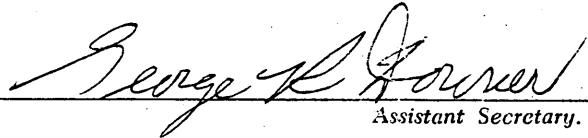
of **Portland, Oregon**, authorizing and empowering **her** to sign bonds as therein set forth, which power of attorney has never been revoked and is still in full force and effect.

And I do further certify that said Power of Attorney was given in pursuance of a resolution adopted at a regular meeting of the Board of Directors of said Company, duly called and held at the office of the Company in the City of Baltimore, on the 11th day of July, 1910, at which meeting a quorum of the Board of Directors was present, and that the foregoing is a true and correct copy of said resolution, and the whole thereof as recorded in the minutes of said meeting.

In Testimony Whereof, I have hereunto set my hand and the seal of the UNITED STATES FIDELITY AND GUARANTY COMPANY on

10/1/80

(Date)


Assistant Secretary.

INVITATION TO BID

Water System Improvements
Water Transmission Line

City of Newberg
City Hall
Newberg, Oregon 97132

Sealed proposals for furnishing all materials, equipment, labor, and services for construction of a Water Transmission Main for the City of Newberg will be received by the City Administrator, at his office in the City Hall, 414 E. First Street, Newberg, Oregon, 97132 until the hour of 2:00 o'clock p.m. on October 1, 1980 for the work herein described. Bids will then be publicly opened and read by the City Administrator in the Council Chambers of the City Hall, Newberg, Oregon.

Any and all proposals received after the time specified shall be returned unopened.

The work will consist of: Two Schedules

Schedule A: Construction of approximately 1,310 linear feet of buried 24-inch-diameter concrete cylinder pipe, with an alternate for construction of the same using ductile-iron pipe; complete with valves, connections to existing water mains, and associated miscellaneous work.

Schedule B: Construction of approximately 815 linear feet of 24-inch-diameter welded steel pipe crossing an abandoned bridge, selective bridge demolition, and repair, structural steel walkway and bridge approach section, and associated miscellaneous work.

Schedules A and B may be awarded separately or for the lowest combined total.

Drawings and Specifications may be examined at:

Kramer, Chin & Mayo, Inc., Consulting Engineers, Planners, and Applied Scientists offices at 10 S.W. Ash Street, Portland, Oregon, Telephone: (503) 221-1814; 2755 Twelfth Street, SE, Salem, Oregon 97302, and 1917 First Avenue, Seattle, Washington 98101.

Newberg City Hall, 414 E. First Street, Newberg, Oregon 97132

Builders Exchange Co-Op, 1125 S.E. Madison Street, Portland, Oregon 97214

Construction Data, 925 N.W. Twelfth, Portland, Oregon 97214

Northwest Plan Center, 500 N.E. Multnomah, Portland, Oregon 97212

Drawings and specifications may be obtained at the office of the City Engineer, City Hall, 414 E. First Street, Newberg, Oregon 97132. In lieu of a deposit, it is requested that documents be returned after the bid opening.

Bidders must be prequalified in the classes of work specified below in compliance with applicable parts of Chapter 279.041 of the Oregon Revised Statutes.

Schedule A: Water lines

Schedule B: Demolition, structural steel fabrication, water lines

Bidders not previously qualified to bid on the first bidding of the Water Transmission Line invitation must submit, at least five (5) days prior to the bidding date, a statement requesting to be prequalified for the specific schedule(s) while the bidder intends to bid on and submit a current copy of the State of Oregon's Contractor's Prequalification Application if the City of Newberg does not have a current copy on file.

Each bidder agrees to comply with provisions of ORS 279.350, payment of not less than current wages in accordance with the Davis-Bacon Act and with President's Executive Order No. 11246.

All bids shall be accompanied by a certified check, a cashiers check or a bid bond in the amount of 10 percent of the bid. The successful bidder shall furnish a payment and performance bond satisfactory to the City in the full amount of the contract. The successful bidder upon his failure or refusal to execute and deliver the contract and bonds within ten days after he has received notice of acceptance of his bid, shall forfeit to the City, for such failure or refusal the security deposited with his bid.

The contract will either be awarded, or all proposals rejected within 30 calendar days after the opening. The successful bidder shall execute a contract within 10 days from the date of notification and shall complete the work covered by the contract within:

Schedule A	90 Calendar Days
Schedule B	
Pipeline	120 Calendar Days
All Work	150 Calendar Days

The City of Newberg reserves the right to reject any and all proposals, to waive informalities and to accept that proposal which is in the best interests of the City.

CITY OF NEWBERG
 Arvilla Page
 Recorder

Publication: _____

BIDDER'S CHECK LIST

The bidder is advised to use the following list to assemble all forms and information required to be submitted with his bid.

- _____ Bid Proposal
- _____ Bid Bond
- _____ Statement of Bidder's Qualifications (Do not submit with bid)
- _____ Noncollusion Affidavit Certificate

End of Bidder's Check List

INSTRUCTIONS TO BIDDERS

1.1 PREPARATION AND DELIVERY OF PROPOSALA. Preparation of Proposal

Each bid shall be made on the forms furnished by the Owner and shall be signed by the bidder with the signature in full. If the proposal is made by a partnership, it shall contain the name of each partner and shall be signed in the firm name, followed by the signature of the person authorized to sign. If the proposal is made by a corporation, it shall be signed in the name of the corporation by the officer or officers having authority to sign contracts. The address and telephone number of the bidder shall be typed or printed on the proposal.

Bids shall be made only on the proposal form accompanying these instructions. A lump sum or unit price shall be submitted on each item of work. The lump sum or unit price shall be typed or written in ink in both words and figures.

In the case of a discrepancy between the words and the figures, the words shall govern. Any errors in addition will be corrected to determine the low bidder. Any omission of prices on items shown in the proposal form or any addition in writing to the form of bid, or any condition, limitation or provision not officially invited in the proposal or special provisions may render the proposal as being incomplete or modified and may become cause for rejection of the bid.

B. Delivery of Proposal

Each proposal or bid shall be completely sealed in a separate envelope, properly addressed to the Owner at the address indicated on the proposal form, with the name and address of the bidder and the name of the project for which the bid is submitted, plainly written on the outside of the envelope.

Proposals will be received at the time and place stated in the Call for Bids. It is the sole responsibility of the bidder to see that his bid is delivered in time. Any bid received after the scheduled closing time for receipt of bids will be returned to the bidder unopened.

C. Error in Proposal

No consideration will be given by the Owner to a claim of error in a proposal unless written notice of such claim and supporting evidence for such claim including cost breakdown sheets are delivered to the City within forty-eight (48) hours after the opening of proposals.

1.2 EXAMINATION OF SITE, DRAWINGS, ETC.

Each bidder shall visit and investigate the site of the proposed work and fully acquaint himself with conditions relating to construction and labor so that he may fully understand the facilities, difficulties, and restrictions attending the execution of work under the contract. Bidders shall thoroughly examine and be familiar with the drawings and specifications. The failure or omission of any bidder to receive or examine any form, instrument, addendum or other documents or to visit the site and acquaint himself with the conditions there existing which have bearing on construction costs, shall in no way relieve any bidder from any obligation with respect to his bid or to the contract. The submission of a bid shall be taken as prima facie evidence of compliance with this section.

1.3 INTERPRETATIONS

No oral interpretations will be made to any bidder as to the meaning of the drawings and specifications or other contract documents. Every request for such an interpretation shall be made in writing and addressed and forwarded to the Owner's representative. Every interpretation made to a bidder will be in the form of an addendum to the contract documents which, if issued, will be sent as promptly as is practicable to all persons to whom the drawings and specifications have been issued. All such addenda become part of the contract documents.

1.4 ALTERATIONS IN BIDS

Except as otherwise provided herein, proposals which are incomplete, which are conditioned in any way, or which contain erasures not authenticated as provided herein, alterations, or items not called for in the proposal, or which are not in conformity to the law, may be rejected as informal. No oral or telephonic proposals or modifications will be considered.

1.5 ERASURES

The bids submitted must not contain any erasures, interlineations, or other corrections unless each such correction is suitably authenticated by affixing in the margin immediately opposite the correction the surname or surnames of the person or persons signing the bid.

1.6 MODIFICATIONS OF BIDS

Modification of proposals already received will be considered only if the request for the privilege of making such modification and the modifications are made prior to the scheduled closing time for the receipt of the proposals. All modifications must be made in writing over the signature of the bidder. No telegraphic modifications will be considered. Changes in or additions to the bid form, recapitulations of the work bid upon, alternate proposals, or any other modifications of the bid form which are not called for in the contract documents may result in the Owner's rejections of the bid as not being responsive.

1.7 WITHDRAWAL OF BID

At any time prior to the scheduled closing time for receipt of proposals, any bidder may withdraw his proposal, either personally or by written request. If withdrawal is made personally, proper receipt shall be given therefor.

After the scheduled closing time for the receipt of proposals or before award of contract, no bidder will be permitted to withdraw his proposal unless said award is delayed for a period exceeding thirty (30) days. Negligence on the part of the bidder in preparing the bid confers no rights for the withdrawal of the bid after it has been opened.

1.8 EXECUTION OF CONTRACT

The successful bidder will be required, within ten (10) days after receiving from the Owner properly prepared contract documents, to execute five (5) copies of said contract and to furnish performance bond, other required bonds satisfactory to the Owner, and certificates of insurance policies.

1.9 PREQUALIFICATION OF BIDDERS

A. Bidders must be prequalified in the classes of work specified below in compliance with applicable parts of Chapter 279.041 of the Oregon Revised Statutes.

Schedule A: Water lines

Schedule B: Demolition, structural steel fabrication, water lines

Bidders not previously qualified to bid on the first bidding of the Water Transmission Line invitation must submit, at least five (5) days prior to the bidding date, a statement requesting to be prequalified for the specific schedule(s) which the bidder intends to bid on and submit a current copy of the State of Oregon's Contractor's Prequalification Application if the City of Newberg does not have a current copy on file.

B. Prequalifications forms shall not be submitted with the bid.

1.10 PERFORMANCE BOND AND OTHER BOND REQUIREMENTS

It shall be the applicable Contractor's responsibility to post the required performance bond and all other required bonds with public bodies for restoration of public properties.

1.11 SECURITY TO BE FURNISHED BY EACH BIDDER

A certified check, bank cashier's check, or bid bond, made payable to the City of Newberg for an amount equal to at least ten percent (10%) of the total bid, shall accompany each proposal as evidence of good faith and as a guarantee that if awarded the contract, the bidder will execute the contract and give bonds as required by the General Conditions. Should the successful bidder fail to enter into a contract and furnish a satisfactory performance bond within ten (10) days

after receiving from the Owner properly prepared contract forms, the certified check, cashier's check or bid bond shall be forfeited as liquidated damages. Bid deposits in cash will not be accepted. A power of attorney must be provided which appoints its true and lawful attorney-in-fact to make, execute, seal and deliver this bid bond.

1.12 RETURN OF PROPOSAL BID SECURITY

Within ten (10) days after the proposals are opened, the Owner will return the proposal bid security accompanying the proposals which are not to be considered in making the award. All other proposal bid securities will be held until the contract has been fully executed after which they will be returned to the respective bidders whose proposals they accompany.

1.13 PROPOSAL SUMS

The sum of money shown on the proposal covering all work included in base bid contract documents, together with any addenda thereto and shall include all items of labor, material, equipment, overhead and compensation, to complete all of the work under each particular heading.

1.14 LIQUIDATED DAMAGES

The Contractor agrees to pay to the Owner a sum of two hundred fifty dollars (\$250.00) for each calendar day beyond the three substantial completion dates that the work remains uncompleted, in each portion of the work. The maximum amount of liquidated damages for any one Contractor will be \$250.00 for each calendar day.

1.15 EASEMENT AND RIGHTS-OF-WAY

The Contractor shall not construct any facility in the following areas until he has been given authority to do so by the Owner. Should the authorization not be given by the written date of the "Notice to Proceed," the Contractor will be allowed an extension of time for contract completion equal to the number of days that the authorization is delayed.

1.16 PRECONSTRUCTION CONFERENCE

A preconstruction conference will be held within one (1) week award of the contract.

1.17 SUBCONTRACTS

The Contractor shall perform with his own organization not less than one-third of the work and shall not sublet to one Contractor more than one-half of the work without the previous written consent of the Owner. No subcontractor will be recognized as such, and all persons engaged in the work will be considered as employees of the Contractor and their work shall be subject to the provisions of the contract. When it is stated in the contract documents that a subcontractor, manufacturer, supplier or any other person other than the Contractor, the Owner or the Engineer shall do something, it means that the Contractor shall cause such person to do that thing.

1.18 LIST OF SUBCONTRACTORS

Each bid proposal shall have listed on the form provided therewith the name and address of each subcontractor to whom the bidder proposes to sublet portions of the work in excess of three percent (3%) of the total amount of his proposal. For the purpose of this paragraph, a subcontractor is defined as one who contracts with the Contractor to furnish materials and labor, or labor only, for the performance of work at the site of the work. Failure to list subcontractors may result in the proposal being rejected as not responsive.

End of Instructions to Bidders

Date 9/30/80**BID PROPOSAL**Water System Improvements
Transmission Line
Newberg, OregonBill Page Construction Inc.
Legal Name of Bidder

Bid submitted for:

Transmission Line

Bid Opening:

To: City of Newberg
City Hall
Newberg, Oregon

Pursuant to and in compliance with your Invitation for Bids and the other documents relating thereto, the undersigned bidder, having familiarized himself with the terms of the contract, the local conditions affecting the performance of the contract, and the cost of the work at the place where the work is to be done, and with the plans and specifications and all other contract documents, hereby proposes and agrees to perform, within the time stipulated, the contract, including all its component parts, and everything required to be performed, and to provide and furnish any and all of the labor, materials, tools, expendable equipment and all utility and transportation services necessary to perform the contract and complete in a workmanlike manner all of the work covered by the contract in connection with the Owner's Project designated: Transmission Line, for the indicated schedule(s) ready for successful operation and use, all as required by and in strict accordance with the contract documents and drawings, and with all addenda issued by the Owner's authorized representative, for the lump sum and unit price amounts stated in the following bid items.

SCHEDULE OF PRICES

It is understood that all the work will be performed under a unit price contract and that for said bid price all services, materials, labor, equipment, and all work necessary to complete the project in accordance with the plans and specifications shall be furnished.

Bidder agrees to perform all the work described in the contract documents for the following unit bid prices, to wit:

201-02

C-2

BID SCHEDULE

NOTE: BIDS shall include all applicable taxes and fees.

The Contractor shall refer to Section 01150, Measurement and Payment, for measurement, payment and description of bid items.

WATER TRANSMISSION LINE - BASIC BID
SCHEDULE A

Item No.	Description	Est. Quantity	Unit	Unit Price In Words	Unit Price In Figures	Total
<u>I. TRANSMISSION LINE UNDERGROUND PIPELINE</u>						
1.1	24-Inch Concrete Cylinder Pipe, CL 100					
	0-6 Foot Depth	180	L.F.	<u>Forty Four $\frac{00}{100}$</u>	\$ <u>44.00</u>	\$ <u>7920.00</u>
	6-8 Foot Depth	570	L.F.	<u>Forty Six $\frac{00}{100}$</u>	\$ <u>46.00</u>	\$ <u>26,220.00</u>
	8-10 Foot Depth	425	L.F.	<u>Forty Nine $\frac{00}{100}$</u>	\$ <u>49.00</u>	\$ <u>20,825.00</u>
	10-12 Foot Depth	50	L.F.	<u>Fifty Two $\frac{00}{100}$</u>	\$ <u>52.00</u>	\$ <u>2600.00</u>
	12-14 Foot Depth	100	L.F.	<u>Fifty Five $\frac{00}{100}$</u>	\$ <u>55.00</u>	\$ <u>5500.00</u>
1.2	Imported Backfill	375	L.F.	<u>Fifteen $\frac{00}{100}$</u>	\$ <u>15.00</u>	\$ <u>5625.00</u>
1.3	Foundation Stabilization	10	C.Y.	<u>Ten $\frac{00}{100}$</u>	\$ <u>10.00</u>	\$ <u>100.00</u>
1.4	Blowoff Valve Assembly	2	EA.	<u>Two Thousand Five Hundred $\frac{00}{100}$</u>	\$ <u>2500.00</u>	\$ <u>5000.00</u>
1.5	24-Inch Butterfly Valve	1	EA.	<u>Two Thousand Nine Hundred $\frac{00}{100}$</u>	\$ <u>2900.00</u>	\$ <u>2900.00</u>
1.6	14-Inch Butterfly Valve	1	EA.	<u>One Thousand $\frac{00}{100}$</u>	\$ <u>1000.00</u>	\$ <u>1000.00</u>
1.7	Pavement Replacement	110	S.Y.	<u>Twenty Five $\frac{00}{100}$</u>	\$ <u>25.00</u>	\$ <u>2750.00</u>
1.8	Connection to Existing Transmission Mains	2	EA.	<u>Five Thousand Two Hundred $\frac{00}{100}$</u>	\$ <u>5200.00</u>	\$ <u>10,400.00</u>
Total Schedule A, Basic Bid Price						\$ <u>90,840.00</u>

WATER TRANSMISSION LINE - ALTERNATE A
SCHEDULE A

Item No.	Description	Est. Quantity	Unit	Unit Price In Words	Unit Price In Figures	Total
2.0	Basic Bid, Schedule A		L.S.	<u>Ninety Thousand Eight Hundred Forty $\frac{7}{100}$</u>	<u>\$ 90,840.00</u>	<u>\$ 90,840.00</u>
2.1	Delete: Item 1.1 24-Inch Concrete Cylinder Pipe		L.S.	<u>Sixty Three Thousand Sixty Five $\frac{7}{100}$</u>	<u>\$ 63,065.00</u>	<u>\$ 63,065.00</u>
2.2	Add: 24-Inch Ductile-Iron Pipe CL 51					
	0-6 Foot Depth	180	L.F.	<u>Thirty Four $\frac{7}{100}$</u>	<u>\$ 34.00</u>	<u>\$ 6120.00</u>
	6-8 Foot Depth	570	L.F.	<u>Thirty Six $\frac{7}{100}$</u>	<u>\$ 36.00</u>	<u>\$ 20,520.00</u>
	8-10 Foot Depth	425	L.F.	<u>Thirty Nine $\frac{7}{100}$</u>	<u>\$ 39.00</u>	<u>\$ 16,575.00</u>
	10-12 Foot Depth	50	L.F.	<u>Forty Two $\frac{7}{100}$</u>	<u>\$ 42.00</u>	<u>\$ 2100.00</u>
	12-14 Foot Depth	100	L.F.	<u>Forty Five $\frac{7}{100}$</u>	<u>\$ 45.00</u>	<u>\$ 4500.00</u>
TOTAL SCHEDULE A, ALTERNATE A BID PRICE						<u>\$ 77,590.00</u>

WATER TRANSMISSION LINE
SCHEDULE B

Item No.	Description	Est. Quantity	Unit	Unit Price In Words	Unit Price In Figures	Total
3.	<u>TRANSMISSION LINE - BRIDGE CROSSING</u>					
3.1	24-Inch Welded Steel Pipe	875	L.F.	_____	\$ _____	\$ _____
3.2	24-Inch Mechanical Couplings	18	EA.	_____	\$ _____	\$ _____
3.3	Pipe Supports, Thrust Restraint		L.S.	_____	\$ _____	\$ _____
3.4	Combination Air Release Valve Assembly	1	EA.	_____	\$ _____	\$ _____
3.5	Blowoff Valve Assembly		L.S.	_____	\$ _____	\$ _____
3.6	Connection to Buried 24-Inch Transmission Line	2	EA.	_____	\$ _____	\$ _____

WATER TRANSMISSION LINE
SCHEDULE B (Continued)

Item No.	Description	Est. Quantity	Unit	Unit Price In Words	Unit Price In Figures	Total
4.	<u>BRIDGE RESTORATION</u>					
4.1	Partial Bridge Demolition		L.S.	_____	\$ _____	\$ _____
4.2	Bridge Approach and Walkway		L.S.	_____	\$ _____	\$ _____
4.3	Structural Repair, as Shown on the Drawings		L.S.	_____	\$ _____	\$ _____
4.4	Jute Mat Slope Protection	500	S.Y.	_____	\$ _____	\$ _____

TOTAL BID PRICE SCHEDULE B \$ _____

BIDDER'S QUALIFICATIONS

Bidders understand that they shall fill out the Statement of Bidder's Qualification form included with these specifications. Failure to do so may result in the proposal being rejected as not responsive.

ACCEPTANCE OF BID

If written notice of the acceptance of this bid is mailed, telegraphed or delivered to the undersigned within thirty (30) days after the date of opening of the bids, or at any time thereafter before this bid is withdrawn, the undersigned agrees that he will execute and deliver a contract in the form attached hereto as required by the contract documents, in accordance with the bids as accepted, and that he will give performance bond as specified, with good and sufficient surety or sureties, all within ten (10) days (unless a longer period is allowed) after the prescribed forms are presented to him for signature.

AWARD OF BID

The Owner reserves the right to award the bid in a manner and on a basis which will best serve the Owner, taking into consideration the bid qualifications included with the bids and the right to reject all bids.

The award of the contract shall be made to the qualified bidder(s) submitting the lowest responsive bid(s).

The Bidder declares that he understands the rights reserved by the Owner in letting and awarding of the contract and the right to limit the size of the project.

The Bidder(s) may bid schedules A, Alternate A, Schedule B or any combination thereof. The award(s) will be based upon the best single, or combination of bids as determined by the owner.

LIQUIDATED DAMAGES

The Contractor agrees to pay to the Owner a sum of two hundred fifty dollars (\$250.00) for each calendar day beyond the three substantial completion dates, that the work remains uncompleted, in each portion of work. The maximum amount of liquidated damages for any one Contractor will be \$250.00 for each calendar day.

COMPLETION TIME

The Contractor agrees to comply with Paragraph, Time of Commencement and Completion, in the Summary of the Work, Section 01010, Paragraph 1.03, and accomplish substantial completion within:

Schedule A	Ninety (90) Calendar Days
Schedule B	
Pipeline	One hundred twenty (120) Calendar Days
All Work	One hundred fifty (150) Calendar Days

from the date specified in the written "Notice to Proceed."

RECEIPT OF ADDENDA

Receipt of Addenda numbered 1, _____, _____, _____, _____, _____, _____, _____, _____ is hereby acknowledged.

BID BOND

Enclosed is security as required, consisting of Bid Bond
Bid Bond, Certified or Cashier's Check

in the amount of 10% of bid Dollars

(\$ _____), which amount is not less than ten percent (10%) of the total bid.

BID PROPOSAL BY:

The party to whom this bid is submitted and by whom the contract will be entered into in case the award is made to him is Bill Page Construction Inc.
State whether "Corporation," "Partnership" or "Individual"

State of incorporation, if corporation: Oregon

doing business at P.O. Box 498-1805 Portland Rd. Street

Newberg, Ore. to which address notice of acceptance should be mailed,
(City and State)

telegraphed or delivered.

The name of the president, treasurer, and the manager of the bidding corporation, or the names and residences of all persons and parties interested in this proposal as partners or principals are as follows:

<u>Name</u>	<u>Address</u>
<u>Bill Page Pres</u>	<u>P.O. Box 498, Newberg, 97132</u>
<u>Jim Page V. Pres</u>	<u>Rt. 1, Box 48A1 - Newberg</u>

Bill Page Const. Inc.
(Legal name of person, firm or corporation)

By: J. Page Vice Pres
(Signature and Title)

Contractor's State of Oregon License Registration No. 130

PROPOSED SUBCONTRACTORS

The following information is submitted which gives the name, business address, and portion of work (description of work to be done) for each subcontractor that will be used in the work if the bidder is awarded the contract. No subcontractor doing work in excess of 3% of the total amount of the bid and who is not listed shall be used without the written approval of the Owner. Additional numbered pages outlining this portion of the proposal may be attached to this page. Each page shall be headed "Proposed Subcontractors" and shall be signed by the bidder.

<u>Name</u>	<u>Business Address</u>	<u>Portion of Work</u>	<u>Percentage</u>
-------------	-------------------------	------------------------	-------------------

?

Signature of Bidder

STATE OF OREGON
PUBLIC CONTRACT REVIEW BOARD
Salem, Oregon 97310



**CONTRACTOR'S
PREQUALIFICATION
APPLICATION**

Equipment and Experience Questionnaire
ADOPTED BY THE PUBLIC CONTRACT REVIEW BOARD
PURSUANT TO ORS 279.039

To _____

(Name and Address of Public Contracting Agency)

Application of _____

(Name of Applicant)

An Individual

A Co-Partnership

A Corporation

Joint Venture

Member of Joint Venture

(Address to which all applicant's correspondence is to be mailed) Telephone No. _____

Date Application Prepared _____

Registered Agent for Service of Process _____

(Address and Telephone Number)

This Prequalification Application is submitted for the following purpose: (Check one)

This is a prequalification application for such period of time as designated by the mandatory prequalification rules adopted by the Public Contracting Agency.

This is a prequalification application for the

(Name of Project)

Scheduled bid opening: _____
(date)

INSTRUCTIONS

Introductory Statement

In accordance with the statutes of the State of Oregon, every public contracting agency contemplating receiving bids for and awarding any contract for a public improvement may require any prospective bidder to submit a full and complete statement concerning his equipment and experience in constructing public improvements.

The application and questionnaire forms which are bound herewith comply with the requirements of Oregon Public Contract Review Board rules and must be used in determining the qualifications of prospective bidders and in assigning limits as to the size and kinds of projects for which the prospective bidder may submit bids.

The applicant should use care and integrity in preparing this information. The public contracting agency may make independent inquiries concerning the contractor's past performance and/or capabilities.

Manner of Preparing and Filling in Forms:

This application shall include equipment and experience information for only the specific single business organization or entity which is applying for prequalification and which would be the signator on a contract with the public contracting agency.

All answers and other entries on the forms, except signatures, should be filled in on a typewriter or printed. To make this possible, the forms may be taken apart by removing the staples by which they are bound. It shall be the responsibility of the applicant to return all pages whether applicable or not. Failure to do so may be grounds for rejection.

All answers and entries shall be specific and complete in detail.

The prequalification application shall be signed by the applicant and sworn to as the form indicates. The signatory of the statement guarantees the truth and accuracy of all statements and of all answers to questions.

Use of Attachments:

Schedules, reports and other forms of prequalification statement may be used as attachments to the prescribed form, provided that the information contained therein specifically includes the information required by this form.

Place of Submission:

Prequalification applications shall be submitted to the designated officer of the public contracting agency.

Time of Submission:

Each Public Contracting Agency may have specific time requirements for filing applications. The applicant should check with the designated officer of the applicable agency for submission time.

(Instructions continued inside back cover)

INSTRUCTIONS -Continued

Appeal Due to Denial or Revocation of Prequalification:

In case a contractor's application for prequalification is denied or in case an existing prequalification is revoked, the contractor may appeal the denial or revocation in accordance with the rules adopted by the Public Contract Review Board.

Notification of Action Taken:

The applicant will be notified, in writing, of the action on his application. He will then be allowed to bid on such projects as are within the limits of size and kind of work for which he has been declared qualified.

Period During Which a Qualified Bidder Remains Qualified:

A prospective bidder who has been notified of prequalification for projects of a given size and kind will usually remain qualified until the date specified in the notification. The public contracting agency may limit prequalification approval to individual public improvement projects. Unless such bidder is otherwise notified by the public body he will be permitted to submit bids for any and all projects of said kind and size for which bids are to be received. The public body may from time to time require new or revised prequalification applications and have them approved prior to allowing a bid.

Requirement of Continuing Prequalification:

Prospective bidders who have once been qualified with an agency requiring prequalification and who desire to maintain an uninterrupted prequalification standing are required to submit a new application periodically as required by such agency. Uninterrupted prequalification is contingent upon favorable action on the application. A prequalification may be revoked under the provisions of ORS 279.039.

Changes:

Requests for revision of the prequalification standing of any prospective bidder will be considered whenever the bidder can make a showing of materially improved ability, but not more often than once in three months. Each such request must be accompanied by a new prequalification application.

With or without a request from the prequalified bidder, the prequalification limitation on class of work or size of project may be reviewed and increased or decreased as found appropriate. The prequalified prospective bidder will be notified in writing of any such revision.

Confidential Information:

The information furnished in the prequalification application will be treated as confidential information if so requested by the applicant. If so requested in item 14 of the application, contents of the application will not be disclosed to the public except upon the written order of the person or persons furnishing the same or upon an appropriate order of a court of competent jurisdiction.

Joint Venture:

A public contracting agency may adopt special requirements concerning joint ventures. Before submitting a joint venture application, a prospective bidder should ascertain if special instructions are applicable and obtain them from the designated public officer.

Minority Contractors:

Do not fill in item 16 unless required by the public contracting agency.

1 Insert the maximum dollar amount for each class of work which the applicant declares it is capable of performing.

<u>(Highway, Roads, Streets, Airports)</u>		<u>(Other Public Improvements)</u>	
<u>Class</u>	<u>Max. Dollar Amount</u>	<u>Class</u>	<u>Max. Dollar Amount</u>
Land Clearing - Highways, Roads, Streets and Airports	_____	Sewer Construction	_____
Earthwork and Drainage - Highways, Roads, Streets, and Airport Runways	_____	Sewage Treatment Plants	_____
Aggregate Crushing	_____	Sewage Pumping Stations	_____
Aggregate Bases - Highways, Roads, Streets and Airport Runways	_____	Water Lines	_____
Asphalt Concrete Pavement and Oiling - Highways, Roads, Streets and Airport Runways	_____	Water Reservoirs	_____
Portland Cement Pavement - Highways, Roads, Streets and Airport Runways	_____	Water Tanks - Steel, Concrete, Wooden	_____
Reinforced Concrete, and Structural Steel Bridges and Grade Separation Structures	_____	Electrical Wiring	_____
Painting Steel Bridges and Grade Separation Structures	_____	Building Construction	_____
Miscellaneous Highway Appurtenances (Guardrails, Median Barriers, Curbs, Retaining Walls, Walks, Fences, Riprap)	_____	Building Alteration and Repair	_____
Signing - Temporary and/or permanent for Highways, Streets and Roads	_____	Demolition and Related Excavation and Clearing	_____
Illumination - Highways, Streets, Roads, Airports, Parks and Rest Areas	_____	Painting and Decorating	_____
Traffic Signals - Highways, Streets and Roads	_____	Plumbing	_____
Landscaping - Highways, Streets, Roads, Parks and Rest Areas (Roadside seeding, lawns, shrubs, trees, irrigation systems)	_____	Heating	_____
Buildings - Highways, Rest Areas, Parks (Toilets, Bathhouses, Maintenance, Sand Sheds)	_____	Air Conditioning	_____
		Roofing	_____
		Sheet Metal Work	_____
		Drainage	_____
		Well Drilling	_____
		Other	_____

2 Indicate the total amount of work, expressed in dollars, which the applicant believes it is capable of undertaking at any one time: \$ _____

3 BID AND PERFORMANCE SURETY BONDS:

If the contracts for which this prequalification is sought require bid and performance bonds, the applicant shall state the name of the agent and name, address and telephone number of the surety company applicant expects to provide the bonds.

4 If an Oregon corporation, answer this:

When Incorporated _____

President _____

1st Vice President _____

Secretary _____

Treasurer _____

What officers are authorized to
execute contracts _____

5 If a co-partnership, answer this:

Date of organization _____
State whether partnership is general, limited or association.

If a foreign co-partnership or persons engaging in business in this state under an assumed business name, but not domiciled within this state, state whether or not such partnership or business organization has been registered as may be required in compliance with Chapter 648, Oregon Revised Statutes.

Name and Address of Partners

6 If a foreign corporation, answer this:

When incorporated _____

In what state _____

Date of authorization to transact
business in the State of Oregon _____

Has applicant filed with the Department of Revenue
forms required by ORS 279.021?

Yes No

President _____

1st Vice President _____

Secretary _____

What officers are authorized to
execute contracts _____

BIDDER'S EXPERIENCE QUESTIONNAIRE

8 List major projects applicant has undertaken in last five years.
 (List most recent projects first)

Name and Address of Owner	Name of Project	Class of Work	Contract Amount
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

BIDDER'S EXPERIENCE QUESTIONNAIRE — Continued

9 List the following additional information for projects listed under item 8.
 (Use same line No. as in opposite page)

Date of Completion (if completed)	Location of Work	•	Surety Company if Project Bonded	Architects or ** Engineering Firms
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

* Indicate whether: (P) Prime Contractor, (JV) Joint Venture, (Sub) Subcontractor
 ** Indicate name, address and phone number including area code.

BIDDER'S EXPERIENCE QUESTIONNAIRE - Continued

10 A. How many years has applicant been in business under present name? _____

B. How many years experience in construction work has applicant had:

(a) As a prime contractor? _____ (b) As a subcontractor? _____

11 What is the construction experience of the principal individuals in applicant's organization?

Individual's Name	Present Position or Office	Years of Const. Exp.	Magnitude and Type of Work	In What Capacity

12 Indicate type of all contractors licenses held as required by Oregon statutes. (e.g. Landscape Contractor)

13 Following space may be used for general remarks and explanations pertaining to the foregoing prequalification statements: (Also explain here any experience claimed which is that of a business organization or entity, other than the applicant, including a business entity superseded by the applicant.)

14 Does applicant want the material submitted herein deemed to be a trade secret pursuant to paragraph and (e) of subsection (1) of ORS 192.500?

(Check one)

Yes

No

15 Applicant's Affiliations: List any organization, owned or controlled by the applicant, or in which applicant was or is an officer, director or partner, doing business in Oregon under another name.

16 Check the appropriate block identifying applicant.*

Negro

Spanish Speaking American

American Oriental

American Eskimo

American-Indian

American Aleuts

Non Minority

*See Instructions

17 AFFIDAVIT:

STATE OF OREGON)

) ss.

County of _____)

I, _____ being first sworn, state that I am

_____ of the applicant herein and that the statements made in
Title

this application are true; that should there be any subsequent material reduction in applicant's ability to carry out any project for which applicant desires to submit a bid applicant will give written notice of such change to the designated officer to whom this application is submitted at least ten days prior to the bid opening; and that it is understood that such notice may change the eligibility of applicant to submit the bid.

(Signature)

(Title)

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

Notary Public

My commission expires _____

(FORM)

NONCOLLUSION AFFIDAVIT CERTIFICATE

State of Oregon)
County of Yamhill) ss

The undersigned, being duly sworn, deposes and says that the person, firm, association, copartnership or corporation herein named has not either directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in the preparation and submission of a proposal to the Owner for consideration in the award of a contract on the improvements described as follows:

WATER SYSTEM IMPROVEMENTS
TRANSMISSION LINE
City of Newberg, Oregon

Bill Pop Const. Inc.
Firm Name

[Signature]
Authorized Member

Sworn to before me, this 1st day of October, 1980.

[Signature]
Notary Public
in and for the State of Oregon

AGREEMENT

This Agreement, made and entered into this 3 day of Nov, 1980, by and between Bill Page Construction, Inc., hereinafter called the "Contractor" and the City of Newberg, a Municipal Corporation in the State of Oregon, hereinafter called the "City."

WITNESSETH

That the said Contractor and the said City, for the consideration hereinafter named agrees as follows:

Article 1. The Contractor agrees to do all the work, and furnish all necessary labor, tools and equipment for the completion of the Transmission Line - Schedule A, Alternate A in accordance with the contract documents referred to herein.

Article 2. The contract documents hereinbefore mentioned are on file in the office of the City Administrator of the City of Newberg and are hereby made a part of this contract.

Article 3. In consideration of the faithful performance of the work herein embraced, the City agrees to pay the Contractor \$77,590.00 as payment in full.

Article 4. The Contractor agrees that the work under this contract shall be completed within ninety (90) calendar days from the date specified in the written "Notice to Proceed."

Article 5. The Contractor specifically agrees to comply with all laws, ordinances and regulations applicable to contracts covering municipal contracts and to make prompt payment of all amounts that may be due from said Contractor in the way of taxes, other governmental charges or lawful deductions and to make prompt payment of all labor and materials and save the City harmless from any damages or claims whatsoever in the performance of the contract.

Article 6. The Contractor shall hold the City harmless from and shall indemnify it for all loss, costs, claims, demands, damages, suits, actions and judgements for property damage and/or personal injury, including death, arising out of the work or howsoever caused.

Article 7. The Contractor shall furnish the City a performance bond in accordance with the general conditions of the construction specifications.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

CONTRACTOR

Bill Page Construction, Inc.

By Bill Page

Pres.
Title

CITY OF NEWBERG, OREGON

[Signature]
City Administrator

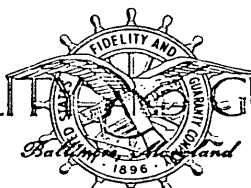
WATER TRANSMISSION LINE - BASIC BID
SCHEDULE A

Item No.	Description	Est. Quantity	Unit	Unit Price In Words	Unit Price In Figures	Total
1.	<u>TRANSMISSION LINE UNDERGROUND PIPELINE</u>					
1.1	24-Inch Concrete Cylinder Pipe, CL 100					
	0-6 Foot Depth	180	L.F.	<u>Forty four dollars</u>	\$ 44.00	\$ 7,920.00
	6-8 Foot Depth	570	L.F.	<u>Forty six dollars</u>	\$ 46.00	\$26,220.00
	8-10 Foot Depth	425	L.F.	<u>Forty nine dollars</u>	\$ 49.00	\$20,825.00
	10-12 Foot Depth	50	L.F.	<u>Fifty two dollars</u>	\$ 52.00	\$ 2,600.00
	12-14 Foot Depth	100	L.F.	<u>Fifty five dollars</u>	\$ 55.00	\$ 5,500.00
1.2	Imported Backfill	375	L.F.	<u>Fifteen dollars</u>	\$ 15.00	\$ 5,625.00
1.3	Foundation Stabilization	10	C.Y.	<u>Ten dollars</u>	\$ 10.00	\$ 100.00
1.4	Blowoff Valve Assembly	2	EA.	<u>Two thousand five hundred dollars</u>	\$2,500.00	\$ 5,000.00
1.5	24-Inch Butterfly Valve	1	EA.	<u>Two thousand nine hundred dollars</u>	\$2,900.00	\$ 2,900.00
1.6	14-Inch Butterfly Valve	1	EA.	<u>One thousand dollars</u>	\$1,000.00	\$ 1,000.00
1.7	Pavement Replacement	110	S.Y.	<u>Twenty five dollars</u>	\$ 25.00	\$ 2,750.00
1.8	Connection to Existing Transmission Mains	2	EA.	<u>Five thousand two hundred dollars</u>	\$5,200.00	\$10,400.00
Total Schedule A, Basic Bid Price						\$90,840.00

WATER TRANSMISSION LINE - ALTERNATE A
SCHEDULE A

Item No.	Description	Est. Quantity	Unit	Unit Price In Words	Unit Price In Figures	Total
2.0	Basic Bid, Schedule A		L.S.	<u>Ninety thousand eight hundred forty dollars</u>	<u>\$90,840.00</u>	<u>\$90,840.00</u>
2.1	Delete: Item 1.1 24-Inch Concrete Cylinder Pipe		L.S.	<u>Sixty three thousand sixty five dollars</u>	<u>\$63,065.00</u>	<u>\$63,065.00</u>
2.2	Add: 24-Inch Ductile-Iron Pipe CL 51					
	0-6 Foot Depth	180	L.F.	<u>Thirty four dollars</u>	<u>\$ 34.00</u>	<u>\$ 6,120.00</u>
	6-8 Foot Depth	570	L.F.	<u>Thirty six dollars</u>	<u>\$ 36.00</u>	<u>\$20,520.00</u>
	8-10 Foot Depth	425	L.F.	<u>Thirty nine dollars</u>	<u>\$ 39.00</u>	<u>\$16,575.00</u>
	10-12 Foot Depth	50	L.F.	<u>Forty two dollars</u>	<u>\$ 42.00</u>	<u>\$ 2,100.00</u>
	12-14 Foot Depth	100	L.F.	<u>Forty five dollars</u>	<u>\$ 45.00</u>	<u>\$ 4,500.00</u>
Total Schedule A, Alternate A Bid Price						<u>\$77,590.00</u>

UNITED STATES FIDELITY AND GUARANTY COMPANY



(A Stock Company)

BOND NUMBER..... 63 0120 3028 80

STATUTORY PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, Bill Page Construction, Inc.

..... as principal and UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation organized and existing under and by virtue of the laws of the State of Maryland, and duly authorized to transact a surety business in the State of Oregon, as surety, are jointly and severally held and bound unto

City of Newberg, Oregon

as Obligee, in the penal sum of Seventy seven thousand five hundred ninety and no/100

(\$ 77,590.00) DOLLARS

for the payment of which we jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH that:

WHEREAS, the said principal herein has made and entered into a certain contract dated 19....., with the said Obligee, a copy of which contract is hereto annexed and made a part hereof and under which contract the principal agrees to furnish

certain materials and to perform certain work consisting of:

Water System Improvements Transmission Line
Schedule A, Alternate A

NOW, THEREFORE, if the principal herein shall faithfully and truly observe and comply with the terms of the contract and shall well and truly perform all matters and things by him undertaken to be performed under said contract upon the terms imposed therein, then this obligation is to be void, otherwise to remain in full force and effect.

This bond is given and received under the authority of Chapter 279 Oregon Revised Statutes, the provisions of which are hereby incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, the said principal and the said surety have caused these presents to be executed by their respective duly authorized legal representatives on this day of 19.....

Witness or Attest:

Bill Page Construction, Inc.

Bill Page

(Seal)
Principal

Countersigned:

UNITED STATES FIDELITY AND GUARANTY COMPANY

By

Nancy P. Smith

Nancy P. Smith

Attorney-in-Fact
Surety

By

Resident Agent

GENERAL POWER OF ATTORNEY

No. 90029

Know all Men by these Presents:

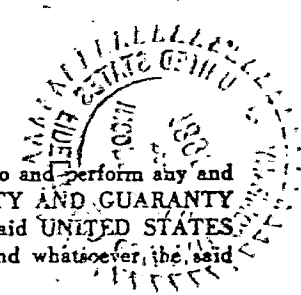
That UNITED STATES FIDELITY AND GUARANTY COMPANY, a corporation organized and existing under the laws of the State of Maryland, and having its principal office at the City of Baltimore, in the State of Maryland, does hereby constitute and appoint

Nancy T. Smith

of the City of Portland, State of Oregon, its true and lawful attorney in and for the State of Oregon

for the following purposes, to wit:

To sign its name as surety to, and to execute, seal and acknowledge any and all bonds, and to respectively do and perform any and all acts and things set forth in the resolution of the Board of Directors of the said UNITED STATES FIDELITY AND GUARANTY COMPANY, a certified copy of which is hereto annexed and made a part of this Power of Attorney; and the said UNITED STATES FIDELITY AND GUARANTY COMPANY, through us, its Board of Directors, hereby ratifies and confirms all and whatsoever, the said



Nancy T. Smith

may lawfully do in the premises by virtue of these presents.

In Witness Whereof, the said UNITED STATES FIDELITY AND GUARANTY COMPANY has caused this instrument to be sealed with its corporate seal, duly attested by the signatures of its Vice-President and Assistant Secretary, this 26th day of October, A. D. 1979

UNITED STATES FIDELITY AND GUARANTY COMPANY

(Signed) By Thomas A. Zecha Vice-President

(SEAL) (Signed) Robert G. Bruce Assistant Secretary

STATE OF MARYLAND, BALTIMORE CITY, ss:

On this 26th day of October, A. D. 1979, before me personally came Thomas A. Zecha, Vice-President of the UNITED STATES FIDELITY AND GUARANTY COMPANY and Robert G. Bruce, Assistant Secretary of said Company, with both of whom I am personally acquainted, who being by me severally duly sworn, said that they, the said Thomas A. Zecha and Robert G. Bruce were respectively the Vice-President and the Assistant Secretary of the said UNITED STATES FIDELITY AND GUARANTY COMPANY, the corporation described in and which executed the foregoing Power of Attorney; that they each knew the seal of said corporation; that the seal affixed to said Power of Attorney was such corporate seal, that it was so fixed by order of the Board of Directors of said corporation, and that they signed their names thereto by like order as Vice-President and Assistant Secretary, respectively, of the Company.

My commission expires the first day in July, A. D. 1982. (Signed) Margaret M. Hurst Notary Public

STATE OF MARYLAND, BALTIMORE CITY, Sc:

I, William Allen, Clerk of the Superior Court of Baltimore City, which Court is a Court of Record, and has a seal, do hereby certify that Margaret M. Hurst, Esquire, before whom the annexed affidavits were made, and who has thereto subscribed his name, was at the time of so doing a Notary Public of the State of Maryland, in and for the City of Baltimore, duly commissioned and sworn and authorized by law to administer oaths and take acknowledgments, or proof of deeds to be recorded therein. I further certify that I am acquainted with the handwriting of the said Notary, and verily believe the signature to be his genuine signature.

In Testimony Whereof, I hereto set my hand and affix the seal of the Superior Court of Baltimore City, the same being a Court of Record, this 26th day of October, A. D. 1979 (Signed) William Allen Clerk of the Superior Court of Baltimore City

COPY OF RESOLUTION

That Whereas, it is necessary for the effectual transaction of business that this Company appoint agents and attorneys with power and authority to act for it and in its name in States other than Maryland, and in the Territories of the United States and in the Provinces of the Dominion of Canada and in the Colony of Newfoundland.

Therefore, be it Resolved, that this Company do, and it hereby does, authorize and empower its President or either of its Vice-Presidents in conjunction with its Secretary or one of its Assistant Secretaries, under its corporate seal, to appoint any person or persons as attorney or attorneys-in-fact, or agent or agents of said Company, in its name and as its act, to execute and deliver any and all contracts guaranteeing the fidelity of persons holding positions of public or private trust, guaranteeing the performances of contracts other than insurance policies and executing or guaranteeing bonds and undertakings, required or permitted in all actions or proceedings, or by law allowed, and

Also, in its name and as its attorney or attorneys-in-fact, or agent or agents to execute and guarantee the conditions of any and all bonds, recognizances, obligations, stipulations, undertakings or anything in the nature of either of the same, which are or may by law, municipal or otherwise, or by any Statute of the United States or of any State or Territory of the United States or of the Provinces of the Dominion of Canada or of the Colony of Newfoundland, or by the rules, regulations, orders, customs, practice or discretion of any board, body, organization, office or officer, local, municipal or otherwise, be allowed, required or permitted to be executed, made, taken, given, tendered, accepted, filed or recorded for the security or protection of, by or for any person or persons, corporation, body, office, interest, municipality or other association or organization whatsoever, in any and all capacities whatsoever, conditioned for the doing or not doing of anything or any conditions which may be provided for in any such bond, recognizance, obligation, stipulation, or undertaking, or anything in the nature of either of the same.

I, **George R. Downer**, an Assistant Secretary of the UNITED STATES FIDELITY AND GUARANTY COMPANY, do hereby certify that the foregoing is a full, true and correct copy of the original power of attorney given by said Company to

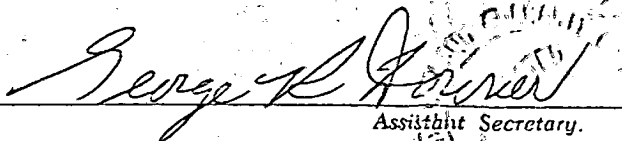
Nancy T. Smith

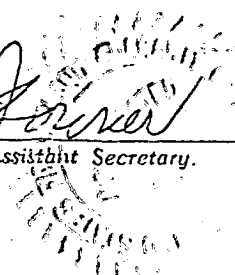
of **Portland, Oregon**, authorizing and empowering **her** to sign bonds as therein set forth, which power of attorney has never been revoked and is still in full force and effect.

And I do further certify that said Power of Attorney was given in pursuance of a resolution adopted at a regular meeting of the Board of Directors of said Company, duly called and held at the office of the Company in the City of Baltimore, on the 11th day of July, 1910, at which meeting a quorum of the Board of Directors was present, and that the foregoing is a true and correct copy of said resolution, and the whole thereof as recorded in the minutes of said meeting.

In Testimony Whereof, I have hereunto set my hand and the seal of the UNITED STATES FIDELITY AND GUARANTY COMPANY on

(Date)


Assistant Secretary.



Certificate of Insurance



THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER.
THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES LISTED BELOW.

NAME AND ADDRESS OF AGENCY W. R. REED & CO. 4800 S. W. MACADAM AVE., SUITE 412 PORTLAND, OR 97201 TEL: (503) 223-1128	COMPANIES AFFORDING COVERAGES
NAME AND ADDRESS OF INSURED Bill Page Construction, Inc. P.O. Box 498 Newberg, Oregon 97132	COMPANY LETTER A Consolidated American Ins. Co. COMPANY LETTER B Mission Insurance Company COMPANY LETTER C COMPANY LETTER D COMPANY LETTER E

This is to certify that policies of insurance listed below have been issued to the insured named above and are in force at this time. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

COMPANY LETTER	TYPE OF INSURANCE	POLICY NUMBER	POLICY EXPIRATION DATE	Limits of Liability in Thousands (000)		
					EACH OCCURRENCE	AGGREGATE
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMPREHENSIVE FORM <input checked="" type="checkbox"/> PREMISES—OPERATIONS <input checked="" type="checkbox"/> EXPLOSION AND COLLAPSE HAZARD <input checked="" type="checkbox"/> UNDERGROUND HAZARD <input checked="" type="checkbox"/> PRODUCTS/COMPLETED OPERATIONS HAZARD <input checked="" type="checkbox"/> CONTRACTUAL INSURANCE <input checked="" type="checkbox"/> BROAD FORM PROPERTY DAMAGE <input checked="" type="checkbox"/> INDEPENDENT CONTRACTORS <input checked="" type="checkbox"/> PERSONAL INJURY	CAP 18 27 33	10/19/83	BODILY INJURY	\$ 500	\$ 500
				PROPERTY DAMAGE	\$ 250	\$ 250
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	\$	\$
				PERSONAL INJURY		\$ 500
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> COMPREHENSIVE FORM <input checked="" type="checkbox"/> OWNED <input checked="" type="checkbox"/> HIRED <input checked="" type="checkbox"/> NON-OWNED	CAP 18 27 33	10/19/83	BODILY INJURY (EACH PERSON)	\$	
				BODILY INJURY (EACH ACCIDENT)	\$	
				PROPERTY DAMAGE	\$	
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	\$ 500	
B	EXCESS LIABILITY <input checked="" type="checkbox"/> UMBRELLA FORM <input type="checkbox"/> OTHER THAN UMBRELLA FORM	M 86 71 53	10/19/81	BODILY INJURY AND PROPERTY DAMAGE COMBINED	\$1,000	\$ 1,000
				STATUTORY		\$ (EACH ACCIDENT)
	WORKERS' COMPENSATION and EMPLOYERS' LIABILITY					
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES
 Water System Improvements Transmission Line Schedule A, Alternate A.
 City of Newberg, Oregon
 Additional insured endorsement attached.

Cancellation: Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 10 days written notice to the below named certificate holder, but failure to mail such notice shall impose no obligation or liability of any kind upon the company.

NAME AND ADDRESS OF CERTIFICATE HOLDER:
Kramer, Chin & Mayo, Inc.
 10 SW Ash Street
 Portland, Oregon 97204
 Attn: Gareth Ott

DATE ISSUED: October 24, 1980

 W. R. REED & CO. AUTHORIZED REPRESENTATIVE

ENDORSEMENT

This endorsement, effective October 19, 1980, forms a part of policy no. CAP 18 27 33 issued to Bill Page Construction, Inc. by Consolidated American Insurance Company.

It is agreed that the Owner, City of Newberg, and the Engineer, Kramer, Chin & Mayo, Inc. are additional assureds under this policy but only in regard to claims arising out of or in connection with work being performed by Bill Page Construction, Inc. under contract for Water System Improvements Transmission Line Schedule A, Alternate A.

However, it is specifically agreed that in regard to additional insureds above, this policy does not cover any liability arising out of professional services, including the preparation or approval of maps, plans, opinions, reports surveys, designs, specifications and supervisory inspections or engineering services.

It is further agreed that the insurance under this policy is to be primary as respects all other insurance coverage provided for the benefit of the owner.

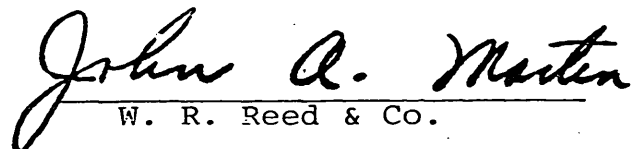
It is further agreed that the Consolidated American Insurance Company waives all its rights of subrogation against City of Newberg for bodily injury and/or property damage losses arising out of or in connection with work being performed by Bill Page Construction, Inc. under a contract with City of Newberg for Water System Improvements Transmission Line Schedule A, Alternate A.

It is further agreed that the foregoing shall not act to increase underwriters limit of liability under this policy.

It is further agreed that the term "the insured" is used severally and not collectively. Notwithstanding anything to the contrary appearing elsewhere in the policy, employees or property of any one insured shall not be considered the employees or property of any other insured. This policy shall cover each insured in the same manner as if separate policies had been issued to each insured, but the inclusion herein of more than one insured shall not operate to increase the limits of the company liability.

Prior to cancellation of this policy, ten (10) days written notice will be given by Rathbone, King & Seeley, Inc. on behalf of Consolidated American Insurance Company to: City of Newberg, Newberg, Oregon.

Date: October 24, 1980


W. R. Reed & Co.



INSURANCE BINDER

GARY Form FMF-10 (Ed. 5-75)

INSURANCE COMPANY(IES)	TOTAL LIABILITY EACH COMPANY
FREMONT INDEMNITY COMPANY	\$ 77,590.00
	\$
	\$

INSURED'S NAME AND MAILING ADDRESS	AGENCY'S NAME AND MAILING ADDRESS
BILL PAGE CONSTRUCTION, INC. PO BOX 498 NEWBERG, OR 97132	JKS, INC. 4800 SW MACADAM AVE PORTLAND, OR 97201

*BINDER TERM 90 DAYS	INCEPTION DATE 10-24-80	EXPIRATION DATE 1-22-81	EFFECTIVE TIME: Standard Time at location of property involved. <input type="checkbox"/> 12:00 NOON <input checked="" type="checkbox"/> 12:01 A.M. <input type="checkbox"/> (other) _____
PERILS INSURED AGAINST <input type="checkbox"/> FIRE OR LIGHTNING <input checked="" type="checkbox"/> OTHER (SPECIFY) ALL RISK <input type="checkbox"/> EXTENDED COVERAGE INCL EQ & FL <input type="checkbox"/> VANDALISM OR MALICIOUS MISCHIEF		DEDUCTIBLE(S) <input type="checkbox"/> \$50 <input type="checkbox"/> \$100 <input checked="" type="checkbox"/> \$ 250.00 <input type="checkbox"/> WIND OR HAIL <input type="checkbox"/> ALL PERILS <input checked="" type="checkbox"/> 2% EQ & FL VALUES AT RISK	

Item No.	Amount Fire or Fire and Extended Coverage, or Other Peril	Rates (if available)	Per Cent of Co-Insurance Applicable	DESCRIPTION AND LOCATION OF PROPERTY COVERED Show construction, type of roof and occupancy of building(s) covered or containing the property covered. If occupied as a dwelling state number of families.
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\$77,590.00 AGREED 100% ON WATER SYSTEM IMPROVEMENT TRANSMISSION LINE SITUATE: PART OF MARION & YAMHILL CTYS RIVER MILE ROAD 50



SUBJECT TO FORM NO.(S) (INSERT FORM NUMBER(S) AND EDITION DATE(S))
ALS1972

MORTGAGEE OR LOSS PAYEE NAME AND MAILING ADDRESS
add'l Insd: CITY OF NEWBERG, NEWBERG, OREGON

REASON FOR BINDER
ISSUANCE OF POLICY

Pending the issuance of Policy(ies), and in consideration of the premium and of the provisions and stipulations herein contained, the above named Company(ies) is bound to the named Insured and legal representatives for the binder term shown, against loss by the peril(s) indicated to the described property and for not exceeding the amount opposite the Company's name. This binder is issued subject to all the terms and conditions of the policy regularly issued by the Company in the State in which the property is located.
It is a condition of this binder that it shall be void if a policy of the Company is issued or coverage shall cease if it is otherwise terminated. In no event shall this binder continue in force beyond 30 days from its inception date.
This binder shall not be valid unless signed by the duly authorized Agent of the Company.

10-27-80
Dated

Ronald Jones
AGENT'S SIGNATURE
JCS, INC

DATE OF CANCELLATION	YEAR	MO.	DAY	SHORT RATE PREMIUM	TERM PREM	\$ 225.00
DATE OF BINDER				PREMIUM EARNED		\$
TIME IN FORCE				<input type="checkbox"/> SHORT RATE <input type="checkbox"/> PRO RATA (IF PRO RATA, ADVISE REASON)		

*Term of binder shall not exceed 30 days; New Mexico and Rhode Island:—15 day limitation required by law. †California and Oregon.

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, RICHARD D. FAUS, the
duly authorized and acting legal representative of THE CITY OF NEWBERG
_____, do hereby certify as follows:

I have examined the attached contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the afore-said agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Richard D. Faus

Date: 11-3-80

NOTE: Delete phrase "performance and payment bonds" when not applicable.

GENERAL CONDITIONS

**These General Conditions have been
modified by the Provisions of the
Supplemental General Conditions.
In case of conflict, the Supplemental
General Conditions shall control.**

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| 2. Definitions | 33. Separate Contracts |
| 3. Not Used | 34. Subcontracting |
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| 5. Materials, Services and Facilities | 36. Stated Allowances |
| 6. Contractor's Title to Material | 37. Use of Premises and Removal of Debris |
| 7. Inspection and Testing of Materials | 38. Quantities of Estimate |
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GENERAL CONDITIONS

1. CONTRACT AND CONTRACT DOCUMENTS

The Plans, Specifications and Addenda, hereinafter enumerated in paragraph 1 of the Supplemental General Conditions, shall form part of the contract, and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. The table of contents, titles, headings, running headlines and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the contract documents and in no way affect, limit, or cast light on the interpretation of the provisions to which they refer.

2. DEFINITIONS

The following terms as used in these General Conditions are respectively defined as follows:

- a. "Contractor": A person, firm or corporation with whom this Contract is made by the Owner.
- b. "Subcontractor": A person, firm or corporation supplying labor and materials or only labor for work at the site of the project for, and under separate contract or agreement with, the Contractor.
- c. "Work on (at) the project": Work to be performed at the location of the project, including the transportation of materials and supplies to or from the location of the project by employees of the Contractor and any Subcontractor.
- d. "Apprentice": (1) A person employed and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau; or (2) a person in his first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Council (where appropriate) to be eligible for probationary employment as an apprentice.
- e. "Trainee": A person receiving on-the-job training in a construction occupation under a program which is approved (but not necessarily sponsored) by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, and which is reviewed from time to time by the Manpower Administration to insure that the training meets adequate standards.

3. NOT USED

4. SHOP OR SETTING DRAWINGS

The Contractor shall submit promptly to the Engineer two copies of each shop or setting drawing prepared in accordance with the schedule predetermined as aforesaid. After examination of such drawings by the Engineer and the return thereof, the Contractor shall make such corrections to the drawings as have been indicated and shall furnish the Engineer with two corrected copies. Regardless of corrections made in or approval given to such drawings by the Engineer, the Contractor will nevertheless be responsible for the accuracy of such drawings and for their conformity to the Plans and Specifications, unless he notifies the Engineer, in writing, of any deviations at the time he furnishes such drawings.

5. MATERIALS, SERVICES AND FACILITIES

It is understood that, except as otherwise specifically stated in the contract documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete, and deliver the work within the specified time.

Any work necessary to be performed after regular hours, on Sundays or Legal Holidays, shall be performed without additional expense to the Owner.

6. CONTRACTOR'S TITLE TO MATERIAL

No materials or supplies for the work shall be purchased by the Contractor or by any subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the work, free from all liens, claims or encumbrances.

7. INSPECTION AND TESTING OF MATERIALS

All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the Owner. The Owner will pay for all laboratory inspection service direct, and not as a part of the contract.

Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for users intended.

8. "OR EQUAL" CLAUSE

Whenever a material, article or piece of equipment is identified on the Plans or in the Specifications by reference to manufacturers' or vendors' names, tradenames, catalogue numbers, etc., it is intended merely to establish a standard; and, any material, article, or equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment so proposed is, in the opinion of the Engineer, of equal substance and function. It shall not be purchased or installed by the Contractor without the Engineer's written approval.

9. PATENTS AND ROYALTIES

If any design, device, material or process covered by letters, patent or copyright is used by the Contractor, he shall provide for such use by legal agreement with the owner of the patent or a duly authorized licensee of such owner, and shall save harmless the Owner and the Engineer from any and all loss or expense on account thereof, including its use by the Owner.

10. SURVEYS, PERMITS AND REGULATIONS

Unless otherwise expressly provided for in this contract, the Owner will furnish to the Contractor all surveys necessary for the execution of the work. The Contractor shall procure and pay for all permits, licenses and approvals necessary for the execution of his contract. The Contractor shall comply with all laws, ordinances, rules, orders, and regulations relating to the performance of the work, the protection of adjacent property, and the maintenance of passageways, guard fences or other protective facilities.

11. CONTRACTOR'S OBLIGATIONS

The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this contract, within the time herein specified, in accordance with the provisions of this contract and said specifications and in accordance with the plans and drawings covered by this contract and any and all supplemental plans and drawings, and in accordance with the directions of the Engineer as given from time to time during the progress of the work. He shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required. The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the contract and specifications, and shall do, carry on, and complete the entire work to satisfaction of the Engineer and the Owner.

12. WEATHER CONDITIONS

In the event of temporary suspension of work, or during inclement weather, or whenever the Engineer shall direct, the Contractor will, and will cause his subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Engineer, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his subcontractors to so protect his work, such materials shall be removed and replaced at the expense of the Contractor.

13. PROTECTION OF WORK AND PROPERTY—EMERGENCY

The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this contract. He shall at all times safely guard and protect his own work, and that of adjacent property, from damage. The Contractor shall replace or make good any such damage, loss or injury unless such be caused directly by errors contained in the contract or by the Owner, or his duly authorized representative.

In case of an emergency which threatens loss or injury of property and/or safety of life, the Contractor will be allowed to act, without previous instructions from the Engineer, in a diligent manner. He shall notify the Engineer immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Engineer for approval.

Where the Contractor has not taken action but has notified the Engineer of an emergency threatening injury to persons or damage to the work or any adjoining property, he shall act as instructed or authorized by the Engineer.

The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner provided in paragraph 17 of the General Conditions.

14. OBSERVATION OF COMPLETED WORK

The Contractor shall remove or uncover such portions of the completed work as may be directed by the Owner at any time before acceptance of the work. After examination, the Contractor shall restore the work to the standard required by the Contract Documents. Should the work thus exposed or examined prove acceptable, the uncovering or removing and the restoring of the work shall be paid for as Extra Work but, should the work exposed or examined prove unacceptable, the uncovering, removing and restoring of the work shall be at the Contractor's expense.

15. REPORTS, RECORDS AND DATA

The Contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under this contract.

16. SUPERINTENDENCE BY CONTRACTOR

At the site of the work, the Contractor shall employ a construction superintendent or foreman who shall have full authority to act for the Contractor. It is understood that such representative shall be acceptable to the Engineer.

17. CHANGES IN WORK

No changes in the work covered by the approved contract documents shall be made without having prior written approval of the Owner. Charges or credits for the work covered by the approved change shall be determined by one or more, or a combination of the following methods:

- a. Unit bid prices previously approved.
- b. An agreed lump sum.
- c. The actual cost of:
 - (1) Labor, including foremen;
 - (2) Materials entering permanently into the work;
 - (3) The ownership or rental cost of construction plant and equipment during the time of use on the extra work;
 - (4) Power and consumable supplies for the operation of power equipment;
 - (5) Insurance;
 - (6) Social Security and old age and unemployment contributions.

To the cost under 17c. there shall be added a fixed fee to be agreed upon but not to exceed fifteen percent (15%) of the estimated cost of the work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expenses.

18. EXTRAS

Without invalidating the contract, the Owner may order extra work of the kind bid upon or make changes by altering, adding to or deducting from the work, the contract sum being adjusted accordingly, and the consent of the Surety being first obtained where necessary or desirable. All the work of the kind bid upon shall be paid for at the price stipulated in the proposal, and no claims for any extra work or materials shall be allowed unless the work is ordered in writing by the Owner or its Architect/Engineer, acting officially for the Owner, and the price is stated in the order.

19. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

It is hereby understood and mutually agreed, by and between the Contractor and Owner, that the date of beginning and the time for completion as specified in the contract of work to be done hereunder are ESSENTIAL CONDITIONS of this contract; and it is further mutually understood and agreed that the work embraced in this contract shall be commenced on a date to be specified in the Notice to Proceed.

The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

If the said Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of this contract, to pay to the Owner the amount specified in the contract, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the contract for completing the work.

The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain and said amount shall be retained from time to time by the Owner from current periodical estimates.

It is further agreed that time is of the essence of each and every portion of this contract and of the specification wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. Provided, that the Contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the Owner; Provided further, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

- a. To any preference, priority or allocation order duly issued by the Government;
- b. To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and
- c. To any delays of subcontractors or suppliers occasioned by any of the causes specified in subsections a and b of this article; Provided further, that the Contractor shall, within ten (10) days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the contract, notify the Owner, in writing, of the cause of delay, who shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of its decision in the matter.

20. CORRECTION OF WORK

All work, all materials, whether incorporated in the work or not, all processes of manufacture, and all methods of construction shall be at all times and places subject to the inspection of the Engineer who shall be the final judge of the quality and suitability of the work, materials, processes of manufacture, and methods of construction for the purposes for which they are used. Should they fail to meet his approval they shall be forthwith reconstructed, made good, replaced and/or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall immediately be removed from the site. If, in the opinion of the Engineer, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the work injured or not performed in accordance with the contract documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgment of the Engineer shall be equitable.

21. SUBSURFACE CONDITIONS FOUND DIFFERENT

Should the Contractor encounter subsurface and/or latent conditions at the site materially differing from those shown on the Plans or indicated in the Specifications, he shall immediately give notice to the Engineer of such conditions before they are disturbed. The Engineer will thereupon promptly investigate the conditions, and if he finds that they materially differ from those shown on the Plans or indicated in the Specifications, he will at once make such changes in the Plans and/or Specifications as he may find necessary, and any increase or decrease of cost resulting from such changes to be adjusted in the manner provided in paragraph 17 of the General Conditions.

22. CLAIMS FOR EXTRA COSTS

No claim for extra work or cost shall be allowed unless the same was done in pursuance of a written order of the Engineer approved by the Owner, as aforesaid, and the claim presented with the first estimate after the changed or extra work is done. When work is performed under the terms of subparagraph 17(c) of the General Conditions, the Contractor shall furnish satisfactory bills, payrolls, and vouchers covering all items of cost and, when requested by the Owner, give the Owner access to accounts relating thereto.

23. RIGHT OF THE OWNER TO TERMINATE CONTRACT

In the event that any of the provisions of this contract are violated by the Contractor, or by any of his subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate the contract, such notices to contain the reasons for such intention to terminate the contract, and unless within ten (10) days after the serving of such notice upon the Contractor, such violations or delay shall cease and satisfactory arrangement or correction be made, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor, and the Surety shall have the right to take over and perform the contract. Provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and prosecute the same to completion by contract or by force account for the account and at the expense of the Contractor, and the Contractor and his Surety shall be liable to the Owner for any excess cost occasioned by the Owner thereby, and in such event the Owner may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefor.

24. CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

Immediately after execution and delivery of the contract, and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule in form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due the Contractor in

accordance with the progress schedule. The Contractor shall also furnish on forms to be supplied by the Owner (a) a detailed estimate giving a complete breakdown of the contract price and (b) periodic itemized estimates of work done for the purpose of making partial payments thereon. The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

25. PAYMENT TO CONTRACTOR

Not later than the ___ day of each calendar month, the Owner shall make a Progress payment to the Contractor on the basis of a duly certified and approved estimate of the work performed during the preceding calendar month under the contract. To insure proper performance of the contract, the Owner shall retain ten percent (10%) of the amount of each estimate until final completion and acceptance of all work covered by the contract.

In preparing estimates, the material delivered on the site and preparatory work done may be taken into consideration.

All material and work covered by partial payments made shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor from the sole responsibility for the care and protection of materials and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the Owner to require fulfillment of all the terms of the contract.

The Contractor agrees that he will indemnify and save the Owner harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this contract. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have to be paid, discharged, or waived. If the Contractor fails to do so, then the Owner may, after having served written notice on the said Contractor, either pay unpaid bills, of which the Owner has written notice, direct, or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of this contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor or his Surety.

In paying any unpaid bills of the Contractor, the Owner shall be deemed the agent of the Contractor, and any payment so made by the Owner, shall be considered as a payment made under the contract by the Owner to the Contractor, and the Owner shall not be liable to the Contractor for any such payment made in good faith.

26. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor for all things done or furnished in connection with this work and for every act and neglect of the Owner and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his Sureties from any obligation under this contract or the Performance and Payment Bond.

27. PAYMENTS BY CONTRACTOR

The Contractor shall pay (a) for all transportation and utility services not later than the 20th day of the calendar month following that in which services are rendered, (b) for all materials, tools, and other expendable equipment to the extent of 90% of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools, and equipment are delivered at the site of the project, and the balance of the cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools, and equipment are incorporated or used, and (c) to each of his subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his subcontractors to the extent of each subcontractors interest therein.

28. CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

The Contractor shall not commence work under this contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on his subcontract until the insurance required of the subcontractor has been so obtained and approved:

- a. Compensation Insurance. The Contractor shall procure and shall maintain during the life of this contract Workmen's Compensation Insurance as required by applicable State or territorial law for all of his employees to be engaged in work at the site of the project under this contract and, in case of any such work sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation Insurance for all of the latter's employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Workmen's Compensation Insurance. In case any class of employees engaged in hazardous work on the project under this contract is not protected under the Workmen's Compensation Statute, the Contractor shall provide and shall cause each subcontractor to provide adequate employer's liability insurance for the protection of such of his employees as are not otherwise protected.
- b. Contractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance. The Contractor shall procure and shall maintain during the life of this contract Contractor's Public Liability Insurance, Contractor's Property Damage Insurance and Vehicle Liability Insurance in the amounts specified in paragraph 3 of the Supplemental General Conditions.
- c. Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance. The Contractor shall either (1) require each of his subcontractors to procure and to maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and in the amounts specified in paragraph 3 of the Supplemental General Conditions specified in subparagraph b hereof, or, (2) insure the activities of his subcontractors in his policy, specified in subparagraph b hereof.
- d. Scope of Insurance and Special Hazards. The insurance required under subparagraphs b and c hereof shall provide adequate protection for the Contractor and his subcontractors, respectively, against damage claims which may arise from operations under this contract, whether such operations be by the insured or by any one directly or indirectly employed by him and, also against any of the special hazards which may be encountered in the performance of this contract as enumerated in paragraph 3 of the Supplemental General Conditions.
- e. Builder's Risk Insurance (Fire and Extended Coverage). The Contractor shall procure and shall maintain during the life of this contract Builder's Risk Insurance (Fire and Extended Coverage) on a 100 percent (100%) completed value basis on the insurable portion of the project. The Owner, the Contractor, and subcontractors (as their interests may appear) shall be named as the Insured.
- f. Proof of Carriage of Insurance. The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. Such certificates shall also contain substantially the following statements: "The insurance covered by this certificate will not be cancelled or materially altered, except after ten (10) days written notice has been received by the Owner."

29. CONTRACT SECURITY

The Contractor shall furnish a performance bond in an amount at least equal to one hundred percent (100%) of the contract price as security for the faithful performance of this contract and also a payment bond in an amount equal to one hundred percent (100%) of the contract price or in a penal sum not less than that prescribed by State, territorial or local law, as security for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract. The Performance bond and the Payment bond may be in one or in separate instruments in accordance with local law.

30. ADDITIONAL OR SUBSTITUTE BOND

If at any time the Owner for justifiable cause, shall be or become dissatisfied with the Surety or Sureties for the Performance and/or Payment Bonds, the Contractor shall within five (5) days after notice from the Owner to do so, substitute an acceptable bond (or bonds) in such form and sum and signed by such other Surety or Sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new Surety or Sureties shall have furnished such an acceptable bond to the Owner.

31. ASSIGNMENTS

The Contractor shall not assign the whole or any part of this contract or any moneys due or to become due hereunder without written consent of the Owner. In case the Contractor assigns all or any part of any moneys due or to become due under this contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the Contractor shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for the performance of the work called for in this contract.

32. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect on the part of the Contractor, any other Contractors or any subcontractor shall suffer loss of damage on work, the Contractor agrees to settle with such other Contractor or subcontractor by agreement or arbitration if such other Contractor or subcontractor will so settle. If such other Contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been sustained, the Owner shall notify the Contractor, who shall indemnify and save harmless the Owner against any such claim.

33. SEPARATE CONTRACTS

The Contractor shall coordinate his operations with those of other Contractors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of the work. The Contractor, including his subcontractors, shall keep informed of the progress and the detail work of other Contractors and shall notify the Engineer immediately of lack of progress or defective workmanship on the part of other Contractors. Failure of a Contractor to keep informed of the work progressing on the site and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by him of the status of the work as being satisfactory for proper coordination with his own work.

34. SUBCONTRACTING

The Contractor may utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors.

The Contractor shall not award any work to any subcontractor without prior written approval of the Owner, which approval will not be given until the Contractor submits to the Owner a written statement concerning the proposed award to the subcontractor, which statement will contain such information as the Owner may require.

The Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and other contract documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the contract documents.

Nothing contained in this contract shall create any contractual relation between any subcontractor and the Owner.

35. ENGINEER AUTHORITY

The Engineer shall give all orders and directions contemplated under this contract and specifications relative to the execution of the work. The Engineer shall determine the amount, quality, acceptability, and fitness of the several kinds of work and materials which are to be paid for under this contract and shall decide all questions which may arise in relation to said work and the construction thereof. The Engineer's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any question shall arise between the parties hereto relative to said contract or specifications, the determination or decision of the Engineer shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this contract affected in any manner or to any extent by such question.

The Engineer shall decide the meaning and intent of any portion of the specifications and of any plan or drawings where the same may be found obscure or be in dispute. Any differences or conflicts in regard to their work which may arise between the Contractor under this contract and other Contractors performing work for the Owner shall be adjusted and determined by the Engineer.

36. STATED ALLOWANCES

The Contractor shall include in his proposal the cash allowances stated in paragraph 2 of the Supplemental General Conditions. The Contractor shall purchase the "Allowed Materials" as directed by the Owner on the basis of the lowest and best bid of at least three competitive bids. If the actual price for purchasing the "Allowed Materials" is more or less than the "Cash Allowance," the contract price shall be adjusted accordingly. The adjustment in contract price shall be made on the basis of the purchase price without additional charges for overhead, profit, insurance or any other incidental expenses. The cost of installation of the "Allowed Materials" shall be included in the applicable sections of the contract Specifications covering this work.

37. USE OF PREMISES AND REMOVAL OF DEBRIS

The Contractor expressly undertakes at his own expense:

- a. To take every precaution against injuries to persons or damage to property;
- b. To store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other contractors;
- c. To place upon the work or any part thereof only such loads as are consistent with the safety of that portion of the work;
- d. To clean up frequently all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the work shall present a neat, orderly and workmanlike appearance;
- e. Before final payment to remove all surplus material, falsework, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations, and to put the site in a neat, orderly condition;
- f. To effect all cutting, fitting or patching of his work required to make the same to conform to the plans and specifications and, except with the consent of the Engineer, not to cut or otherwise alter the work of any other Contractor.

38. QUANTITIES OF ESTIMATE

Wherever the estimated quantities of work to be done and materials to be furnished on a unit price basis under this contract are shown in any of the documents including the proposal, they are given for use in comparing bids, and the right is expressly reserved, except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the work contemplated by this contract, and such increase or diminution shall in no way vitiate this contract, nor shall any such increase or diminution give cause for claims or liability for damages.

39. LAND AND RIGHTS-OF-WAY

Prior to the start of construction, the Owner shall obtain all land rights-of-way necessary for the carrying out and completion of work to be performed under this contract.

40. GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the contract documents nor partial or entire occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the contract documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of final acceptance of work unless a longer period is specified. The Owner will give notice of observed defects with reasonable promptness.

41. NOT USED**42. NOTICE AND SERVICE THEREOF**

Any notice to any Contractor from the Owner relative to any part of this contract shall be in writing and considered delivered and the service thereof completed, when said notice is posted, by certified or registered mail, to the said Contractor at his last given address, or delivered in person to said Contractor or his authorized representative on the work.

43. REQUIRED PROVISIONS DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall forthwith be physically amended to make such insertion or correction.

44. SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION

In order to protect the lives and health of his employees under the contract, the Contractor shall comply with all pertinent provisions of the Contract Work Hours and Safety Standards Act, as amended, commonly known as the Construction Safety Act as pertains to health and safety standards; and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the contract.

The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance, or operation.

45. MINIMUM WAGES

All mechanics and laborers employed or working upon the site of the work, or under the United States Housing Act of 1937, or under the Housing Act of 1949 in the construction or development of the project, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amounts due at time of payment computed at wage rates not less than those contained in the wage determination decision of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and subcontractor and such laborers and mechanics; and the wage determination decision shall be posted by the Contractor at the site of the work in a prominent place where it can be easily seen by the workers. For the purpose of this clause, contributions made or costs reasonably anticipated under section 1 (b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5 (a) (1) (iv).

Also for the purpose of this clause, regular contributions made or costs incurred for more than a weekly period under plans, funds, or programs, but covering the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

The Owner shall require that any class of laborers or mechanics, including apprentices and trainees, which is not listed in the wage determination and which is to be employed under the contract, shall be classified or reclassified conformably to the wage determination and a report of the action taken shall be sent by the Federal agency to the Secretary of Labor. In the event the interested parties cannot agree on the proper classification or reclassification of a particular class of laborers and mechanics, including apprentices and trainees, to be used, the question accompanied by the recommendation of the contracting officer shall be referred to the Secretary for final determination.

The Owner shall require whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly wage rate and the contract is obligated to pay a cash equivalent of such a fringe benefit, an hourly cash equivalent thereof to be established. In the event the interested parties cannot agree upon a cash equivalent of the fringe benefit, the question, accompanied by the recommendation of the Owner, shall be referred to the Secretary of Labor for determination.

If the Contractor does not make payments to a trustee or other third person, he may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing benefits under a plan or program of a type expressly listed in the wage determination decision of the Secretary of Labor which is a part of this contract; provided, however, the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

The Contractor agrees to comply with Executive Order 11588, issued March 29, 1971, and any other Executive Order, statute, or regulation regarding the stabilization of wages and prices in the construction industry.

46. WITHHOLDING OF PAYMENTS

The Contractor shall pay and cause his subcontractors to pay any and all accounts for labor including workmen's compensation premiums, state unemployment, and Federal social security payments and all other wage and salary deductions required by law, services and material used by him and his subcontractors during the fulfillment of the contract as and when such accounts become due and payable, and shall furnish the Owner with proof of payment of such accounts in such form and as often as the Owner may request. Should payment of such accounts not be made when and as they become due, the Owner shall be at liberty to pay the same, and all money so paid by the Owner shall be charged to the Contractor.

The Contractor shall indemnify and hold the Owner harmless from any liability or expense, including legal expenses, arising out of claims of subcontractors, materialmen or those furnishing labor or services in connection with the fulfillment of the contract.

47. NOT USED

48. APPRENTICES AND TRAINEES

Apprentices will be permitted to work as such only when they are registered, individually, under a bona fide apprenticeship program registered with a State apprenticeship agency which is recognized by the Bureau of Apprenticeship and Training, U.S. Department of Labor; or, if no such recognized agency exists in a State, under a program registered with the Bureau of Apprenticeship and Training, U.S. Department of Labor. The allowable ratio of apprentices to journeymen in any craft classification shall not be greater than the ratio permitted to the Contractor as to his entire work force under the registered program. Any employees listed on a payroll at an apprentice wage rate, who is not a trainee as defined in section 2e or is not registered as above, shall be paid the wage rate determined by the Secretary of Labor for the classification of work he actually performed. The Contractor or subcontractor will be required to furnish to the Owner written evidence of the registration of his program and apprentices as well as of the appropriate ratios and wage rates, for the area of construction prior to using any apprentices on the contract work.

Trainees will permitted to work as such when they are bona fide trainees employed pursuant to a program approved by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, and where the subparagraph below is applicable, in accordance with the provisions of Part 5a, Subtitle A, Title 29, Code of Federal Regulations.

On contracts in excess of \$10,000, the employment of all laborers and mechanics, including apprentices and trainees, as defined in Section 2 shall also be subject to the provisions of Part 5a, Subtitle A, Title 29, Code of Federal Regulations. Apprentices and trainees shall be hired in accordance with the requirements of Part 5a.

The provisions of Sections 45, 46, and 48 shall be applicable to every invitation for bids, and to every negotiation, request for proposals, or request for quotations, for an assisted construction contract, issued after January 30, 1972, and to every such contract entered into on the basis of such invitation or negotiation. Part 5a.3, Subtitle A, Title 29, Code of Federal Regulations shall constitute the conditions of each assisted contract in excess of \$10,000, and each Owner concerned shall include these conditions or provide for their inclusion, in each such contract. Parts 5a.4, 5a.5, 5a.6, and 5a.7 shall also be included in each such contract for the information of the Contractor.

49. COPELAND "ANTI-KICKBACK" PROVISIONS

These provisions of this section, 29 CFR Part 3, prescribe "Anti-Kickback" regulations under section 2 of the Act of June 13, 1964, as amended (40 U.S.C. 276c), popularly known as the Copeland Act.

Each Contractor or subcontractor shall furnish each week a Statement of Compliance, Form ED-162, to accompany the weekly submission of payroll forms.

Section 1001 of Title 18 of the United States Code (Criminal Code and Criminal Procedure) shall apply to such statement as provided in 72 Stat. 967 (18 U.S.C. 1001, among other things, provides that whoever knowingly and willfully makes or uses a fraudulent document or statement of entry, in any matter within the jurisdiction of any department or agency of the United States, shall be fined not more than \$10,000 or imprisoned not more than five years, or both).

The requirements of this section shall not apply to any contract of \$2,000 or less.

Upon a written finding by the head of a Federal agency, the Secretary of Labor may provide reasonable limitations, variations, tolerances, and exemptions from the requirements of this section subject to such conditions as the Secretary of Labor may specify.

Deductions made under the circumstances or in the situations described in the paragraphs of this section may be made without application to and approval of the Secretary of Labor:

- a. Any deduction made in compliance with the requirements of Federal, State, or local law such as Federal or State withholding income taxes and Federal social security taxes.
- b. Any deduction of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or interest. A "bona fide prepayment of wages" is considered to have been made only when cash or its equivalent has been advanced to the person employed in such a manner as to give him complete freedom of disposition of the advanced funds.
- c. Any deduction of amounts required by court process to be paid to another unless the deduction is in favor of the Contractor, subcontractor, or any affiliated person, or when collusion or collaboration exists.
- d. Any deduction constituting a contribution on behalf of the person employed to funds established by the employer or representative of employees, or both, for the purpose of providing either from principal or income, or both, medical or hospital care, pensions or annuities or retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing, or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employees, their families and dependents: Provided, however, that the following standards are met: (1) The deduction is not otherwise prohibited by law; (2) it is either: (i) voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or (ii) provided for in a bona fide collective bargaining agreement between the Contractor or subcontractor and representatives of its employees; (3) no profit or other benefit is otherwise obtained, directly or indirectly, by the Contractor or subcontractor or any affiliated person in the form of commission, dividend, or otherwise, and (4) the deductions shall serve the convenience and interest of the employee.
- e. Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.
- f. Any deduction requested by the employee to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.
- g. Any deduction voluntarily authorized by the employee for making of contributions to governmental or quasi-governmental agencies.
- h. Any deduction voluntarily authorized by the employee for making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.

- i. Any deductions to pay regular union initiation fees and membership dues, not including fines or special assessments: Provided, however, that a collective bargaining agreement between the Contractor or subcontractor and representatives of its employees provided for such deductions and the deductions are not otherwise prohibited by law.
- j. Any deduction not more than for the "reasonable cost" of board, lodging, or other facilities meeting the requirements of section 3(m) of the Fair Labor Standards Act of 1938, as amended, and Part 531 of this title. When such a deduction is made, the additional records required under 5516.25(a) of this title shall be kept.

50. SUBCONTRACTORS

The Contractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (5) and (7), and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

51. CONTRACT TERMINATION

A breach of sections 44 through 50 may be grounds for termination of the contract, and for debarment as provided in 29 CFR 5.6.

52. OVERTIME REQUIREMENTS

No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any laborer or mechanic in any workweek in which he is employed on such work to work in excess of eight hours in any calendar day or in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all hours in excess of eight hours in any calendar day or in excess of forty hours in such workweek, as the case may be.

In the event of any violation of the clause set forth in the subsection above, the Contractor and any subcontractor responsible therefor, shall be liable to any affected employee for his unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic employed in violation of the clause set forth in the above subsection in the sum of \$10.00 for each calendar day on which such employee was required or permitted to work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subsection above.

The Contractor shall insert in all subcontracts the clause set forth in the above subsections of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

53. NOT USED

54. OTHER PROHIBITED INTERESTS

No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve, or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or in any part hereof. No officer, employee, architect, attorney, engineer or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

55. USE AND OCCUPANCY PRIOR TO ACCEPTANCE BY OWNER

The Contractor agrees to the use and occupancy of a portion or unit of the project before formal acceptance by the Owner, provided the Owner:

- a. Secures written consent of the Contractor except in the event, in the opinion of the Architect/Engineer, the Contractor is chargeable with unwarranted delay in completing the contract requirements;
- b. Secures consent of the Surety;
- c. Secures endorsement from the insurance carrier(s) permitting occupancy of the building or use of the project during the remaining period of construction; or
- d. When the project consists of more than one building, and one of the buildings is occupied, secures permanent fire and extended coverage insurance, including a permit from the insurance carrier to complete construction.

The Owner shall have the right to take possession of and use any completed or partially completed portions of the work notwithstanding the time for completing the work or such portions may not have expired, but such taking possession and use shall not be deemed an acceptance of any part of the work. If such prior possession or use increases the cost of the work, the Contractor shall be entitled to claim for extra compensation within 5 days of each occurrence. The amount of extra compensation shall be as determined by the Owner. The Contractor shall not, however, be entitled to claim extra compensation for portions of the work which are specifically required by being integral to the performance of the work of the contract documents to be placed into use and/or operation before completion of the entirety of the work.

56. SUSPENSION OF WORK

Should the Owner be prevented or enjoined from proceeding with work or from authorizing its prosecution either before or after its prosecution, by reason of any litigation, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay, but time for completion of the work will be extended to such reasonable time as the Owner may determine will compensate for time lost by such delay with such determination to be set forth in writing.

57. NOT USED

58. NOT USED

59. NATIONAL HISTORIC PRESERVATION ACT OF 1966

The contractor agrees to contribute to the preservation and enhancement of structures and objects of historical, architectural or archaeological significance when such items are found and/or unearthed during the course of project construction and to consult with the State Historic Preservation Officer for recovery of the items. (Reference: National Historic Preservation Act of 1966 (80 Stat 915, 16 USC 470) and Executive Order No. 11593 of May 31, 1971.)

60. CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

The Contractor agrees to comply with Federal clean air and water standards during the performance of this contract and specifically agrees to the following:

- a. The term "facility" means (a) any building, plant, installation, structure, mine, vessel or other floating craft, location or site of operations (b) owned, leased, or supervised (c) by the contractor and the subcontractors (d) for the construction, supply and service contracts entered into by the contractor;
- b. that any facility to be utilized in the accomplishment of this contract is not listed on the Environmental Protection Agency's List of Violating Facilities pursuant to 40 CFR, Part 15.20;
- c. that in the event a facility utilized in the accomplishment of this contract becomes listed on the EPA list, this contract may be cancelled, terminated or suspended in whole or in part;
- d. that it will comply with all the requirements of Section 114 of the Air Act and Section 308 of the Water Act relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in Section 114 and Section 308, respectively, and all regulations and guidelines issued thereunder;
- e. that it will promptly notify the Government of the receipt of any notice from the Director, Office of Federal Activities, Environmental Protection Agency, indicating that any facility utilized or to be utilized in the accomplishment of this contract is under consideration for listing on the EPA list of Violating Facilities;
- f. that it will include the provisions of paragraphs a. through g. in every subcontract or purchase order entered into for the purpose of accomplishing this contract, unless otherwise exempted pursuant to the EPA regulations implementing the Air or Water Act (40 CFR, Part 15.5), so that such provisions will be binding upon each subcontractor or vendor;
- g. that in the event that the contractor or the subcontractors for the construction, supply and service contracts entered into for the purpose of accomplishing this contract were exempted from complying with the above requirements under the provisions of 40 CFR, Part 15.5(a), the exemption shall be nullified should the facility give rise to a criminal conviction (See 40 CFR, Part 15.20) during the accomplishment of this contract. Furthermore, with the nullification of the exemption, the above requirements shall be effective. The contractor shall notify the Government, as soon as the contractor or the subcontractors' facility is listed for having given rise to a criminal conviction noted in 40 CFR, Part 15.20.

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61. NOT USED

62. INDEMNITY

The Contractor shall hold harmless, indemnify and defend the Owner, the Engineer and his consultants, and each of their officers and employees and agents, from any and all liability claims, losses or damage arising or alleged to arise from the performance of the work described herein, but not including the sole negligence of the Owner or the Engineer, employees and consultants.

63. NOT USED

SUPPLEMENTAL GENERAL CONDITIONS

1. ENUMERATION OF PLANS, SPECIFICATIONS, AND ADDENDA

Following are the Plans and Specifications which form a part of this contract, as set forth in Section I of the General Conditions, "Contract and Contract Documents":

A. DRAWINGS

Vicinity Map and Standards	1 of 7
Bridge Renovation	2 of 7
Structural Details	3 of 7
Structural Details	4 of 7
Sta. 1+00 to Sta. 19+00	5 of 7
Sta. 13+00 to Sta. 22+57	6 of 7
Pipeline Details	7 of 7

B. SPECIFICATIONS: See Table of Contents.

2. STATED ALLOWANCES - None.

3. SPECIAL HAZARDS

The Contractor and his Subcontractor's Public Liability and Property Damage Insurance shall provide adequate protection against public liability, property damage and vehicular liability.

As required under Paragraph 28 of the General Conditions, the Contractor's public liability insurance shall be in an amount not less than \$500,000 for bodily injury, including accidental death, to any one person and an amount not less than \$1,000,000 on account of any one occurrence. Property damage insurance in an amount not less than \$500,000 per occurrence and \$1,000,000 aggregate. Vehicular liability of \$500,000 for any one person or \$1,000,000 for each occurrence.

The Contractor shall either (a) require each of his subcontractors to procure and to maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage and Vehicular Liability of the type and in the same amounts as specified in the preceding paragraph, or (b) insure the activities of his subcontractors in his own policy.

ADD THE FOLLOWING TO SECTION 28 OF THE GENERAL CONDITIONS:

- g. Public Liability Insurance. Such liability insurance shall indemnify the Contractor and his subcontractors against loss from liability imposed by law upon, or assumed under contract by the Contractor or his subcontractors for damages on account of such bodily injury and property damage. Such insurance shall be provided on a comprehensive liability policy form written

by underwriters through an agency satisfactory to the Owner; covering bodily injury and broad form occurrence property damage, operations, owned and nonowned vehicles and equipment, Contractor's protective coverage and blanket contractual liability. Such liability insurance shall not exclude explosion, collapse, underground excavation or removal of lateral support. The Owner and the Engineer shall be named as an additional insured on the above liability policy, but only in respect to the Contractor's operations. Whenever the performance of any portion of the work involves the use of watercraft, comprehensive insurance shall include watercraft exposure with appropriate endorsements for the Jones Act with Federal longshoremen and harbor workers' coverage.

The General Contractor shall furnish "All Risk" Builders Risk insurance including, but not limited to, earthquake, flood, volcano and the results of faulty workmanship. The Owner and all subcontractors shall be named as additional insured as their interests may appear.

4. MINIMUM WAGE RATES AS REQUIRED UNDER PARAGRAPH 45 OF THE GENERAL CONDITIONS.

Delete the phrase in the first paragraph, sixth line of the General Conditions, "which is attached hereto and made a part thereof," and add the following at the end of the section.

"The provisions of ORS 279.348 and ORS 279.350 shall be included in this contract. The Contractor shall make application to the Commissioner of Labor, State of Oregon, for final determination of the prevailing wage for all class of labor to be employed for this project."

5. ADD THE FOLLOWING TO SECTION 2 OF THE GENERAL CONDITIONS:

- f. "Day": A day is a calendar day of 24 hours.
- g. "Contract Drawings": Contract drawings or drawings mean and include (a) all drawings which have been prepared on behalf of the Owner and which are included in the contract documents and all modifying drawings issued by addenda thereto; (b) all drawings submitted pursuant to the terms of the contract by the Contractor with his proposal and by the Contractor to the Owner or the Engineer; and (c) all drawings submitted by the Owner or the Engineer to the Contractor during the progress of the work.
- h. "Contractor's Plant and Equipment": Contractor's plant and equipment mean everything, except labor, brought onto the site by the Contractor in order to carry out the work, but not to be incorporated into the work.
- i. "Act of God": Act of God means a cataclysmic phenomenon of nature. A rain, windstorm, high water, volcanic ash or other natural phenomenon of unusual intensity for the specific locality of the work, which might reasonably have been anticipated from historical records of the general locality of the work, shall not be construed as an Act of God.

- j. "Provide": Provide, wherever and in whatever manner used, shall be understood to mean provide complete in place, that is, furnish and install.
- k. "Shall or Will": Shall or will whenever used to stipulate anything, means shall or will be done or be performed by either the Contractor or the Owner and means that the Contractor or the Owner has thereby entered into a covenant with the other party to do or perform the same.
- l. "Substantial Completion": Substantial completion is that date as certified by the Engineer when the construction of the project or a specified part thereof is sufficiently completed, in accordance with the contract documents, so that the project or specified part can be utilized for the purposes for which it is intended.
- m. "Work": Work shall be all labor necessary to produce the construction required by the contract documents, and all materials and equipment incorporated or to be incorporated into the project.
- n. "Contract Price" means either the total lump sum bid of the Contractor or the total of the unit price bids of the Contractor extended, based upon the estimated quantities set forth in the proposal, or combinations thereof, plus or minus any adjustments made in accordance with the contract.
- o. "Engineer" means the Engineer of the Contracting Agency, acting either directly or through his authorized representatives, and designated by the Contracting Agency to supervise the work during its execution.

6. ADD THE FOLLOWING TO SECTION 4 OF THE GENERAL CONDITIONS:

Effect of Review of Contractor's Information. Review by the Engineer of any drawing, method of work or any information regarding materials and equipment the Contractor proposes to furnish shall not relieve the Contractor of his responsibility for any errors therein and shall not be regarded as an assumption of risks or liability by the Engineer or the Owner, or any officer or employee thereof, and the Contractor shall have no claim under the contract on account of the failure or partial failure or inefficiency or insufficiency of any plan or method of work or material and equipment so reviewed. Action other than rejection shall be considered to mean merely that the Engineer has no objection to the Contractor using, upon his own full responsibility, the plan or method of work proposed, or furnishing the materials and equipment proposed. Markings or comments shall not relieve the Contractor from compliance with the plans and specifications, nor any requirements of the contract documents.

7. DELETE THE FIRST SENTENCE OF SECTION 10 OF THE GENERAL CONDITIONS AND ADD THE FOLLOWING:

a. Surveys and Soils Data

Unless otherwise specified, the Owner will establish reference bench marks and base lines adjacent to the work. From the information thus provided, the Contractor shall develop and make such additional surveys as are needed for construction such as slope stakes, batter boards and other working points, lines and elevations.

Bench marks, base lines, property boundaries, line and grade hubs, and other reference and construction points as originally established by the Owner shall thereafter be maintained by the Contractor who shall be responsible for keeping their accuracy and who shall pay to the Owner all costs for re-establishing them if they are disturbed. The Contractor shall notify the Engineer in writing at least 10 days in advance of the time he will commence work on any parts of the construction requiring surveys to be furnished by the Owner.

The Contractor shall provide reasonable and necessary opportunities and facilities for setting point and making measurements during construction. He shall not proceed until he has made request to the Engineer for and has received from him such points as may be necessary as the work progresses. The construction work shall be done in strict conformance with such points.

All field and laboratory test data resulting from testing for groundwater, soil or geologic conditions performed by the Contractor shall be furnished to the Engineer as soon as available.

8. CHANGE SECTION 21 OF THE GENERAL CONDITIONS AS FOLLOWS:

Delete the end of the next to the last line, starting with "and any increase" and all of the last line ending with "of the General Conditions." And add the following at the end of the section:

"Bidders must satisfy themselves by personal examination and by such other means as they desire with respect to actual conditions in regard to the nature of the ground and subsoil water and in regard to the location of existing groundwater or surface structures."

9. CHANGE SECTION 25 OF THE GENERAL CONDITIONS AS FOLLOWS:

- 1) In the first line, add the word "Twentieth" in the blank space.
- 2) When, in the opinion of the Engineer, the Contractor is not diligently pursuing completion of the work, the Engineer will withhold the monthly estimate payment until the Contractor has demonstrated to the Engineer that the project is being pursued diligently in compliance with the approved construction schedule.

10. DELETE SECTION 39 OF THE GENERAL CONDITIONS AND REPLACE WITH THE FOLLOWING:

39. LAND AND RIGHTS-OF-WAY

a. Lands Provided by Owner

The Owner will provide certain lands, as indicated, in connection with work under the contract together with the right-of-access to such lands. The Contractor shall not unreasonably encumber the premises with his plant or materials. He shall notify the Owner in writing in advance of the time he intends to occupy these lands.

Documents relating to the acquisition of land in fee, or its use by easement, permit or franchise are on file at the offices of the Owner and are available for examination. The Contractor shall comply with all of the conditions and terms contained in such documents pertaining to the use of the lands provided by the Owner.

Areas available for use by the Contractor are as shown on the drawings. The Contractor may use these sites as best suits his operation provided such use is not contrary to the terms of the easements, permits or franchises.

b. Lands Provided by Contractor

The Contractor shall provide, with no liability to the Owner, any additional land and access thereto not shown or described that may be required for temporary construction facilities or storage of materials. He shall construct all access roads, detour roads, or other temporary works as required by his operation. The Contractor shall confine his equipment, storage of materials and operations of his workmen to those areas shown and described and such additional areas as he may provide.

- c. Whenever any of the work is accomplished on or through property other than that in fee ownership of the Owner, the Contractor shall furnish the Owner, before final acceptance of the work by the Owner, a written release form from the Owner of the property or proper authority acting for the Owner of the property affected, stating that the restoration of structures and surfaces has been satisfactorily accomplished. If in the opinion of the Owner the release is arbitrarily withheld, the Owner may, at his sole discretion, accept the portion of the work involved and cause final payment therefor to be made.
- d. In addition to the requirements of any applicable utility permit, street use permit, or franchise relating to the contract, unless otherwise shown, the Contractor shall as a minimum for any restoration work, conform to standard plans and specifications of the agency which controls the use of the right-of-way in which the construction work is performed.

11. CHANGE THE FIRST SENTENCE OF SECTION 35 OF THE GENERAL CONDITIONS TO READ:

"The Engineer shall act as advisor and consultant to the Owner on Architectural/Engineering matters relating to the contract and shall give all orders and directions contemplated under this contract and specifications related to the execution of the work."

12. EQUAL OPPORTUNITY. The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

13. **APPLICABLE STANDARD SPECIFICATIONS.** The Standard Specifications for Public Works Construction, Oregon Chapter of APWA, 1970 are hereby incorporated by reference and become a part of this contract; however, standard APWA Specifications are superseded by the printed words of Instruction to Bidders, Agreement, General Conditions, and Special Provisions of this contract. Copies of said standard specifications may be acquired from DCE Publications, Waldo Hall 100, Corvallis, Oregon.

14. **ADD THE FOLLOWING TO SECTION 10 OF THE GENERAL CONDITIONS:**

The Contractor shall obtain a Marion County work permit from the Owner for display while performing work within Marion County.

15. **ADD THE FOLLOWING TO SECTION 17 OF THE GENERAL CONDITIONS:**

A. **PAYMENT FOR FORCE ACCOUNT (EXTRA) WORK**

When extra work is ordered by the Engineer to be done on a force account basis (either by the Contractor or an approved subcontractor), such work will be paid for on the basis of the actual cost to the Contractor or subcontractor plus an allowance of fifteen percent (15%) thereof. Where said work is performed by an approved subcontractor, five percent (5%) will be allowed the Contractor for supervision of the subcontractor's work.

The items of cost to which the above percentage will be added and to which payment will be restricted are as follows:

1. The payment to be made for labor used in the work will be made at the rates actually paid (plus a sum certified by the Contractor as being actually paid for items of direct overhead on labor payroll such as but not limited to welfare or fringe benefit payments, social security, insurance, etc.) to the laborers and foremen by the Contractor or subcontractor unless these rates are in excess of the current local prevailing wage rate. The time allowed will be the number of hours worked directly on force account operations.
2. Payment for purchased materials, equipment, and supplies used on force account work will be made at the prices billed to the Contractor or subcontractor by the supplier less all discounts. It will be assumed that the Contractor or his subcontractor has taken advantage of all possible discounts on bills for materials and supplies, and such discounts will be subtracted from the total amounts of bills regardless of any failure of the Contractor to take advantage of same. Freight and express on material and supplies will be considered to be a part of the cost and will be paid for as materials and supplies.
3. Materials and supplies produced by the Contractor or subcontractor will be paid for at prices to be agreed upon between the Contractor and the Engineer, which prices will be no greater than the prices at which the materials and supplies can be obtained elsewhere.

4. Where the use of rental equipment is authorized by the Engineer, rental on such equipment used will be paid at the rate actually paid by the Contractor or subcontractor unless these rates are in excess of the current local rates or unless the equipment is owned by the Contractor or subcontractor in either of which events payments will be made at the rates to be agreed upon between the Contractor and the Engineer prior to beginning work, which rates will in no case be greater than the current local rates.

For equipment rented on a daily or hourly basis, rental will be allowed for only those days or hours during which the equipment is in actual use. For equipment rented on a monthly basis, straight time rental will be allowed from the day the equipment is first used on the particular price of force account work until and including the last day on which it is used on that particular work, provided the equipment is not used on other work during the period, and provided further that the equipment is not idle for a continuous period of more than 6 days. No rental will be allowed for any parts of idle periods of lengths greater than 6 days or for any time during which the equipment is used on other work.

The rental allowance for equipment will in all cases be understood to cover all fuel, supplies, repairs, and renewals, and no further allowances will be made for those items unless specific agreement to that effect is made in writing before the work is commenced. Individual pieces of equipment having a value of one hundred dollars (\$100) or less will be considered to be tools or small equipment, and no rental will be allowed on such.

The fifteen percent (15%) allowance to be made to the Contractor or subcontractor will be made on all items of cost listed above except for rental on equipment authorized by the Engineer to be used in the work in which case the allowance will be five percent (5%).

The percentage allowances made to the Contractor in accordance with the terms outlined above will be understood to be reimbursement and compensation for all superintendence, use of tools and small equipment, overhead expenses, bond cost of all kinds, and all other items of cost not specifically designated herein as items involved are furnished or incurred by the Contractor or by the subcontractor. No other reimbursement, compensation, or payment will be made for any such services, costs, or other items.

Should any percentage allowance or other corresponding allowance be made by the Contractor to a subcontractor (other than specified herein), in connection with force account work, such allowance shall be at the sole expense of the Contractor and the Contractor shall not be reimbursed or otherwise compensated for the same by the Owner.

B. FORCE ACCOUNT BILLS

Bills for force account work must show in payroll form the dates, names, hours worked each day, rates of pay, and amounts paid to each individual employed on such work and must give in detail the nature of the work done by each. Bills for materials must be fully itemized showing dates of delivery, quantities, unit prices, amounts, and discounts and must be accompanied by receipted invoices covering every item.

All bills, payrolls, and other forms of claims for payment on force account work must be submitted in triplicate, must state the number of force account work or change order applicable and the name or number of the contract under which the work was performed and must be approved by the Engineer. Failure to present claims in proper form within thirty (30) days after the close of the month in which the work covered was performed shall constitute a waiver on the part of the Contractor of his right to present such claim thereafter or to receive payment thereof.

End of Supplemental General Conditions

1. GENERAL

A. WORK INCLUDED

- 1.01 Work Covered by This Contract
- 1.02 Related Contracts
- 1.03 Time of Commencement and Completion
- 1.04 Specifications
- 1.05 Contractor's Copies of Contract Documents
- 1.06 Coordination of Work with Owner and Others
- 1.07 Items Not Included
- 1.08 Information Concerning Conditions
- 1.09 Franchises and Easements
- 1.10 Field Relocation
- 1.11 Waste Site for Excess Materials and Debris
- 1.12 Drains, Culverts and Roadside Ditches
- 1.13 Notice to Utility Companies and Agencies
- 1.14 Existing Utilities
- 1.15 Salvage
- 1.16 Restoration of Structures and Surfaces
- 1.17 Permits and Fees
- 1.18 Pipeline Construction Across Agricultural Fields
- 1.19 Abbreviation Schedule
- 1.20 Referenced Specifications

1.01 WORK COVERED BY THIS CONTRACT. The work contemplated shall comprise two schedules A and B.

- A. WORK FOR SCHEDULE A shall include the construction of approximately 1,325 linear feet of buried 24-inch-diameter concrete cylinder pipe, (with an alternate for construction of the same using ductile-iron pipe), complete with valves, connections to existing water mains, and associated miscellaneous work.
- B. WORK FOR SCHEDULE B shall include construction of approximately 875 linear feet of 24-inch-diameter welded steel pipe crossing an abandoned bridge, selective bridge demolition and repair, structural steel walkway and bridge approach section, associated miscellaneous work, and connection to the underground pipeline in Schedule A.
- C. THE ABOVE OUTLINE is for general information only. Provide all work required by the contract documents.

1.02 RELATED CONTRACTS

- A. THE CONTRACTOR is advised that the Owner has or will have the following projects in progress in the vicinity of the project:
- Water Treatment Plant Expansion
- B. EXAMINE THE DRAWINGS AND SPECIFICATIONS for related contracts to ascertain the relationship of the work of this contract to such related contracts.

Drawings may be examined at the office of the Newberg Public Works Director.

1.03 TIME OF COMMENCEMENT AND COMPLETION

- A. NOTICE TO PROCEED. Within 10 days after the execution of the contract, written notice to proceed will be given by the Owner to the Contractor. The Contractor shall begin the work within 10 days of the date specified in the notice to proceed. Notwithstanding any other provision of the contract, the Owner shall not be obligated to accept or to pay for any work furnished by the Contractor prior to delivery of notice to proceed, whether or not the Owner has knowledge of the furnishing of such work.
- B. COMPLETION. Substantial completion of all items of work shall be within:

Schedule A	90 Calendar Days
Schedule B	
Pipeline	120 Calendar Days
All Work	150 Calendar Days

of the date specified in the "Notice to Proceed."

- 1.04 SPECIFICATIONS. The following standard specifications, including current revisions and supplements, shall be referred to in these contract documents to establish minimum standards for materials, construction and inspection procedures.

Unless otherwise shown or specified, the provisions for measurement and payment contained in such Standard Specifications will not apply.

Standard Specifications for Public Works Construction, 1970 Edition
as prepared by the Oregon State Chapter of the American Public
Works Association (APWA)

City of Newberg Standard Specifications

Standard Specifications for Highway Construction, Oregon State
Highway Division

In case of conflict between the several parts of the specifications and between the various referenced standard specifications, the most stringent shall govern as determined by the Engineer. Where these specifications refer to recognized standards, such as ASTM, Federal Specifications, N.F.P.A., the reference shall be to the latest edition, unless specified otherwise.

- 1.05 **CONTRACTOR'S COPIES OF CONTRACT DOCUMENTS.** The Contractor will be supplied by the Owner with 5 sets of full-size drawings, 5 sets of specifications. At least one complete set of contract documents, including one full-size set of drawings shall be kept at the site of construction in good condition, and at all times available to the Owner and Engineer. Additional copies of the contract documents, if required, will be furnished by the Engineer at net cost of reproduction.
- 1.06 **COORDINATION OF WORK WITH OWNER AND OTHERS.** The Contractor shall coordinate his work with other contractors who may be working in the project area and cooperate with them. He shall also coordinate his activities with the Owner, and no streets or private drives may be closed off without a minimum of 48 hours notice to the Owner and/or the private property owner. Should the property owner or the Owner have adequate reason to limit access at the scheduled time, the Owner or property owner shall respond within 24 hours to the Contractor, who shall reschedule his work to meet the new condition.
- 1.07 **ITEMS NOT INCLUDED.** The following items shown on the drawings are not included in this contract:
- A. ITEMS INDICATED "N.I.C." (Not in Contract).
- 1.08 **INFORMATION CONCERNING CONDITIONS.** The Contractor shall make his own deductions and conclusions as to the nature of the materials to be excavated, the difficulties which may arise from subsurface conditions, and of doing any other work affected by the subsurface conditions and shall accept full responsibility.
- Bidders must satisfy themselves by personal examination and by such other means as they desire with respect to actual conditions in regard to the nature of the ground and subsoil water and in regard to the location of existing groundwater or surface structures. Unforeseen conditions shall not constitute a claim for additional payment under the terms of the contract or constitute a basis for cancellation thereof.
- Subsoil investigations were carried out at the top of bank near the north end of the bridge prior to the advertisement of the CONTRACT. These investigations were carried out for the design purposes and are not considered adequate for construction. The report is available for review at the offices of the City of Newberg Public Works Director.
- A copy of structural drawings for the Newberg Bridge (1913) and bridge repair (1927), were obtained from the Oregon State Highway Department. These drawings were used for design purposes only and may not be considered adequate for construction. The drawings are available for review at the offices of the City of Newberg, Public Works Director.
- 1.09 **FRANCHISES AND EASEMENTS.** All franchises and easements required for construction will be obtained by the Owner.
- 1.10 **FIELD RELOCATION.** During the progress of construction, it is expected that minor relocations of the utility lines may be necessary. Such relocations shall be made only by direction of the Engineer. Unforeseen obstructions encountered as the result of such relocations will not be subject to claim for additional compensation by the Contractor to any greater extent than would have been the case had the obstructions been encountered along the original location.

- 1.11 ~~WASTE SITE FOR EXCESS MATERIALS AND DEBRIS.~~ No waste site has been approved for excess materials and debris removed from the project. The Contractor shall make his own arrangements for disposal of this material and shall protect the Owner from any and all damages arising therefrom.
- 1.12 DRAINS, CULVERTS AND ROADSIDE DITCHES. The Contractor shall replace and/or repair all drain pipe or inlets removed or damaged by the Contractor's construction work. All excavated material and debris shall be removed from the roadside ditches, and affected ditches shall be cleaned and reshaped.
- 1.13 NOTICE TO UTILITY COMPANIES AND AGENCIES. The Contractor shall notify all utility companies and public agencies affected by the construction 48 hours prior to excavation. The following is a partial list:

<u>Agency</u>	<u>Telephone</u>
City of Newberg Engineering Office	538-9421
Portland General Electric	643-5454
General Telephone Company	639-1002
Northwest Natural Gas Company	226-4211
Publishers Paper Co. (Andy Anderson)	538-2151

The Contractor shall arrange with the owners and operators of the respective utility systems to mark the location, and if necessary or prudent, to expose the existing utilities prior to construction of the facilities contained in this contract. If in the course of the work required hereunder, it is found necessary to relocate, revise or repair publicly or privately owned utility systems, the said relocations, repairs or revisions shall be accomplished at the Contractor's expense by the employees of those respective utilities and services.

- 1.14 EXISTING UTILITIES. In general, the locations of existing major underground utilities are indicated on the drawings. This information has been obtained from utility maps and from oral descriptions provided by the various agencies involved. The Owner does not guarantee the accuracy or completeness of this information, and it is to be understood that other aboveground or underground facilities not shown on the drawings may be encountered during the course of the work.

Existing aboveground utilities including, but not limited to, power transmission and distribution, telegraph, telephone and traffic control systems, whether shown on the drawings or not, shall be maintained, relocated, rerouted, removed and restored as may be necessary by the Contractor in a manner satisfactory to owners and operators of the utilities and to the Owner.

Existing major underground utilities and appurtenance structures, whether shown on the drawings or not, shall be maintained, relocated, rerouted, removed and restored by the Contractor in a manner satisfactory to owners and operators of the utilities and to the Owner. In the following special cases, the Contractor will be reimbursed in accordance with Article 17 of the General Conditions for all costs of modifying, rerouting or relaying major underground utilities:

- A. AN EXISTING UTILITY is shown on the drawings as being above or below the pipeline or structure to be constructed under this contract but is found during construction to be in conflict with the proposed work.
- B. AN EXISTING UTILITY is shown on the drawings in plan, but not in profile, and is found during construction to be in conflict with the proposed work.
- C. AN EXISTING UTILITY is not shown on the drawings but is found during construction to be in conflict with the proposed work.
- D. AN EXISTING UTILITY is not shown on the drawings and is found during construction to cross or project into the allowable excavation for the proposed work at an angle of 30 degrees or less at any elevation.

For the purposes of this section, an existing underground utility shall be considered to be in conflict with the proposed work if it crosses or projects into the allowable excavation for the proposed work at an elevation between the top and bottom of the proposed pipeline or structure.

Minor underground utilities service lines including, but not limited to sanitary and drainage service laterals up to 8 inches in diameter, gas and water services up to and including 3 inches in diameter, house or yard drains, electric or telephone services, catch basin leads serving the immediate intersection, shall be maintained, relocated, rerouted, removed and restored by the Contractors with least possible interference of such services, and in no case shall the interference of such service lines be considered for extra compensation under any of these special cases listed here and before.

The right is reserved by owners of public utilities and franchises to enter upon any street, road, right-of-way or easement for the purpose of maintaining their property and for making necessary repairs or changes caused by the work.

- 1.15 SALVAGE. Unless otherwise indicated on the plans, specifications, or directed by the Engineer, all salvageable castings, pipe, equipment, and any discarded facilities shall be designated property of the Owner and shall be delivered to the city maintenance shops as directed by the Engineer.

1.16 RESTORATION OF STRUCTURES AND SURFACES

- A. GENERAL. Whenever any of the work is accomplished on or through property other than that owned by the Project Owner, the Contractor shall furnish the Project Owner, before final acceptance of the work by the Project Owner, a written release from the owner or proper authority acting for the owner of the property affected, stating that the restoration of structures and surfaces has been satisfactorily accomplished. If in the opinion of the Project Owner the release is arbitrarily withheld, the Project Owner may, at its sole discretion, accept the portion of the work involved and cause final payment therefor to be made.

In addition to the requirements of any applicable utility permit, street use permit or franchise relating to this contract, the Contractor shall, as a minimum for any restoration work, conform to standard plans and specifications of the agency which controls the use of the right-of-way in which this construction work is performed.

- B. STRUCTURES. The Contractor shall remove such existing structures as may be necessary for the performance of the work and, if required, shall rebuild the structures thus removed in as good a condition as found with minimum requirements as herein specified. He shall also repair all existing structures which may be damaged as a result of the work under this contract.
- C. CURBS, GUTTERS, DRIVEWAYS AND SIDEWALKS. All curbs, gutters, driveways, sidewalks and similar structures that are broken or damaged by the installation of the work shall be reconstructed by the Contractor. Reconstruction shall be of the same kind of material with the same finish and in not less than the same dimensions as the original work. All concrete shall be as specified herein unless otherwise indicated. Repairs shall be made by removing and replacing the entire portions between joints or scores and not merely refinishing any damaged part. All work shall match the appearance of the existing improvements as nearly as possible.
- D. ROADS AND STREETS. All roads and streets in which the surface is removed, broken or damaged, or in which the ground has caved or settled due to work under this contract, shall be resurfaced and brought to the original grade and crown section unless otherwise indicated. Before resurfacing material is placed, edges of pavements shall be trimmed back far enough to provide clean, solid, vertical faces and shall be free of any loose material. Paving shall be as indicated and specified. Roadways used by the Contractor for hauling materials, equipment, supplies, etc., shall be cleaned and repaired if the condition of the roadway is damaged or otherwise affected due to the Contractor's operations.

- E. **CULTIVATED AREAS AND OTHER SURFACE IMPROVEMENTS.** All cultivated areas, either agricultural or lawns, and other surface improvements which are damaged by actions of the Contractor shall be restored as nearly as possible to their original condition.
- F. **EXISTING STAKES AND MARKS.** All section, section subdivision, plat, U.S.C. and G.S., U.S.G.S., and other official monuments or bench marks, shall be carefully preserved or replaced. In the event any such monument or marker is disturbed as a result of the Contractor's operations, the Contractor shall effect the replacement or resetting of the monument or marker in a manner satisfactory to the Engineer. Replaced or reset monuments shall be of acceptable type and quality, and shall be located so as to clear existing utilities or any other interferences. They shall be placed in a manner consistent with good and recognized engineering and surveying practices.
- G. **WATERWAYS, CHANNELS, DRAINAGE DITCHES, DRAINS AND CULVERTS.** All waterways, channels, drainage ditches and similar facilities which are damaged by actions of the Contractor shall be restored as nearly as possible to their original condition. Where necessary, the Contractor shall provide temporary facilities or temporarily realign such water courses to maintain a continuously serviceable facility until it is restored to its original location and condition. Restoration of such facilities shall be as shown and specified.
- 1.17 **PERMITS AND FEES.** The Contractor shall be responsible for obtaining all permits and payment of associated fees required for construction of the work.
- 1.18 **PIPELINE CONSTRUCTION ACROSS AGRICULTURAL FIELDS**
- THE CONTRACTOR shall coordinate construction of the 24-inch-diameter pipeline from Station 1+17 to Station 10+00 with the Farmer Mark Smith (633-8246) to minimize crop loss and damage to agricultural fields.
- 1.19 **ABBREVIATION SCHEDULE.** The following abbreviations are standard with engineers for all projects. Many will not appear on this set of drawings.

-A-

ABOVE	ABV
ACOUSTICAL	ACO
ADDENDUM	ADD
ADDITION	ADD'N
ADJUSTABLE	ADJ
AGGREGATE	AGG
ALTERNATE	ALT
ALTERNATING CURRENT	AC
ALUMINUM	AL (ALUM)
AMBIENT	AMB
AMOUNT	AMT
AMPERE	AMP
ANCHOR BOLT	AB
ANGLE	
APPENDIX	APPX
APPROVED	APP
APPROXIMATE	APPOX
ARCHITECTURAL	ARCH
ARCHITECTURAL WOODWORK INSTITUTE	AWI
AREA	-A-
ASBESTOS	ASB
ASBESTOS CEMENT PIPE	ACP
ASPHALT	ASPH
ASPHALTIC CONCRETE	AC
ASSOCIATION	ASSN
AUTHORIZED	AUTH
AUTOMATIC	AUT
AUXILIARY	AUX
AVERAGE	AVG

-B-

BACK TO BACK	BTB
BACK WATER VALVE	BWV
BALL VALVE	BV
BASE LINE	BL
BASE PLATE	BP
BEAM	BM
BEARING	BRG
BEGINNING OF VERTICAL CURVE	BVC
BELL AND BELL	B & B
BELL AND FLANGE	B & F
BELL AND SPIGOT	B & S
BELL END	BE
BENCH MARK	BM
BETWEEN	BTW
BIOCHEMICAL OXYGEN DEMAND	BOD
BITUMINOUS	BIT
BLOCK	BLK
BLOW OFF	BO
BOARD	BD
BOLT CIRCLE	BC
BOLT FACES	BF
BOTTOM	BOT
BRAKE HORSEPOWER	BHP
BRAKE MEAN EFFECTIVE PRESSURE	BMEP
BRITISH THERMAL UNITS	BTU
BUILDING	BLDG
BUILDING LINE	BL

-C-

CABINET	CAB
CALCULATE	CALC
CANDLE POWER	CP
CARBON DIOXIDE	CO ₂
CAST IRON	CI ²
CATCH BASIN	CB
CEILING	CLG
CEMENT	CEM
CENTER	CTR
CENTER LINE	CL
CENTER OF GRAVITY	CG
CENTER OF PRESSURE	CP
CENTER TO CENTER	CC
CENTIGRADE	-C-
CENTIGRAM	CG
CENTIMETER	CM
CENTIMETER GRAM SECOND SYSTEM	CGS
CERAMIC	CER
CHECK VALVE	CV
CHLORINE	CL (CL ₂)
CLEAN OUT	CO
CLEAR	CLR
COEFFICIENT	COE
COLD WATER	CW
COLUMN	COL
COMBINATION	COMB
CONCRETE	CONC
CONNECTION	CONN
CONSTRUCTION	CONS
CONTINUE	CONT
CONTRACTOR	CONTR
COPPER	CU
CORPORATION	CORP
CORRIDOR	CORR
CORRUGATE	CORR
CORRUGATED METAL PIPE	CMP
COSINE	COS
COTANGENT	CTN
CUBIC	CU
CUBIC CENTIMETER	CC
CUBIC FEET PER HOUR	CFH
CUBIC FEET PER MINUTE	CFM
CUBIC FEET PER SECOND	CFS
CUBIC FOOT	CF
CUBIC INCH	CI
CUBIC METER	CU M (M ³)
CUBIC YARD	CU YD (YD ³)
CURRENT	CUR
CYCLES PER SECOND	CPS
CYLINDER	CYL

-D-

DAMPER	DAMP
DEADLOAD	DL
DECIMAL	DEC (o)
DEGREE	DEG
DENSITY	-D-
DEPARTMENT	DEPT
DETAIL	DTL

DEVELOP.	DEV
DEW POINT	DP
DIAGRAM	DIAG
DIAMETER	DIA
DIFFERENTIAL	DIFF
DIMENSION	DIM
DIRECT CURRENT	DC
DISPENSER	DISP
DISTANCE	DIST
DITTO	DO (")
DIVISION	DIV
DOMESTIC COLD WATER	DCW
DOMESTIC HOT WATER FLOW	DHF
DOMESTIC HOT WATER RETURN	DHR
DOOR	DR
DOWN	DN
DOWNSPOUT	DS
DOZEN	DOZ
DRAIN	DR
DRAWING	DWG
DRINKING FOUNTAIN	DF

-E-

EACH	EA
EACH FACE	EF
EACH WAY	EW
EACH WAY EACH FACE	EWEF
EAST	-E-
ECCENTRIC	ECC
EFFICIENCY	EFF
ELBOW	ELL
ELECTRIC	ELEC
ELEVATION	ELEV
EMBEDDED	EMBD
EMERGENCY	EM
ENCLOSE	ENCL
END OF VERTICAL CURVE	EVC
END TO END	E to E
ENGINE	ENG
ENGINEER	ENGR
ENVELOPE	ENV
EQUAL	EQ
EQUIPMENT	EQMT
EQUIVALENT	EQUIV
ESTIMATE	EST
EVAPORATOR	EVAP
EXCHANGE	EXCH
EXECUTIVE	EXEC
EXHAUST	EXH
EXISTING	EXIST
EXPANSION	EXPAN
EXPANSION BOLT	EB
EXPANSION JOINT	EJ
EXTERIOR	EXT
EXTREME HIGH WATER	EHW
EXTREME LOW WATER	ELW

-F-

FACE TO FACE	FTF
FAHRENHEIT	-F-
FAR FACE	FF
FAR SIDE	FS

FEDERAL	FED
FEET	FT (')
FEET PER MINUTE	FPM
FEET PER SECOND	FPS
FIGURE	FIG
FILLET	FIL
FINISH	FIN
FIRE HYDRANT	FH
FIXTURE	FIX
FLANGE	FLG
FLAT BAR	FB
FLAT HEAD	FHD
FLEXIBLE	FLEX
FLOAT GLASS	FG
FLOOR	FLR (FL)
FLOOR DRAIN	FD
FLOOR LINE	FL
FLUORESCENT	FLU
FLUOROCARBON	FLC
FOOT	FT (')
FOOT CANDLE	FC
FOOT-POUNDS	FTLB
FOOTING	FTG
FOUNDATION	FDN
FRACTIONAL	FRAC
FREQUENCY MODULATION	FM
FURNISH	FURN
FUTURE	FUT

-G-

GAGE	GA
GALLON	GAL
GALLONS PER ACRE PER DAY	GPAD
GALLONS PER DAY	GPD
GALLONS PER HOUR	GPH
GALLONS PER MINUTE	GPM
GALLONS PER SECOND	GPS
GALVANIZE	GALV
GALVANIZED IRON	GI
GAS	-G-
GENERATOR	GEN
GLASS	GL
GOVERNMENT	GOVT
GRAM	-G-
GYPSUM	GYP
GYPSUM BOARD	GB

-H-

HANGER	HGR
HARDWARE	HDW
HEAD	HD
HEATER	HTR
HEATING AND VENTILATING	H&V
HEAVY	HVY
HEIGHT	HT
HEXAGON	HEX
HIGH WATER	HW
HIGHWAY	HWY
HOLLOW METAL	HM
HORIZONTAL	HOR
HORSEPOWER	HP
HOSE BIBB	HB
HOSPITAL	HOSP
HOT WATER	HW
HOUR	HR
HYDRAULIC	HYD

-I-

IGNITION	IGN
ILLUMINATE	ILLUM
INCH	IN (")
INCH-POUND	IN-LB
INCHES PER SECOND	IPS
INCLUDE	INCL
INFORMATION	INFO
INSIDE DIAMETER	ID
INSIDE FACE	IF
INSPECT	INSP
INSTALL	INST
INTERIOR	INT
INVERT	INV
INVERT ELEVATION	INV EL

-J-

JACKET WATER	JW
JOIST	J
JUNCTION	J
JUNCTION BOX	JB

-K-

KILN-DRIED	KD
KILO	-K-
KILOGRAM	KG
KILOLITER	KL
KILOMETER	KM
KILOVAR	KVAR
KILOVOLT	KV
KILOVOLT-AMPERE	KVA
KILOVOLT-AMPERE HOUR	KVAH
KILOWATT	KW
KILOWATT HOUR	KWH
KIP (1,000 LB)	-K-
KNOCKED DOWN	KD
KNOCKOUT	KO

-L-

LABORATORY	LAB
LANDSCAPE ARCHITECT	LA
LATERAL	LAT
LAVATORY	LAV
LEFT	L
LIMIT	LIM
LINEAR	LIN
LINEAR FOOT	LF
LIQUID	LIQ
LITER	-L-
LIVE LOAD	LL
LOAD FACTOR (TABULAR ONLY)	LF
LOCATION	LOCN
LOCKOUT STOP	LOS
LOGARITHM	LOG
LONGITUDE	LONG
LUMBER	LBR
LUMEN	-L-

-M-

MACHINE	MACH
MALLEABLE IRON	MI
MANHOLE	MH
MANUFACTURE	MFR
MATERIAL	MAT
MAXIMUM	MAX
MEAN HIGH TIDE	MHT
MEAN HIGH WATER	MHW
MEAN HIGHER HIGH WATER	MHHW
MEAN LOW TIDE	MLT
MEAN LOW WATER	MLW
MEAN LOWER LOW WATER	MLLW
MEAN SEA LEVEL	MSL
MECHANICAL	MECH
MEMORANDUM	MEMO
METER	-M-
MEZZANINE	MEZ
MICRON	-U-
MICROPHONE	MIKE
MILES PER GALLON	MPG
MILES PER HOUR	MPH
MILLIAMPERE	MA
MILLIGRAM	MG
MILLIGRAMS PER LITER	MG/L
MILLILITER	ML
MILLIMETER	MM
MILLION GALLONS PER DAY	MGD
MILLISECONDS	MS
MILLIVOLT	MV
MILLIWATT	MW
MINIMUM	MIN
MINUTE	MIN
MINUTE (ANGULAR MEASURE)	(')
MISCELLANEOUS	MISC
MONUMENT	MON
MUNICIPALITY OF METROPOLITAN SEATTLE	METRO

-N-

NATIONAL	NAT'L
NATURAL	NAT
NEAR FACE	NF
NEAR SIDE	NS
NEGATIVE	NEG
NORMALLY CLOSED	NC
NORMALLY OPEN	NO
NORTH	-N-
NOT IN CONTRACT	NIC
NOT TO SCALE	NTS
NUMBER	No

-O-

OBSCURE	OBS
OCTAGON	OCT
OFFICE	OFC
ON CENTER	O/C (OC)
ONE POLE (SINGLE POLE)	1P
OPENING	OPG

OPPOSITE	OPP
ORIGINAL	ORIG
OUNCE	OZ
OUT TO OUT	O/O (O to O)
OUTSIDE DIAMETER	OD
OUTSIDE FACE	OF
OVERALL	OA
OXYGEN	-O-

-P-

PART	PT
PARTS PER MILLION	PPM
PATENT	PAT
PENNY (NAILS, ETC.)	-d-
PENNYWEIGHT	dWT
PERFORATE	PERF
PERMANENT	PERM
PHASE	PH
PHOTOGRAPH	PHOTO
PHYSICAL	PHYS
PIECE	PC
PLASTER	PLAS
PLATE	PL
PLUG VALVE	PV
PLUMBING	PLMB
PLYWOOD	PW
PNEUMATIC	PN
POINT	PT
POINT OF COMPOUND CURVE	PCC
POINT OF CURVE	PC
POINT OF FROG	PF
POINT OF INTERSECTION	PI
POINT OF REVERSE CURVE	PRC
POINT OF SPIRAL TANGENT	PST
POINT OF SWITCH	PS
POINT OF TANGENT	PT
POINT OF VERTICAL CURVATURE	PVC
POINT OF VERTICAL TANGENT	PVT
POLE	-P-
POLYVINYL CHLORIDE	PVC
POROUS CONCRETE PIPE	PCP
POUND	LB
POUNDS PER CUBIC FOOT	PCF
POUNDS PER SQUARE FOOT	PSF
POUNDS PER SQUARE INCH	PSI
POUNDS PER SQUARE INCH-GAGE	PSIG
POUNDS PER SQUARE INCH-ABSOLUTE	PSIA
PREFABRICATED	PF
PREPARATION	PREP
PRESSURE GAGE	PG
PRIMARY	PRI
PROCESS	PROC
PRODUCTION	PROD
PROJECT	PROJ
PROPERTY LINE	PL
PROPOSED	PROP

-Q-

QUANTITY	QTY
QUART	QT
QUARTER	QTR

-R-

RADIAL	RAD
RADIO FREQUENCY	RF
RADIUS	-R-
RAILROAD	RR
REACTIVE KILOVOLT AMPERE	KYAR
RECREATION	REC
RECTANGLE	RECT
REFERENCE	RE
REINFORCE	RIF
REINFORCED CONCRETE	R/C
REINFORCED CONCRETE PIPE	RCP
REINFORCING	REINF
REINFORCING STEEL	RE-STL (REBAR)
RELATIVE HUMIDITY	REL
RELAY	REL
RELIEF VALVE	RV
REMOTE CONTROL	RC
REQUIRE	REQ
REQUIRED	REQD
REVOLUTIONS PER MINUTE	RPM
REVOLUTIONS PER SECOND	RPS
RHEOSTAT	RHEO
RIGHT	RT
RIGHT HAND	RH
RIGHT OF WAY	R/W (ROW)
RISER OF STAIR	-R-
ROOF	RF
ROOF DRAIN	RD
ROOM	RM
ROOT MEAN SQUARE	RMS

-S-

SAFETY VALVE	SV
SALVAGE	SALV
SANITARY SEWER	SS
SAYBOLT SECONDS UNIVERSAL (OIL VISCOSITY)	SSU
SCHEDULE	SCH
SCREW	SCR
SEA LEVEL	SL
SECOND	SEC
SECOND (ANGULAR MEASURE)	(")
SECTION	SEC
SEGMENT	SEG
SEPARATE	SEP
SERVICE SINK	SS
SEWER	SEW
SHEET	SHT
SHOULDER	SHLD
SHUT-OFF VALVE	SOV
SIDING	SDG
SIGNAL	SIG
SINE	SIN
SINGLE	-S-
SINK	S
SMALL	SM
SOIL BORING-NUMBER	B-2
SOIL PIPE	SP
SOLID CORE WOOD	SCW
SOUTH	-S-
SPECIFIC GRAVITY	SP GR
SPECIFIC HEAT	SP HT
SPECIFICATION	SPEC
SQUARE	SQ

SQUARE FOOT	SF
SQUARE INCH	SI
STAINLESS STEEL	SLS
STANDARD	STD
STANDPIPE	SP
STATIC PRESSURE	SP
STATION	STA
STEEL	STL
STORAGE	STOR
STORM DRAIN	SD
STORM INLET	SI
STREET	ST
STRUCTURAL	STR
SULPHUR	-S-
SULPHUR DIOXIDE	SO ₂
SUMMARY	SUM
SUPERINTENDENT	SUPT
SUPPLEMENT	SUPP
SUPPLY	SUP
SWITCH	S
SWITCH AND RELAY TYPES	
SINGLE-POLE SWITCH	SP SW
SINGLE-POLE SINGLE-THROW SWITCH	SPST SW
SINGLE-POLE DOUBLE-THROW SWITCH	SPDT SW
DOUBLE-POLE SWITCH	DP SW
DOUBLE-POLE SINGLE-THROW SWITCH	DPST SW
DOUBLE-POLE DOUBLE-THROW SWITCH	DPDT SW
TRIPLE-POLE SWITCH	3P SW
TRIPLE-POLE SINGLE-THROW SWITCH	3PST SW
TRIPLE-POLE DOUBLE-THROW SWITCH	3PDT SW
SWITCHBOARD	SWBD
SYNCHRONOUS	SYN
SYMMETRICAL	SYM
SYSTEM	SYS

-T-

TEE	-T-
TELEPHONE	TEL
TELEVISION	TV
TEMPERATURE	TEMP
TEMPERED GLASS	TG
TENSION	TENS
TERMINAL	TERM
TERRA COTTA	TC
TERRAZZO	TER
TEST PIT	TP
THAT IS	IE
THICK	THK
THOUSAND BTU PER HOUR	MBH
THOUSAND CUBIC FEET	MCF
THOUSAND FOOT POUNDS	KIP-FT
THOUSAND POUNDS	KIP
THROUGH	THRU
TONGUE & GROOVE	T & G
TOP AND BOTTOM	T & B
TOPPING	TPG
TREAD OF STAIR	-T-
TUBING	TUB
TYPICAL	TYP

-U-

ULTIMATE	ULT
UNDERDRAIN	UD
UNDERGROUND	UG
UNLESS OTHERWISE NOTED	UON
URINAL	UR
U.S. GEOLOGICAL SURVEY	USGS

-V-

VACUUM	VAC
VALVE BOX	VB
VENT PIPE	VP
VENT STACK	VS
VENTILATE	VENT
VERTICAL	VER
VERTICAL CURVE	VC
VITRIFIED CLAY PIPE	VCP
VOLT	-V-
VOLTS ALTERNATING CURRENT	VAC
VOLTS DIRECT CURRENT	VDC
VOLTAGE REGULATOR	VR
VOLT-AMPERE	VA
VOLT AMPERES REACTIVE	VAR
VOLUME	VOL

-W-

WATER CLOSET	WC
WATER SURFACE	WS
WATT	W
WATTHOUR	WHR
WATTHOURMETER	WM
WEATHERPROOF	WP
WEIGHT	WT
WELDED WIRE FABRIC	WWF
WEST	-W-
WIDE FLANGE	WF
WIDTH	-W-
WIND LOAD	WL
WIRE GLASS	WG
WITH	W
WITHOUT	WO
WOOD	WD
WORKING POINT	WP
WOVEN WIRE MESH	WWM
WROUGHT IRON	WI

-XYZ-

YARD	YD
YEAR	YR

- 1.20 REFERENCED SPECIFICATIONS. References in technical divisions to the following organization's standard data means latest edition at the time of date on this specification book, unless otherwise noted. Conform with referenced requirements, as if data were repeated verbatim in specifications, except where supplemented and modified by specifications.

References

Standard referenced data and abbreviations follow. Copies of standard specifications and data may be obtained from the organization.

- ASHTO: American Association of State Highway and Transportation Officials, 341 National Press Bldg., Washington, D.C. 20004.
- ACI: American Concrete Institute, P.O. Box 19150, Redford Station, Detroit, Michigan 48219.
- AGMA: American Gear Manufacturer's Association, 1330 Massachusetts Avenue, N.W., Washington, D.C. 20005.
- A.I.A.: American Insurance Association (Successor to NBFU), 85 John Street, New York, New York 10038.
- AISC: American Institute of Steel Construction, Inc., 1221 Avenue of the Americas, New York, New York 10020.
- AISI: American Iron and Steel Institute, 150 East 42nd Street, New York, New York 10017.
- ANSI: American National Standards Institute, 1430 Broadway, New York, New York 10018.
- APA: Asphalt Paving Association, 220 W. Harrison St., Seattle, Washington 98119
- APWA: American Public Works Association, Oregon Chapter.
- ASME: American Society of Mechanical Engineers, 345 East 47th Street, New York, New York 10017.
- AWS: American Welding Society, Inc., 2501 NW 7th Street, Miami, Florida 33125.
- AWWA: American Water Works Association, 6666 W. Quincy Avenue, Denver, Colorado 80235.

- CRSI: Concrete Reinforcing Steel Institute, 228 North LaSalle Street, Chicago, Illinois 60601.
- CSI: Construction Specifications Institute, Suite 300, 1150 Seventeenth Street NW, Washington, D.C. 20036.
- NEC: National Electric Code, 470 Atlantic Avenue, Boston, Massachusetts 02210.
- NEMA: National Electrical Manufacturer's Association, 155 East 44th Street, New York, New York 10017.
- NFPA: National Fire Protection Association, 470 Atlantic Avenue, Boston, Massachusetts 02210.
- OSHD: Oregon State Highway Division
- PCA: Portland Cement Association, 5420 Old Orchard Road, Skokie, Illinois 60076.
- UBC: Uniform Building Code of International Conference of Building Officials, 5360 South Workman Mill Road, Whittier, California 90601.
- UL: Underwriters' Laboratories, 207 East Olive Street, Chicago, Illinois 60611.

End of Section 01010

1. GENERAL

A. WORK INCLUDED

- 1.01 Measurement, Payment, and Description of Bid Items
- 1.02 Bid Items

1.01 MEASUREMENT, PAYMENT, AND DESCRIPTION OF BID ITEMS

A. PARTIAL PAYMENT OF BID ITEMS shall be in conformance with Section 25 of the General Condition. Partial Payment for work completed, and materials on site, which will become an integral part of the finished work, shall be determined by the Owner and shall be made only on the basis of duly certified and approved estimates of the work, which, in the opinion of the Owner, has been satisfactorily completed. It is understood that the determination by the Owner as to whether or not a certificate or estimate for payment should be issued, or the amount of said payment, shall be based entirely upon the opinion of the Owner. Said determination shall include without limitation the following factors:

1. All phases of the work being accomplished in a proper manner and being pursued in a proper sequence of operation, particularly with regard to testing, cleanup and surface restoration.
2. The observance by the Contractor of the requirement that all work and operations be preceded by necessary submittals and approvals.
3. On the monthly estimates, partial payments for work performed but not completed may be made in accordance with the following schedule:

Cost of material delivered to the site.	90% of the invoice cost of the material.
---	--

Materials installed, back-filled and compacted.	80% of unit price for material in place.
---	--

Cleanup and surface restoration completed.	95% of unit price.
--	--------------------

Testing completed.	100% of unit price upon satisfactory completion.
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B. THE CONTRACT PRICE shall constitute full compensation for furnishing all plant, labor, equipment, and materials, and performing all operations required to complete the work, as specified, and as shown on the drawings, or as otherwise directed.

1.02 BID ITEMS

SCHEDULE A

A. BID ITEM 1.1. 24-INCH CONCRETE CYLINDER PIPE - L.F.

The unit price bid at the depth shown per linear foot of pipe, accepted in-place, shall be full payment for all work including excavation, backfill, bedding, compaction, disposal of excess material, dewatering, pipe, pipe placement, fittings, thrust restraint, disinfection, testing, restoration and cleanup, curb replacement, utility protection and relocation, and other miscellaneous items as shown or specified. Measurement for payment will be along the horizontal centerline of the pipe. Depth shall be measured from the ground elevation to the pipe invert.

B. BID ITEM 1.2. IMPORTED BACKFILL - CU. YD.

The unit price bid per cubic yard for imported backfill shall be full payment for all work including excavation, imported material, placement, compaction, removal, and disposal of unsuitable materials for Bid Item 1.1. Measurement for payment shall be computed by multiplying the trench pay width by the depth of the trench above the pipe bedding.

C. BID ITEM 1.3. FOUNDATION STABILIZATION - CU. YD.

The unit price bid per cubic yard for foundation stabilization shall be full payment for all work including excavation, imported material, placement, compaction, removal, and disposal of unsuitable materials. Measurement for payment shall be computed by multiplying the trench pay width by the depth of extra excavation below the pipe invert by the length of trench over-excavated.

D. BID ITEM 1.4. BLOWOFF ASSEMBLY - EA.

The unit price bid per each, accepted in-place, shall be full payment for all work including excavation, backfill, dewatering, valve, valve box, pipe, connection to main line, and testing. Measurement for payment will be the number of assemblies installed.

E. BID ITEM 1.5. 24-INCH BUTTERFLY VALVE - EA.

The unit price bid per each, accepted in-place, shall be full payment for all work including valve with ends as shown, valve box, installation, testing. Measurement for payment will be the number of valves installed.

F. BID ITEM 1.6. 14-INCH BUTTERFLY VALVE - EA.

The unit price bid per each, accepted in-place, shall be full payment for all work including valve with ends as shown, valve box, installation, testing. Measurement for payment will be the number of valves installed.

G. BID ITEM 1.7. PAVEMENT REPLACEMENT - SQ. YD.

The unit price bid per square yard shall be full payment for all work including asphaltic concrete pavement and base rock removed and replaced within the limits of the trench pay width. Measurement for payment will be the number of linear feet of asphaltic pavement replacement multiplied by the width of pavement within the limits of the trench pay width. No separate payment will be made for curb replacement.

H. BID ITEM 1.8. CONNECTION TO EXISTING TRANSMISSION MAINS - EA.

The unit price bid per each connection shall be full payment for all work including pipe cutting, topping sleeve, thrust blocking, fittings, transition or flexible couplings, and miscellaneous items as required to connect to the existing transmission main at the well field and at the water treatment plant. Measurement for payment will be the number of connections made.

SCHEDULE A - ALTERNATE BID ITEM

I. BID ITEM 2.2. 24-INCH DUCTILE-IRON PIPE CL 51 - L.F.

The unit price bid per linear foot of pipe, accepted in-place, shall be full payment for all work including excavation, bedding, compaction, disposal of excess material, dewatering, pipe, pipe placement, fittings, thrust restraint, disinfection, testing, restoration and cleanup, curb replacement, utility protection and relocation, and other miscellaneous items as shown or specified. Measurement for payment will be along the horizontal centerline of the pipe. Depth shall be measured from the ground elevation to the pipe invert.

SCHEDULE B

- A. BID ITEM 3.1. 24-INCH WELDED STEEL PIPE, 3/16-INCH WALL THICKNESS - L.F.

The unit price bid per linear foot of pipe, accepted in-place, shall be full payment for all work including pipe, pipe placement, saddles, hoops, fittings, disinfection, testing, restoration and cleanup, utility protection and relocation, and other miscellaneous items as shown or specified. Measurement for payment will be along the horizontal centerline of the pipe and vertical centerline for the riser pipe.

- B. BID ITEM 3.2. 24-INCH MECHANICAL COUPLINGS - EA.

The unit price bid per each mechanical coupling shall be full payment for all work to provide an installed mechanical coupling for Bid Item 3.1. Measurement for payment will be the number of mechanical couplings installed.

- C. BID ITEM 3.3. PIPE SUPPORTS AND ELBOW THRUST TIE - L.S.

The unit price bid shall be full payment for all work to install pipe supports and elbow thrust ties for Bid Item 1.5.

- D. BID ITEM 3.4. COMBINATION AIR RELEASE VALVE ASSEMBLY - EA.

The unit price bid per each, accepted in-place, shall be full payment for all work including air release valve, insulation, shut-off valve, connection to welded steel pipe, testing, and pipe. Measurement for payment will be the number of assemblies installed.

- E. BID ITEM 3.5. BLOWOFF ASSEMBLY - EA.

The unit price bid per each, accepted in-place, shall be full payment for all work including excavation, backfill, dewatering, valve, valve box, pipe, connection to main line, and testing. Measurement for payment will be the number of assemblies installed.

- F. BID ITEM 3.6. CONNECTION TO 24-INCH TRANSMISSION LINE - EA.

The unit price bid per each, accepted in-place, shall be full payment for all work including pipe cutting, fittings, transition couplings, and miscellaneous items as required to connect each end of the 24-inch welded steel pipe to the 24-inch concrete cylinder pipe (Bid Item 1.1) or the Alternate (Bid Item 2.2). Measurement for payment will be the number of connections made.

End of Section 1150

G. BID ITEM 4.1. PARTIAL BRIDGE DEMOLITION - L.S.

The lump sum bid shall be full payment for the removal, cleanup, and disposal of portions of the City of Newberg Old Highway Bridge as shown on the drawings including:

- Asphalt Surfacing
- Tongue-and-groove Plank Decking
- Timber Stringers
- Timber Wheel Guards
- Timber Posts and Railings
- Two Timber Bents North of Bridge
- Timber Abutment at North End of Bridge
- Abandoned Metal Conduit

H. BID ITEM 4.2. BRIDGE APPROACH AND WALKWAY - L.S.

The lump sum bid shall be full payment for installation of the bridge approach and walkway including handrails, drilled intrusion piling, footings, relocation of the existing 12-inch water line, relocation of electrical and telemetry services, and painting.

I. BID ITEM 4.3. STRUCTURAL REPAIR (AS SHOWN ON DRAWING) - L.S.

The lump sum bid shall be full payment for the construction of all repairs to the existing bridge structure as shown on the drawing. Payment for painting the repaired areas shall be included in the lump sum bid.

J. BID ITEM 4.4. JUTE MAT SLOPE PROTECTION - SQ. YD.

The unit price bid shall be full payment for installation of jute mat for protection of the North River Bank. Measurement shall be the number of square yards of material accepted in place.

1. GENERAL

A. WORK INCLUDED

- 1.01 General
- 1.02 Preconstruction Conference
- 1.03 Bi-weekly Job Meetings

1.01 GENERAL. Project meetings will be held to accomplish the following:

- A. COORDINATE the work of the project.
- B. ESTABLISH a sound working relationship between the Contractor and the Engineer.
- C. ESTABLISH sound working procedures.
- D. REVIEW job progress, quality of work and approval and delivery of materials.
- E. EXPEDITE the work to completion within the scheduled time limit.

1.02 PRECONSTRUCTION CONFERENCE

- A. THE ENGINEER will call the preconstruction conference at the site of the work. He will notify all parties concerned of the time and place of the meeting.
- B. THE MEETING will be conducted by the Engineer. In order to ensure completeness, uniformity and orderly procedures, an agenda for the meeting will be developed.

1.03 BI-WEEKLY JOB MEETINGS

- A. UNLESS OTHERWISE DIRECTED, bi-weekly job meetings will be held by the Engineer. Present at these meetings shall be the Contractor or his duly authorized representative, such subcontractors' representatives as may be needed, the Engineer and any other interested party, i.e., public utility, local governmental representatives, and suppliers when needed.
- B. THE SPECIFIC PURPOSE of the bi-weekly meetings is to coordinate the efforts of all concerned so that the project progresses without delay to "on time" completion, with the least inconvenience.

End of Section 01200

1. GENERAL

A. WORK INCLUDED

- 1.01 Related Requirements Specified Elsewhere
- 1.02 Submittal Requirements
- 1.03 Schedules
- 1.04 Detailed Breakdown of Lump Sum Prices
- 1.05 Preconstruction Photographs
- 1.06 Construction Photographs

1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE. Other provisions pertaining to submittals are included in the General Conditions, the Supplemental General Conditions and in the various sections of the specifications.

1.02 SUBMITTAL REQUIREMENTS

- A. GENERAL. All submittals shall be identified by project title, and number and shall include Contractor's name, date and revision date. In addition, shop drawings, product data and samples shall include names of subcontractor and supplier, applicable specification section number and Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurement compliance with contract documents.
- B. SHOP DRAWINGS. Submit 5 copies of each shop drawing required by the specifications. Show the information, dimensions, connections and other details necessary to ensure that the shop drawings accurately interpret the contract documents. Show adjoining work in such detail as required to indicate proper connections. Where adjoining connected work requires shop drawings or product data, submit such information for review at the same time so that connections can be accurately checked.
- C. PRODUCT DATA. Submit 5 copies of each item of product data required by the specifications. Modify product data by deleting information which is not applicable to the project or by marking each copy to identify pertinent products. Supplement standard information, if necessary, to provide additional information applicable to project.
- D. EFFECT OF ENGINEER'S REVIEW. The Engineer will review shop drawings and product data, and will return 2 stamped copies. If returned copies are stamped "Rejected" or "Re-Submit," promptly resubmit 5 copies of shop drawings and product data meeting contract requirements.
- E. ADDITIONAL COPIES FOR CONTRACTOR. Contractor may submit 2 additional copies for his purpose.

1.03 SCHEDULES

- A. THE CONTRACTOR shall provide the following schedules and submit them not later than 5 days after notice to proceed or with the bid as required.
1. Contractor's construction schedule:
 - a. The Contractor will be required to prepare and submit to the Engineer for review an overall construction schedule covering all work to be performed in accordance with the instructions to bidders.
 - b. The schedule shall indicate the sequence of the work, the time of starting and completion of each part, and the installation dates for major items.
 - c. The schedule shall be submitted to the Engineer for review. This schedule shall be revised and resubmitted as necessary until it is acceptable to the Engineer. Action on payment requests will be contingent upon receipt of an acceptable construction schedule.
 - d. The construction schedule shall include, but not be limited to the following items:
 - 1) Shop drawing receipt from Contractor; submitted to Engineer; review and return to Contractor.
 - 2) Material and equipment order; delivery and installation; and check-out.
 - 3) Bridge surface preparation and painting.
 - 4) Bridge demolition and restoration.
 - 5) Piping installation.
 - 6) Backfilling, grading, seeding, and paving.
 - 7) Subcontractor's items of work.
 - 8) Final cleanup.
 - 9) Testing activities.
 - 10) Allowance for inclement weather.

- e. The construction schedule shall be a series of line diagrams showing a step-by-step sequence of each construction activity. Construction activities proceeding simultaneously should be shown as parallel lines. Each activity shall be labeled and the estimated number of days to complete the activity shall be shown on the schedule.
 - f. Should the Contractor fail to meet any critical dates within the schedule, the Contractor shall immediately undertake appropriate action which shall assure an acceptable return to the approved construction schedule.
 - g. The Contractor will be required to accept the risk of any delays caused by the rate of progress of the work to be performed under the above contract, and that in the event the Contractor is delayed in the prosecution and completion of his work because of such conditions, he shall have no claim for damages or contract adjustment.
2. Contractor's list of subcontractors: Establish the items of work proposed to be accomplished by subcontractors, the name and address of each proposed subcontractor and the date proposed to award each subcontract.
 3. Schedule of submittals: Establish for each item for which shop drawings, product data or samples are required, the date of submission will be made and the date approval is required for the installation to be completed in accordance with the construction schedule.
 4. The Contractor's list of subcontractors and schedule of submittals shall be based upon the Contractor's progress schedule so that the work can progress in accordance with the approved progress schedule.
- B. THE CONTRACTOR shall immediately advise the Engineer of any proposed changes in his submitted schedules. If, in the opinion of the Engineer, any submitted schedule is inadequate to ensure completion of work within the time limit, or is otherwise not in accordance with the specifications, or if the work is not being adequately or properly prosecuted in any respect, the Engineer shall have the right to require the Contractor to submit new schedules providing for proper and timely completion of the work. If the Contractor fails to adhere to the accepted schedules, the Owner may at any time withhold from the Contractor the amount set forth in Paragraph 19 of General Conditions, Liquidated Damages, for each day he is behind schedule as of each progress payment date.

C. ~~DURING THE TERM OF THIS CONTRACT~~, the Engineer may require any schedule to be modified so that the changes in the work of this contract or related contracts (if any) are properly reflected in the schedule.

1.04 DETAILED BREAKDOWN OF LUMP SUM PRICES. The Contractor shall, within 10 days of receipt of the notice to proceed, submit a complete breakdown of the lump sum price for each bid item, showing the value assigned to each part of the work, including an allowance for profit and overhead. The detailed estimate shall be in the form prescribed by the Engineer and supported by such evidence, including certified copies of subcontractors, as he may direct. Upon acceptance by the Engineer of breakdown prices, they shall be used as a basis for all requests for payment.

1.05 PRECONSTRUCTION PHOTOGRAPHS. The Contractor shall provide preconstruction photographs of the work.

The photographs shall be taken by an acceptable commercial photographer and shall be not less than 2-1/4-inch by 2-1/4-inch film size. Each negative shall have a separate overlay attached which will photographically indicate on the front of the print, the date, job title and a brief description of the photograph to identify the location where the photograph was taken. Before construction may start, two 8- by 10-inch glossy prints of each exposure, together with all negatives, shall be delivered to the Engineer. Prints of acceptable quality and identification are available in the offices of the Engineer for examination.

Preconstruction photographs shall be taken as directed by the Engineer as follows:

For pipeline work, provide 1 photograph per 100 feet, and at each end connection.

For bridge work, provide 1 photograph at each area of repair, 1 photograph per 100 feet of bridge length 10 photographs of the North River Bank plus 50 photographs as directed by the Engineer.

End of Section 01300

1. GENERAL

A. WORK INCLUDED

- 1.01 Scope
- 1.02 Building Code
- 1.03 Testing Methods
- 1.04 Costs
- 1.05 Quality Assurance
- 1.06 Testing Laboratories
- 1.07 Contractor's Responsibility
- 1.08 Inspectors
- 1.09 Test Reports
- 1.10 Defective Work

B. RELATED WORK IN OTHER SECTIONS

- Section 02221 - Trenching, Backfilling and Compacting
- Section 03300 - Cast-in-Place Concrete
- Section 05500 - Miscellaneous Metals
- Section 09910 - Bridge Painting

- 1.01 SCOPE. Work under this section includes all testing required by the contract as specified herein and further specified in the technical sections.
- 1.02 BUILDING CODE. Conform to the requirements of the Uniform Building Code, 1976 Edition, as modified herein.
- 1.03 TESTING METHODS. All tests shall be made in accordance with commonly recognized standards of national organizations unless alternate specific testing methods are set forth in the technical specifications.
- 1.04 COSTS. The Contractor shall employ and pay for an independent testing laboratory to perform all testing services as specified in the technical sections, unless otherwise specified. Additional inspection and tests required because of defective work or ill-timed notices are performed at the Contractor's expense.
- 1.05 QUALITY ASSURANCE
- A. SAMPLES. The Contractor shall supply samples if and when required by the specifications or the Engineer. These samples or test specimens shall be prepared and furnished with information as to their source in such quantities and size as may be required for proper examination and tests, with all freight charges prepaid. All samples shall be submitted before shipment of materials to the site of the work and in ample time to permit the making of proper tests, analysis, examination, rejections and resubmissions before the time required to incorporate the materials into the work. No such materials shall be used in work until they have been accepted in writing by the Engineer. Samples of materials will be retained by the Engineer for reference and comparison purposes.

- B. **CERTIFICATION.** Producers and associations which have instituted approved systems of quality control and have been approved by the building department may submit certifications of compliance in lieu of further testing. Concrete mixing plants, plants producing fabricated concrete products certified by building department, lumber and plywood grademarks by approved associations and materials for equipment bearing Underwriter's Laboratory label require no further plant inspection and testing, unless more restrictive requirements are required, or otherwise specifically required in the specifications.

1.06 **TESTING LABORATORIES.** The Contractor shall submit to the Engineer for review the names of the testing laboratories he proposes to use in the work. The testing laboratories shall be approved by the International Conference of Building Officials, and shall be recognized as being capable of providing the type of testing services proposed. No testing laboratory shall be used by the Contractor until reviewed by the Engineer.

1.07 **CONTRACTOR'S RESPONSIBILITY**

- A. **ACCESS.** Furnish free access to various parts of the work and assist testing inspection personnel in performance of their duties at no additional cost to the Owner.
- B. **CONCEALED WORK.** When directed by the Engineer, the Contractor shall open for inspection any part of the work which has been concealed. Should the Contractor refuse or neglect such a request, the Owner may employ any other person to open up the same or do so himself. If any parts of the work have been concealed in violation of the Engineer's instructions or, if on being opened, it is found not to be in accordance with the terms of the contract documents, the expense of opening and recovering, whether done by the Contractor or not, shall be charged to the Contractor. If the work has been concealed but not in violation of the Engineer's instructions and is found to be in accordance with the terms of the contract documents, the actual necessary expense of opening and recovering shall be borne by the Owner, and if the work of opening and recovering is done by the Contractor, it shall be considered as extra work and paid for accordingly.
- C. **DATA.** Furnish samples, records, drawings, certificates and similar data as may be required by testing and inspection personnel to assure compliance with the contract documents.
- D. **NOTICES.** The Contractor shall notify the Engineer not less than 48 hours before work requiring inspection is started. The Contractor shall schedule portions of the work requiring inspection and testing, so that the agency's time on the project is continuous and as brief as possible.

1.08 INSPECTORS

- A. **APPOINTMENT.** The Engineer may appoint inspectors to inspect any and all portions of the work. Such inspection may extend to any or all parts of the work, and to the preparation or manufacture of materials to be used.
- B. **AUTHORITY OF INSPECTOR.** Inspectors are not authorized to revoke, alter, enlarge or relax the provisions of the contract documents, and the inspector is placed on the work to keep the Engineer informed as to the progress of the work and the manner in which it is being done. He may also call the attention of the Contractor to any deviations from the plans or specifications. Failure of the inspector or the Engineer to call the attention of the Contractor to faulty work or deviation from the contract documents shall not constitute acceptance of said work. An inspector is not authorized to approve or accept any portions of the work or to issue instructions contrary to the contract documents. The inspector will exercise only such additional authority as may be specially delegated to him by the Engineer, notice of which will be given in writing to the Contractor.

1.09 TEST REPORTS. Independent testing and inspection agency and/or agencies will prepare logs, test reports and certificates applicable to specific tests and inspections. Reports shall include description of method of test, identification of samples and portions of the work tested. They shall state description of location of work, time and date of obtaining and testing samples, weather and climatic conditions, and evaluation of results of tests, including recommendations for action. As a minimum, the following copies shall be submitted:

Owner	-	1
Engineer	-	3
Contractor	-	1

1.10 DEFECTIVE WORK. Remove and replace any work found defective or not complying with requirements of contract documents, at no additional cost to Owner.

Work will be checked as it progresses, but failure to detect any defective work or materials shall not in any way prevent later rejection when such defect is discovered, nor shall it obligate the Engineer for final acceptance.

End of Section 01400

1. GENERAL

A. WORK INCLUDED

- 1.01 Security and Access
- 1.02 Hours of Work
- 1.03 Overtime
- 1.04 Public Safety and Convenience
- 1.05 Traffic Control
- 1.06 Construction Utilities and Miscellaneous Facilities
- 1.07 Protection of Existing Construction
- 1.08 Barriers
- 1.09 Water Control
- 1.10 Fire Prevention Control
- 1.11 Pollution Control
- 1.12 Rubbish Removal
- 1.13 Discontinuance, Changes and Removal

1.01 SECURITY AND ACCESS. Set forth special requirements to protect the Owner's facilities such as:

- A. THE CONTRACTOR will have access to the north end of the bridge through property owned and controlled by Publishers Paper Company.
- B. THE CONTRACTOR shall obtain written permission for entry from Publishers Paper and shall advise Publishers Paper of scheduled work.
- C. THE CONTRACTOR shall observe security and safety rules and regulations of Publishers Paper.

1.02 HOURS OF WORK. The Contractor shall so schedule his operations that the work shall be performed during the daylight hours of 7:00 AM to 7:00 PM. However, when necessary to complete the project within the time specified, work may be undertaken during the hours of darkness; provided the Contractor obtains approval of the Owner for work conducted between the hours of 7:00 PM and 7:00 AM, and furnishes and operates during such period an adequate and effective artificial lighting apparatus to ensure that all work undertaken can be carried on satisfactorily in the manner contemplated by the specifications.

1.03 OBJECTIVE

1.04 PUBLIC SAFETY AND CONVENIENCE. The Contractor shall comply with all rules and regulations of the city, state and county authorities regarding the closing of public streets or highways to the use of public traffic. No roads shall be closed to the public except by express permission of the Engineer. The Contractor shall conduct the work so as to ensure the least possible obstruction to traffic and normal commercial pursuits. He shall protect all obstructions within travelled roadways with approved signs, barricades and lights where necessary or where ordered by the Engineer for the safety of the public. The convenience of the general public and residents along the work, and the protection of persons and property is of prime importance and shall be provided for in an adequate and satisfactory manner.

Whenever the Contractor's operations create a hazardous condition, he shall furnish flagmen and guards as necessary to give adequate warning to the public of any dangerous condition encountered.

1.05 TRAFFIC CONTROL. All traffic control devices shall conform to the current edition of the "Manual of Uniform Traffic Control Devices."

The cost for all necessary traffic control by the Contractor shall be incidental to the entire project and shall be included in the contract price.

1.06 CONSTRUCTION UTILITIES AND MISCELLANEOUS FACILITIES

- A. **GENERAL.** The Contractor shall provide the temporary facilities and controls as hereinafter specified and as required by law.
- B. **POWER.** Unless otherwise specified, the Contractor shall provide all necessary power and special connections to power lines.
- C. **WATER.** Unless otherwise specified, the Contractor shall provide and pay for all necessary water and special connections to a water supply. If source of water is the City Water Department, all use of water shall be through a meter supplied by the City Water Department. The Contractor shall coordinate water uses through the City Water Department, prepare the necessary applications, and pay the required fees for water used and meter.

Where applicable, the Contractor shall provide a backflow preventer device to prevent a direct cross connection between the water supply and wastewater conveying systems.

If water is to be used from a City fire hydrant, the Contractor shall notify the City Fire Department when the connection and disconnection to the hydrant are made.

- D. TELEPHONE. The Contractor shall provide a telephone service at the site. A radio telephone service is not acceptable as a substitute for the required telephone service.
- E. SANITARY FACILITIES. The Contractor shall provide adequate toilet facilities for all workmen and Owner's representatives employed on the work. The Contractor shall maintain the same in a sanitary condition from the beginning of the work until completion and shall then remove the facilities and disinfect the premises. All portions of the work shall be maintained at all times in a sanitary condition.
- F. PERMANENT FACILITIES. The Contractor is specifically prohibited from utilizing permanent facilities, such as pumps, heating and ventilation equipment, water, air and power systems, cranes and hoists in the construction of the project.
- G. PARKING FACILITIES. The Contractor shall provide adequate off-street parking facilities for the automobiles used by his construction employees and the Owner's representatives.
- H. TEMPORARY HEATING. The Contractor shall provide temporary heating, covering and enclosures as necessary to protect all work and material against damage by dampness and cold, and to facilitate completion of the work. The Contractor shall supply all the fuel, equipment and materials required for temporary heating.
- I. CONSTRUCTION SIGNS. No commercial or advertising signs shall be allowed on the site of the work.

- J. **CONTRACTOR'S OFFICE.** During the performance of the contract, the Contractor shall maintain a suitable office (at/near) the site of the work which shall be the headquarters of the Contractor's representative. The Contractor shall maintain a set of construction drawings that indicate any field changes authorized during construction. Such drawings shall be available to the Engineer and within the Contractor's office.
- 1.07 **PROTECTION OF EXISTING CONSTRUCTION.** The Contractor shall protect existing construction and finishes liable to damage through performance of the work.
- 1.08 **BARRIERS.** The Contractor shall erect and maintain guard rails or other suitable barriers where required.
- 1.09 **WATER CONTROL.** The Contractor shall provide all necessary pumping equipment as required to keep the work areas free from water. Water shall be discharged as directed by the Engineer.
- 1.10 **FIRE PREVENTION CONTROL**
- A. **GENERAL.** Take all precautions necessary and required to prevent fires. Comply with the requirements of local authorities having jurisdiction.
 - B. **FUEL** for cutting and heating torches shall be gas only, and shall be contained in Underwriter's Laboratory approved containers.
 - C. **PROVIDE AND MAINTAIN** a 20-pound capacity, dry-chemical type fire extinguisher in the immediate vicinity of the work when welding tools or torches of any type are in use.
 - D. **DO NOT USE** volatile liquids for cleaning agents or as fuels for motorized equipment or tools within building, except with the written approval of the Engineer.
 - E. **TARPAULINS** shall be securely anchored and flame-proofed when attached to any wood scaffolding, and when used to enclose any portion of a building above the first floor.
- 1.11 **POLLUTION CONTROL.** The Contractor shall not dispose of volatile fluid wastes (such as mineral spirits, oil or paint thinner), or any other wastes which are prohibited by local ordinances, into storm or sanitary systems or into streams or waterways.
- 1.12 **RUBBISH REMOVAL**
- A. **RELATED WORK SPECIFIED ELSEWHERE.** The removal of debris and other materials resulting from core drilling, cutting, and removal of existing construction is included in Section 01070 of the specifications.

B. GENERAL

1. Clean up the debris resulting from work if it interferes with the work of others or presents a fire hazard. Closely pile debris where directed.
2. Remove and dispose of all debris at once if it presents a fire hazard, or when directed.
3. Remove all waste material from the site in an expeditious manner. Burning of waste material will not be permitted.

1.13 DISCONTINUANCE, CHANGES AND REMOVAL

- A. DISCONTINUE THE TEMPORARY SERVICES herein specified when their use is no longer required or they impede progress on the work, all as directed. The discontinuance of any temporary service herein specified prior to the completion of any or all branches of the work, shall not render the Owner liable for any additional cost of the work entailed thereby, and the Contractor shall thereafter furnish under his contract, and at no additional cost to the Owner, any and all temporary service required by his work to replace that discontinued.
- B. SHOULD A CHANGE IN LOCATION of any of the temporary facilities be necessary in order to progress the work properly, remove and relocate such items as directed without additional cost to the Owner.
- C. WHEN DIRECTED AND NO LONGER REQUIRED, remove the temporary facilities specified herein. If any of the permanent systems are used for temporary facilities, restore them to perfect condition. Material used for temporary facilities, which are removed, shall become the property of the Contractor which will be removed from the site by the Contractor.

End of Section 01500

SECTION 01600-1
MATERIAL AND EQUIPMENT

1. GENERAL

A. WORK INCLUDED

- 1.01 Scope
- 1.02 Source of Materials
- 1.03 Quality and Quantity
- 1.04 Transportation and Handling
- 1.05 Storage and Protection

1.01 SCOPE. This section includes general requirements pertaining to materials and equipment. Any such requirements as may be specified elsewhere or required by law are additional to the provisions included in this section.

1.02 SOURCE OF MATERIALS. No source has been provided for any of the materials required for construction of this project. The Contractor shall make his own arrangements to obtain this material at his own expense and all costs of acquiring, producing and placing this material in the finished work will be considered incidental to the bid items involved.

1.03 QUALITY AND QUANTITY

- A. MATERIAL AND EQUIPMENT shall be new and of a quality equal to that specified or accepted, and shall be furnished in quantities required to avoid delays in the progress of the work. Mechanical and electrical equipment shall be the products of established manufacturer of good reputation regularly engaged in the fabrication of such equipment.

The work shall be executed in conformity with the best accepted standard practice of the trade so as to contribute to maximum efficiency of operation, accessibility and appearance, minimum cost of maintenance and construction of future alterations and additions. It shall be so executed that the completed work will conform and adjust itself to any existing installation.

- B. WHEN MATERIALS ARE SPECIFIED to conform to ASTM, Federal or other reference specifications, the materials delivered to the site shall bear the manufacturer's printed labels stating that the materials meet the requirements of such referenced specifications.

1.04 TRANSPORTATION AND HANDLING

- A. FACTORY-PACKAGED PRODUCTS shall be delivered in the manufacturer's original containers.
- B. PRODUCTS shall be transported and handled in such a manner as to prevent their damage.

- C. ARRANGE for delivery of products within the time limits established by the Engineer.
- D. FURNISH workmen to receive and unload products delivered to the site. Do not deliver, or have delivered, any products to the site unless such forces are available.

1.05 STORAGE AND PROTECTION

- A. NEATLY PILE, STORE AND PROTECT products in locations where directed.
- B. PROTECT products subject to damage by temperature or other weather conditions.
- C. STORE bulk volatile liquids outside the buildings where directed by the Engineer and only so much volatile liquid shall be allowed within the building at any given time as he shall so authorize.
- D. STORE gas cylinders in sheds constructed of noncombustible materials, well ventilated and without electric lights or fixtures. Locate sheds where directed, as far from other buildings as is practicable. Remove gas cylinders not in actual use, or proposed for immediate use, from the building under construction. Remove empty gas cylinders prior to bringing in a replacement cylinder. Do not store gases of different types together.

End of Section 01600

1. GENERAL

A. WORK INCLUDED

- 1.01 Substantial Completion
- 1.02 Final Completion and Final Payment
- 1.03 Written Guarantees
- 1.04 Field Tests and Adjustments
- 1.05 Preparation of Operation and Maintenance Manuals
- 1.06 Final Cleanup
- 1.07 Project Record Drawings (As-Built)

1.01 SUBSTANTIAL COMPLETION

- A. GENERAL. When the Contractor considers that the work, or a designated portion thereof which is acceptable to the Owner, is substantially complete as defined in the Supplemental General Conditions, the Contractor shall prepare for submission to the Engineer a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all work in accordance with the contract documents. When the Engineer on the basis of an inspection determines that the work or designated portion thereof is substantially complete, he will then prepare a certificate of substantial completion which shall establish the date of substantial completion; shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the work, and insurance; and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the contract documents shall commence on the date of substantial completion of the work or designated portion thereof unless otherwise provided in the certificate of substantial completion. The certificate of substantial completion shall be submitted to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in such certificates.

Substantial completion shall be clearly understood to mean that the facility is actually ready for operation.

- B. PARTIAL PAYMENT. Upon substantial completion of the work or designated portion thereof and upon application by the Contractor and certification by the Engineer, the Owner shall make payment, reflecting adjustment in retainage, if any, for such work or portion thereof, as provided in the contract documents. The designated portion of work for adjustment of retainage shall be defined as that work required to be complete within 120 days and includes demolition, pipeline, structural repair, approach and walkway work.

1.02 FINAL COMPLETION AND FINAL PAYMENT

- A. UPON RECEIPT OF WRITTEN NOTICE that the work is ready for final inspection and acceptance, and upon receipt of a final application for payment, the Engineer will promptly make such inspection and, when he finds the work acceptable under the contract documents and the contract fully performed, he will promptly issue a final certificate for payment stating that to the best of his knowledge, information and belief, and on the basis of his observations and inspections, the work has been completed in accordance with the terms and conditions of the contract documents and that the entire balance found to be due the Contractor, and noted in said final certificate, is due and payable. The Engineer's final certificate for payment will constitute a further representation that the conditions precedent to the Contractor's being entitled to final payment as set forth below have been fulfilled.
- B. NEITHER THE FINAL PAYMENT nor the remaining retained percentage shall become due until the Contractor submits to the Engineer:
1. An affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work for which the Owner or his property might in any way be responsible, have been paid or otherwise satisfied.
 2. If required by the Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the contract, to the extent and in such form as may be designated by the Owner. If any subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify him against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.
- C. IF, AFTER SUBSTANTIAL COMPLETION of the work, final completion thereof is materially delayed through no fault of the Contractor or by the issuance of change orders affecting final completion, and the Engineer so confirms, the Owner shall, upon application by the Contractor and certification by the Engineer, and without terminating the contract, make payment of the balance due for that portion of the work fully completed and accepted. If the remaining balance for work not fully completed or corrected is less than the retainage stipulated in the contract documents, and if bonds have been furnished as provided in the contract documents, the written consent of the surety to the payment of the balance due for that portion of the work fully completed and accepted shall be submitted by the Contractor to the Engineer prior to certification of such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

- D. THE MAKING OF FINAL PAYMENT shall constitute a waiver of all claims by the Owner except those arising from:
 - 1. Unsettled liens.
 - 2. Faulty or defective work appearing after substantial completion.
 - 3. Failure of the work to comply with the requirements of the contract documents.
 - 4. Terms of any special warranties required by the contract documents.

- E. THE ACCEPTANCE OF FINAL PAYMENT shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final application for payment.

1.03 WRITTEN GUARANTEES, in duplicate, addressed to the Owner, but submitted to the Engineer:

- A. GUARANTEE BY CONTRACTOR covering the entire work for the 1-year period from date of certificate of substantial completion as specified hereinbefore. Letter to be substantially as follows:

(Owner)
(Address)

(Re: Project)

Gentlemen:

"I (We) the undersigned do hereby guarantee for a period of one (1) year(s) from date of certificate of substantial completion all work performed under the terms of the contract documents. I (We) will remedy at my (our) expense any defects appearing during that period due to poor materials or workmanship and will pay for any damage to other work resulting from occurrence of said defects or the correction of same.

This guarantee shall not be interpreted as holding the Contractor responsible for any deterioration of the work due to normal use or the abuse of the work by the Owner.

Very truly yours,

Contractor"

1.04 FIELD TESTS AND ADJUSTMENTS. All mechanical and electrical equipment shall be tested by the Contractor to the satisfaction of the Engineer before any facility is put into operation. Tests shall be as specified herein and shall be made to determine whether the equipment has been properly assembled, aligned and connected. Any changes, adjustments or replacements required to make the equipment operate as specified shall be carried out by the Contractor as part of the work.

At least 30 days before the time allowed in his construction schedule for commencing testing and start-up procedures, the Contractor shall submit to the Engineer, in duplicate, details of the procedure he proposes to adopt for testing and start-up of all mechanical and electrical equipment, except when such procedures have been covered in the specifications.

The Contractor's testing and start-up procedures shall include detailed descriptions of all preoperational electrical, mechanical and instrumentation testing work. Each control device, item of mechanical, electrical and instrumentation equipment, and all control circuits shall be considered in the testing procedures, which shall be designed, in a stepwise, logical sequence to ensure that all equipment has been properly serviced, aligned, connected, calibrated, and adjusted prior to operation. The Contractor is advised that failure to observe these precautions may place the acceptability of the subject equipment in question, and he may either be required to demonstrate that the equipment has not been damaged, or replace it as determined by the Engineer. Testing procedures shall be designed to duplicate as nearly as possible all conditions of operations, and shall be carefully selected to ensure that the equipment is not damaged. Once the testing procedures have been accepted by the Engineer, the Contractor shall produce checkout, alignment and adjustment, and calibration sign-off forms for each item of equipment, which shall be used in the field by the Contractor and the Engineer jointly, to ensure that each item of electrical, mechanical and instrumentation equipment has been properly installed and tested.

During the testing of the mechanical, instrumentation and electrical equipment, the Contractor shall make available as necessary, representatives of the manufacturers of all the various pieces of equipment, or other qualified persons who shall instruct the Owner's personnel in the operation and care thereof. Instructions shall include written step-by-step operation and trouble-shooting procedures with a complete description of all necessary test equipment and all protective device settings.

1.06 FINAL CLEANUP

- A. AT THE COMPLETION OF THE WORK, leave the site of work in a neat, unobstructed condition.
- B. REMOVE all tools, appliances, materials and equipment from the site of work as soon as possible, upon completion of the work of the contract.
- C. THE FINAL CLEANUP of the project shall be done with care and all ductwork, cubicles, cabinets, motor control centers, control panels, rooms and enclosures shall be clean and dust-free prior to final acceptance of the work.

1.07 PROJECT RECORD DRAWINGS (As-Built)

- A. MAINTAIN, at the jobsite, 1 set of the contract drawings for recording as-built conditions. Mark (in red) changes made during the course of construction.
- B. UPON COMPLETION OF THE WORK, turn over the 1 marked-up set of prints to the Engineer.
- C. REQUESTS FOR PARTIAL PAYMENT will not be approved if the marked-up prints are not kept current, and request for final payment will not be approved until the marked-up prints are delivered to the Engineer.
- D. WHERE SPECIFIED ELSEWHERE in the technical specification, furnish the Engineer with corrected reproducible tracings of work included in the contract.

End of Section 01700

1. GENERAL**A. WORK INCLUDED**

- 1.01 Scope
- 1.02 Job Conditions
- 1.03 Submittals
- 1.04 Protection
- 1.05 Environmental Protection
- 1.06 Interruption of Utility Services
- 1.07 Measurement and Payment

- 3.01 General
- 3.02 Removal
- 3.03 Debris Disposal

B. RELATED WORK IN OTHER SECTIONS

Section 02101 - Clearing and Grubbing
Section 02222 - Structural Excavation and Backfill

- 1.01 **SCOPE.** The work covered in this section consists of the removal and disposal of portions of an abandoned bridge crossing the Willamette River to prepare it to support the proposed transmission line. Removal is to include:
- asphalt surfacing
 - tongue-and-groove plank decking
 - timber stringers
 - timber wheel guards
 - timber posts and railings
 - two timber bents north of bridge
 - timber approach and abutment at north end of bridge
 - abandoned metal conduit
- 1.02 **JOB CONDITIONS.** The Contractor shall inspect the bridge before commencing work and shall perform all demolition work necessary for the proper execution of the work under this contract. Much of the wooden decking and beams of the bridge have deteriorated. The Contractor shall be particularly cautious in his operations on the bridge and shall not exceed the live load limits shown on the drawings.
- 1.03 **SUBMITTALS.** The Contractor shall submit a demolition plan, including anticipated construction loads, to the Engineer for review prior to commencing work.
- 1.04 **PROTECTION** of the existing structure must be accomplished. The Contractor shall provide necessary barricades to protect the public and workmen. Comply with all state and local requirements. The Contractor shall protect all existing utilities; and maintain operation of telemetry cables, navigation lights, and the 12-inch water line.

- 1.05 ENVIRONMENTAL PROTECTION. The Contractor shall keep debris from floating down the river, and shall have at least one person responsible for periodically containing and removing debris that fall into the river.
- 1.06 INTERRUPTION OF UTILITY SERVICES. The Contractor shall notify any utility company 48 hours prior to any interruption of the service of that company if the work will in any way interrupt the service. Should the utility company have adequate reason to avoid the interruption at the scheduled time, the Contractor shall reschedule his work to meet the condition. The Contractor shall pay the cost of restoring any active utility whose service is interrupted. The Owner shall also receive 48 hours notice of interruption of water service.
- 1.07 MEASUREMENT AND PAYMENT. All work under this section shall be included in the lump sum bid for the work to which it pertains.
2. PRODUCTS (Not used)
3. EXECUTION
- 3.01 GENERAL. The Contractor shall remove all structures or parts of structures shown on the drawings to be removed.
- 3.02 REMOVAL. The Contractor shall promptly remove all debris and materials from the site and dispose of them in a legal manner. Any salvage material not specifically designated as remaining the property of the Owner shall become the property of the Contractor, and shall be removed promptly from the site. Remove all debris from the river and river banks.
- 3.03 DEBRIS DISPOSAL. Disposal by explosives and burning will not be permitted.

End of Section 02110

1. GENERAL**A. WORK INCLUDED**

- 1.01 Scope
- 1.02 Job Conditions
- 1.03 Protection
- 1.04 Measurement and Payment

- 2.01 General Fill Material

- 3.01 Dewatering
- 3.02 General Excavation
- 3.03 Placing Backfill Adjacent to Walls
- 3.04 Preparation of Earth Subgrade for Concrete
- 3.05 Placing Pipe in Fill
- 3.06 Final Trimming and Cleanup

B. RELATED WORK IN OTHER SECTIONS

Section 02221 - Trenching, Backfilling, and Compacting
Section 02600 - Paving and Surfacing

- 1.01 **SCOPE.** The work covered in this section consists of general fill material, dewatering, general excavation, general backfill, drainage fill, final trimming, and cleanup other than trenching as shown on the drawings and as specified herein.
- 1.02 **JOB CONDITIONS** shall be surveyed by the Contractor before commencing work. Weather conditions must be observed. No work shall be attempted in frozen or wet conditions without a review by the Engineer.
- 1.03 **PROTECTION** of adjacent work must be accomplished. Properly slope cuts to provide stability. Cover exposed slopes if erosion threatens.
- 1.04 **MEASUREMENT AND PAYMENT.** All work under this section shall be included in the contract unit price bid for the work to which it pertains.

2. MATERIALS

- 2.01 **GENERAL FILL MATERIAL.** Materials for general fill shall consist of suitable material and shall contain no logs, stumps, brush, or other organic material. Sod and humus-bearing soils in excess of the quantity needed for salvaged topsoil requirements shall be removed from the site.

3. EXECUTION

3.01 DEWATERING

- A. DEWATERING SYSTEMS. Provide dewatering as specified in Section 02221, Paragraph 3.04.

3.02 GENERAL EXCAVATION. General excavation consists of removal of all materials of whatever nature, including boulders smaller than 1 cubic yard in volume, required for the construction of various structures. The method of excavation shall be the Contractor's option, but he shall exercise care as he approaches the final grade to leave it in undisturbed condition. If the final grade is disturbed, it shall be restored to requirements and satisfaction of the Engineer.

- A. SOIL CONDITIONS. If the final grade, supporting structures, is disturbed or becomes wet or dried out during the course of construction, the Contractor shall remove and replace the material as indicated in this section at no cost to the Owner. The Contractor is advised that footings should be poured on native material as soon as possible to minimize these conditions.
- B. PROTECTION OF EXISTING WORK. Existing work including buried utilities and piping shall be protected from damages. Damages shall be repaired at Contractor's expense.
- C. SHORING. Shore and brace excavations, as necessary, to prevent cave-ins or damage to adjacent structures. Remove prior to backfilling.
- D. DISPOSAL OF EXCAVATED MATERIAL. Excavated material not suitable for general fill due to its content of roots, stumps, excessive organic material, or its ability to be placed and compacted shall be removed and disposed of at a site approved by the Engineer.
- E. STRIPPING AND STOCKPILING. Stripping and stockpiling of reusable materials shall be carefully segregated into well defined stockpiles in the area designated.

3.03 PLACING BACKFILL ADJACENT TO WALLS. Heavy equipment for spreading and compacting backfill shall not be operated closer to any wall than a distance equal to the height of the backfill above the top of the footings. Backfill adjacent to walls shall be compacted to the same density as the adjacent fill with a small vibratory or hand tamping compactor.

3.04 PREPARATION OF EARTH SUBGRADE FOR CONCRETE. When excavating for bottom mat slabs to be cast on native soil, final excavation to grade shall be done in a manner as to not disturb the existing soil. If the soil is disturbed, the Contractor will be required to remove the disturbed material and replace it with backfill material, which has been reviewed by the

Engineer. Concrete shall not be placed on surfaces that are muddy, frozen, or dried out. IF, DURING THE COURSE OF CONSTRUCTION, BOTTOM SURFACES BECOME SATURATED WITH WATER, MUDDY, DISTURBED, OR DRIED OUT, THE CONTRACTOR SHALL REMOVE THE UNDESIRABLE MATERIAL AND REPLACE WITH COMPACTED BACKFILL WHICH HAS BEEN REVIEWED BY THE ENGINEER.

- 3.05 PLACING PIPE IN FILL. When it is necessary to place piping or other appurtenances in general backfill, the fill shall be brought up at least 1 foot above the top of the pipe or appurtenance. No areas of backfill shall be left depressed to allow for trenches. After the compacted fill is complete, excavation shall be made for the pipe or appurtenance. Pipe installation shall conform to Section 02221, Trenching, Backfilling, and Compacting. Backfill materials and compaction shall conform to the fill in which it is placed unless stricter requirements are stated in Section 02221.
- 3.06 FINAL TRIMMING AND CLEANUP shall consist of all work as follows:
- A. ALL IRREGULARITIES shall be made smooth, washouts shall be filled, slopes made uniform, slightly rounded at top and bottom, and the entire area of the fill compacted and completed to the required lines, grades, and cross sections, within 1/10 foot above or below the established grade.
 - B. WHERE ADDITIONAL MATERIAL is required for filling, it shall be similar to that used in fill and may be obtained from source reviewed by the Engineer.
 - C. WHEN WORK IS COMPLETED, the Contractor shall remove and dispose of all surplus material including stumps, trees, and brush, and leave premises in a condition acceptable to the Engineer.

End of Section 02220

1. GENERAL

A. WORK INCLUDED

- 1.01 Scope
- 1.02 Utilities
- 1.03 Measurement and Payment

- 2.01 Pipe Backfill - General
- 2.02 Imported Foundation Material
- 2.03 Pipe Zone Material
- 2.04 Backfill Zone Material
- 2.05 Detectable Utility Tape

- 3.01 Inspection
- 3.02 Excavation and Trenching
- 3.03 Dewatering
- 3.04 Cribbing and Sheet piling
- 3.05 Removal of Unsuitable Material
- 3.06 Bedding Placement
- 3.07 Backfilling
- 3.08 Detectable Utility Tape
- 3.09 Construction in Croplands
- 3.10 Final Trimming and Cleanup
- 3.11 Testing

B. RELATED WORK IN OTHER SECTIONS

Section 02600 - Paving and Surfacing
Section 15060 - Pipe and Pipe Fittings

- 1.01 SCOPE. The work covered in this section consists of excavating, shoring, dewatering, pipe foundation, trench backfilling and compacting, grading, and cleanup of all pipeline trenching for the project.
- 1.02 UTILITIES. The general location of all known underground utilities and other property likely to be encountered in excavation has been shown on the plans. This data has been compiled from the best available sources but is to be used for informational purposes only and accuracy is not guaranteed. The Contractor shall be responsible for contacting and working with the Owner of the particular utility or property involved to determine its exact location during construction and the failure to locate such utilities or property or failure to show them on the plans shall not relieve the Contractor of responsibility for their damage. The Contractor shall repair all damage to existing utilities or property as his own expense. Adequate provisions shall be made for maintaining the flow of sewers, drains, and water courses encountered during construction and structures which may have been disturbed shall be satisfactorily restored upon completion of the work.

1.03 MEASUREMENT AND PAYMENT. All work under this section shall be included in the unit price bid.

2. PRODUCTS

2.01 PIPE BACKFILL - GENERAL. Determination of the source of materials for backfill shall be the responsibility of the Contractor, but the use of materials shall be subject to the satisfaction of the Engineer. Native material may be used for any or all of the material classifications, provided it conforms to the specified requirements and the satisfaction of the Engineer. Similarly, approved imported material may be used for all material classifications.

- A. THE FOUNDATION under a pipeline must be strong enough to hold the pipe on grade under its full backfill load and uniform enough to avoid load concentration that would cause "beam action" failure or "punching." When unstable trench-bottom conditions are encountered and removal of materials in the trench bottom, and replacement with a layer of foundation material thick enough to adequately distribute the load on the soft material beneath is ordered by the Engineer, it shall be paid for on the basis of the unit price for imported foundation material, which shall include excavation and disposal of the trench material, imported foundation material, placement, and compaction.
- B. BEDDING SUPPORT shall be provided uniformly along the pipe allowing a small degree of clearance under all joints to prevent "beam action" in rigid pipe, and to avoid deflection out of round in flexible pipe.

2.02 IMPORTED FOUNDATION MATERIAL, where required and when directed by the Engineer due to unstable foundation conditions, shall be crushed rock material, free from wood, roots, bark, or other extraneous matter. The material shall meet the following requirements.

Passing 2-1/2-inch-square sieve	100%
Passing 1-1/4-inch-square sieve	0%

All percentages by weight.

2.03 PIPE ZONE MATERIAL

- A. BEDDING shall be clean, well graded granular material, free from organic matter, commonly known as crushed rock, meeting the requirements of APWA Section 15. It shall conform to the following requirements (ASTM C 136):

<u>U.S. Standard Sieve Size</u>	<u>Percent Passing By Weight</u>
1-inch	100
3/4-inch	90-100
1/2-inch	65- 90
1/4-inch	40- 60
No. 10	25- 45
No. 40	8- 26
No. 200	3- 15

- B. IMPORTED BACKFILL shall be clean, well graded granular material, free from organic matter, commonly known as crushed rock, meeting the requirements of APWA Section 15. It shall conform to the following requirements (ASTM C 136):

<u>U.S. Standard Sieve Size</u>	<u>Percent Passing By Weight</u>
1-inch	100
3/4-inch	90-100
1/2-inch	65- 90
1/4-inch	40- 60
No. 10	25- 45
No. 40	8- 26
No. 200	3- 15

- C. NATIVE BACKFILL shall be selected onsite materials, free from wood, roots, bark, organic matter, or other extraneous material. Maximum stone size shall be 2-1/2 inches.

2.04 BACKFILL ZONE MATERIAL

- A. IMPORTED BACKFILL shall be clean, well graded granular material, free from organic matter, commonly known as gravel, meeting the requirements of APWA Section 15. It shall conform to the following requirements (ASTM C 136):

<u>U.S. Standard Sieve Size</u>	<u>Percent Passing By Weight</u>
1-inch	100
3/4-inch	90-100
1/2-inch	65- 90
1/4-inch	40- 60
No. 10	25- 45
No. 40	8- 26
No. 200	3- 15

- B. NATIVE BACKFILL shall be selected onsite materials, free from wood, roots, bark, organic matter, or other extraneous material.

- 2.05 **DETECTABLE UTILITY TAPE.** Metalized plastic tape, 2 inches in width, imprinted with "Caution, Buried Water Line Below." Terra Tape D as manufactured by Greffolyn Co., or equal.

3. EXECUTION

- 3.01 **INSPECTION.** The Contractor shall inspect the site before starting work. The documents shall be examined and checked with the field layout to correct all discrepancies which may exist.

- 3.02 **EXCAVATION AND TRENCHING.** The Contractor shall do all excavation of whatever substance encountered to the lines and grades shown on the drawings. All material suitable for use as backfill shall be piled in an orderly manner a sufficient distance from the bank of the trench to avoid overloading and to prevent sliding into the trench. Free access shall be provided to all fire hydrants, and clearances shall be left to enable free flow of stormwater to all conduits and natural water courses. The Contractor shall do such grading as is necessary to prevent surface water from entering the excavation. Without specific review of the Engineer, no more than 200 feet of open trench shall be excavated prior to laying of pipe. All operations shall be carried out in an orderly fashion.

If the Contractor encounters existing structures which will prevent the construction of the pipeline and such structures are not properly shown on the plans, he shall notify the Engineer before continuing with the construction in order that the Engineer may make such field revisions as necessary to avoid conflict with the existing structures. The cost of waiting or down time during such field revisions shall be borne by the Contractor without additional cost to the Owner. If the Contractor shall fail to notify the Engineer when the existing structure is encountered and shall proceed with the construction despite the interference, he shall do so at his own risk.

The Contractor shall support and protect pipes or other services where they cross the trench and shall be responsible for all damages incidental to interruptions of service that may be due to his operations.

- A. **WIDTH OF TRENCH.** Banks of trenches shall be vertical from the trench bottom to at least the height of the top of the pipe. Trench width at the top of the pipe shall be shown on the drawings.
- B. **BRACING OF TRENCHES.** Where required to control the width of trench, protect adjacent structures, or to safeguard employees, the Contractor shall provide sheet piling, shoring sheeting, bracing, or other supports, as described in Paragraph 3.04, Cribbing and Sheeting, herein. Sheet piling and timbers shall be withdrawn in such manner as to prevent subsequent settlement of the pipe or additional backfill loadings which might overload the pipe.

- C. **DEPTH OF TRENCH.** The bottom of the trench shall be carried to a grade to provide a minimum cover over the top of the pipe as shown on the drawings.

Where the soil encountered in the bottom of the trench is unstable and unsuitable as a base for the pipe, such soil shall be removed to the depth specified by the Engineer. Foundation material shall then be installed in a layer the full width of the trench and of proper thickness to form the foundation for the pipe.

- D. **THRUST BLOCKS.** All caps, tees, and bends of buried piping deflecting more than 11-1/4 degrees shall be provided with concrete thrust blocks, unless shown otherwise on the drawings and as herein specified.

In general, no forms or reinforcing will be required, and concrete shall bear directly against the undisturbed trench wall. However, the Contractor shall shape and compact the trench backfill to minimize the amount of concrete used. Thrust blocks shall be poured and cured before the pipe is subjected to any hydrostatic pressure. Concrete shall have a minimum 28-day strength of 2,000 pounds per square inch. Concrete shall not cover fitting bolts.

- E. **ROCK EXCAVATION (BLASTING).** Rock excavation is not anticipated; however, if rock is encountered, the cost of rock excavation shall be negotiated.

Where rock is encountered, it shall be removed to a depth of 6 inches below the bottom of the pipe bell and the trench shall be refilled with sand or washed gravel and well tamped. The width of the trench shall be as shown on the drawings. Boulders or broken and fractured rock less than 1/2 cubic yard in volume will not be classified as rock nor will so-called "hard pan" or cemented gravel, even though it may be advantageous to use explosives in its removal. Rock excavation (blasting) shall include removal of the blasted rock. Where blasting is resorted to, it shall be carried on in accordance with local, county, and state requirements governing this class of work. All necessary precautions shall be taken for protection of the work, persons, or property.

- F. **ASPHALT AND CONCRETE PAVEMENT CUTS.** All cuts in asphalt and concrete pavement for trench openings shall be made 4 inches wider on each side of the allowable maximum width of the trench. The existing pavement shall be cut in a neat straight line, saw cut or line drill not to exceed 6 inches on center with concrete breaker. All damaged or undermined pavement shall be removed. Pavement shall be limited to the widths as shown on the plans. Any pavement damaged in excess of the allowable width shall be repaired at the Contractor's expense.

3.03 DEWATERING

- A. **DEWATERING.** The Contractor shall furnish, install and operate all necessary machinery, appliances and equipment to keep excavations free from water during construction and shall dewater and dispose of the water so as not to cause injury to public or private property or to cause a nuisance or a menace to the public. He shall at all times have on hand sufficient pumping equipment and machinery in good working condition for all ordinary emergencies, including power outage, and shall have available at all times competent workmen for the operation of the pumping equipment. The dewatering systems shall not be shut down between shifts, on holidays or weekends, or during work stoppages without written permission from the Engineer.

The control of groundwater shall be such that softening of the bottom of excavations or formation of "quick" conditions or "boils" during excavation shall be prevented. Dewatering systems shall be designed and operated so as to prevent removal of the natural soils.

During excavating, construction of structures, installing of pipelines and sewers, placing of structure and trench backfill and the placing and setting of concrete, excavations shall be kept free of water except as specified. The Contractor shall control surface runoff so as to prevent entry or collection of water in excavations. The static water level shall be drawn down a minimum of 1 foot below the bottom of the excavation so as to maintain the undisturbed state of the foundation soils and allow the placement of any fill or backfill to the required density. The dewatering system shall be installed and operated so that the groundwater level outside the excavation is not reduced to the extent that would damage or endanger adjacent structures or property.

Before dewatering is started, the Contractor shall submit for review to the Engineer the method, installation and details of the dewatering system he proposes to use.

The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, pipelines and sewers.

- B. **DESILTING.** Water from dewatering operation shall be desilted before discharging. The Engineer shall review the Contractor's method before proceeding with any dewatering. The Engineer shall review the exact location of any contemplated pump discharge areas.

- 3.04 CRIBBING AND SHEETING.** The Contractor shall provide all cribbing, sheeting, shoring, sheet piling, bracing, or other supports as needed to protect the work, existing property, utilities, pavement, etc., and to provide safe working conditions in the trench. Such cribbing and sheeting shall be according to the Contractor's design which shall comply with applicable local and state safety codes.

- A. ~~REMOVAL OF ANY CRIBBING AND SHEETING~~ from the trench shall be accomplished in such a manner as to fulfill the above requirements without placing additional load on the pipe.
- B. DAMAGES RESULTING FROM IMPROPER CRIBBING or from failure to crib shall be the sole responsibility of the Contractor and paid for by the Contractor.
- 3.05 REMOVAL OF UNSUITABLE MATERIAL. The unsuitable materials encountered shall be removed and replaced with granular materials from established pits satisfactory to the Engineer. The Contractor shall be responsible for removal, hauling, and disposal of unsuitable material off the site as incidental to the contract.
- 3.06 BEDDING PLACEMENT. After the bottom of the trench has been excavated to the proper depth and grade and the bottom is brought to a reasonably flat surface and dewatered, the backfill material shall be placed as shown on the drawings.
- A. THE PIPE AND BACKFILL MATERIAL shall be placed in the trench without causing any excavated material to slide into the trench or any cave-in of the trench walls. Prior to placing the pipe, the trench bottom material shall be compacted and shaped to conform to the barrel of the pipe to ensure continuous firm bedding for the full length of the pipe.
- B. ANY PIPE FOUNDATION MATERIAL required due to unauthorized excavation shall be furnished and paid for by the Contractor; or when, in the opinion of the Engineer, any pipe foundation material becomes unsuitable due to mixture with unsuitable or wet trench side material or excavated material, it shall be removed and replaced at the Contractor's expense.
- 3.07 BACKFILLING
- A. GENERAL. Backfilling shall be carried out in an orderly fashion and shall be done as soon as possible after authorization to cover the pipe has been given.
- B. PIPE ZONE. Extreme care shall be taken in the placing and compaction so that the pipe is not displaced. Any misalignment of the pipe or other damage shall be repaired at the Contractor's expense. The material shall be carried up evenly on both sides of the pipe simultaneously in 6-inch horizontal lifts and compacted to obtain no less than 90% or 95% of the maximum density as determined by the Standard Proctor Compaction Test, AASHTO T-99, Method D, as specified and shown on the drawings for the respective type of backfill at the location specified.

The Contractor shall hand-backfill trenches using selected material up to an elevation of 6 inches above the top of the pipe making sure the backfill is in contact with the entire periphery of the pipe. The balance of the backfill shall be placed as backfill zone material.

- C. ~~BACKFILL ZONE MATERIAL.~~ This material shall be carefully placed so as to prevent damage to the pipe and shall be compacted to the finished grades shown on the drawings. The degree of compaction shall be as specified on the drawings. Compaction shall be by rolling, vibrating, jetting, or other approved methods. Prior to commencing backfill operations, the Contractor shall notify the Engineer of the method of compaction which he intends to use. No method will be approved until the Contractor has demonstrated, under actual field conditions, that such method will produce the degree of compaction required. Compaction in the street and shoulder areas shall be 95% of maximum dry density as determined by ASTM D 698, Method D. The backfill material which contains less than optimum moisture shall have water added in the amounts ordered by the Engineer. Street crossings and intersections shall be completed in 1 day. All other trenches shall not remain open longer than 1 day without the review of the Engineer.
- D. REPLACEMENT BACKFILL. Wherever a trench is excavated in a paved roadway, graveled shoulder, driveway, sidewalk, or other areas where minor settlement would be detrimental and where the native excavated material is not suitable for compaction as determined by the Engineer, the trench shall be backfilled (with a type of backfill as detailed on the drawings) as directed by the Engineer.
- E. COMPACTION. Vibrating compaction shall not use a heavy weight (dropped or driven) into trench method. Before beginning a controlled backfill operation, the Contractor shall excavate a trial trench and experiment, trying different amounts of moisture and different lift thicknesses and not more pressure. Using this method of compaction, first lubricate the soil particles with water, then incorporate a vibrating compactor mounted on the boom of a backhoe or other piece of equipment, applying just enough down pressure to seat the plate firmly. In any event, the backfill material shall be placed in layers not exceeding 12 inches in loose depth, each layer being compacted before succeeding layers are placed.

3.08 DETECTABLE UTILITY TAPE

- A. BURY TAPE approximately 12 to 20 inches above all underground piping runs.
- B. ALIGN parallel to and within 12 inches of centerline of all pipe runs.

3.09 CONSTRUCTION IN CROPLANDS. The transmission line traverses existing croplands. The Contractor shall be responsible for restoration of disturbed cropland within the limits shown on the drawings as herein described. The Contractor shall be wholly responsible for any and all crop damage and restoration of topsoil required beyond the limits of construction easements shown on the drawings due to construction damage. Every effort shall be made to keep crop damage and disruption of agricultural activities to a minimum.

Access to existing residences and agricultural operations shall be maintained at all times in a manner acceptable to the Engineer.

3.10 FINAL TRIMMING AND CLEANUP shall consist of all work as follows:

- A. ALL IRREGULARITIES shall be made smooth, washouts shall be filled, slopes made uniform, slightly rounded at top and bottom, and the entire area of the fill compacted and completed to the required lines, grades, and cross sections.
- B. WHERE ADDITIONAL MATERIAL is required for filling, it shall be similar to that used in fill and may be obtained from a source reviewed by the Engineer.
- C. THE CONTRACTOR shall maintain his operations in a neat and orderly manner causing as little inconvenience as possible. Within 2 working days from the time the trench was opened, all roadside ditches, culverts, etc., shall be repaired and road surfaces thoroughly cleaned. If the Contractor fails to comply with the cleanup requirements within 24 hours after receiving written notice from the Engineer, others will be engaged to do such work and the total expense involved shall be deducted from the Contractor's payment. All excess excavation shall be removed from the trench side and disposed of at the Contractor's expense. The work area shall then be thoroughly cleaned.
- D. IN AREAS OTHER THAN PAVEMENTS, graveled shoulders, driveways, and sidewalks, the finished trench surface shall be seeded or sodded to match the existing conditions. All areas adjacent to the trench shall be cleaned and/or repaired to match the existing conditions.
- E. WHEN WORK IS COMPLETED, the Contractor shall remove and dispose of all surplus material including stumps, trees, and brush, and leave premises in a condition acceptable to the Engineer.
- F. THE CONTRACTOR shall clean ditches and culverts of all foreign materials caused by construction. The Contractor shall rake and smooth back slopes disturbed by construction and remove all debris including large stones.

- 3.11 TESTING. The Contractor shall furnish certificates of the following compaction tests by a certified testing laboratory, showing compliance with the requirements of the specifications and drawings.
- A. ONE TEST for pipe zone and subsequent backfills for every 500 linear feet of pipeline in the roadway, and 1,000 linear feet of pipeline in roadway shoulders. One test for every 2,000 linear feet of pipeline in all other areas for pipe zone and subsequent backfills. Test areas shall be determined by the Engineer.
 - B. IN THE EVENT that the original tests do not comply with the requirements of the specifications, additional compaction shall be performed or the fill shall be replaced with fill that will comply. Additional tests for the repaired areas shall be furnished, all at no extra cost to the Owner, for either the fill or the tests. This process shall be repeated until the compaction complies with the specifications. Cost of compaction tests shall be included in the unit price for the various types of backfill.

End of Section 02221

1. GENERAL

A. WORK INCLUDED

- 1.01 Scope
- 1.02 Job Conditions
- 1.03 Measurement and Payment

- 2.01 Filter Cloth
- 2.02 Filter Material A and B
- 2.03 Class II and III Riprap
- 2.04 Jute Matting

- 3.01 Placement of Filter Cloth
- 3.02 Placement and Compaction of Filter Material
- 3.03 Placement and Compaction of Riprap
- 3.04 Placement of Jute Matting
- 3.05 Sampling and Testing

1.01 SCOPE. The work covered in this section consists of furnishing all labor, material, and equipment required for the placement of filter material, riprap, and jute matting.

1.02 JOB CONDITIONS shall be surveyed by the Contractor before commencing work.

1.03 MEASUREMENT AND PAYMENT. All work under this section shall be included in the applicable unit price or lump sum price bid item.

2. PRODUCTS

2.01 FILTER CLOTH shall be Poly-Filter GB or equivalent woven fabric.

2.02 FILTER MATERIAL A AND B shall be sound, durable, rounded to subrounded, naturally occurring gravel and sandy gravel that are well graded. Filter A shall have the following gradation limits:

<u>U.S. Standard Sieve Size</u>	<u>Percent Passing By Weight</u>
3-inch	100
3/4-inch	42- 70
No. 4	22- 47
No. 30	0- 22
No. 200	0- 5

Filter B material shall be similar to Filter A material except 100% shall be smaller than 12 inches and 66 to 100% shall pass the 3-inch sieve. Both materials shall meet the required gradation after being placed and compacted as specified.

2.03 CLASS II AND III RIPRAP

- A. **STONE QUALITY.** Each stone used in construction of the riprap protection shall be composed of hard, strong, durable materials that will not slake or deteriorate on exposure to the action of water or atmosphere, shall not contain cracks, joints, faults, seams, or bands of minerals or deleterious materials which would result in breakage or reduction of specified stone weights or dimensions after final placement in the revetment, and shall be free of expansive or other materials which would cause accelerated deterioration by exposure to project climatic conditions. Each stone shall have a unit weight of at least 160 pounds per cubic foot, shall have an absorption of not more than 5%, shall have a weight loss from abrasion of not more than 20%, shall be clean and angular, and the longest dimension of any stone shall not exceed 3 times its shortest dimension. The weight per cubic foot shall be determined by multiplying the bulk-saturated surface-dry specific gravity (BSSD) times 62.3 pounds per cubic foot.
- B. **GRADATIONS.** Not less than 90% of the individual stones in riprap shall range in size from 25 to 250 pounds for Class I riprap and from 25 to 800 pounds for Class III riprap; provided that at least 75% by weight of the stone heavier than 25 pounds shall be in sizes of 50 to 250 pounds for Class II and 200 to 800 pounds for Class III; and further provided that at least 30% by weight of the stone shall be in sizes larger than 150 pounds for Class II and 400 pounds for Class III. Riprap stone shall be reasonably well graded from the smaller to the maximum size specified. Stones less than 25 pounds and spalls will not be permitted in an amount exceeding 10% by weight of each load for either Class II or Class III sizes.

- 2.04 **JUTE MATTING** shall be of a uniform open plain weave of unbleached, single jute yarn treated with a fire-retardant chemical. The yarn shall be of a loosely twisted construction and shall not vary in thickness by more than one-half of its normal diameter. Jute matting shall be furnished in rolled strips as follows:

Length approximately 50 yards.

Matting width shall be 48 inches with an average weight of 0.92 pounds per square yard. A tolerance of ± 1 inch in width and 5% in weight will be allowed.

3. EXECUTION

- 3.01 **PLACEMENT OF FILTER CLOTH.** Place on surface cleaned of organic matter. Overlap seams a minimum of 24 inches. Upstream segment shall be top layer of seam. The fabric shall be stapled as required to prevent excessive movement during placement of rock materials.

- 3.02 **PLACEMENT AND COMPACTION OF FILTER MATERIAL.** Filter materials shall be placed to the lines, grades, and elevations as indicated in the drawings. The filter materials shall be placed to its full course thickness in one operation and in such manner as to avoid disturbing the filter cloth and displacing the underlying material. The filter materials shall be compacted to the extent possible above the water surface with the placing or hauling and spreading equipment as applicable. No compaction is required where slopes are 1V on 2H or steeper. Filter materials shall be placed in position below the water surface and no compaction is required. End dumping or allowing the materials to fall (settle) through the water will not be allowed.
- 3.03 **PLACEMENT AND COMPACTION OF RIPRAP.** Stone for riprap shall be placed on the prepared base in a manner which will produce a reasonably well graded mass of rock with the minimum practicable percentage of voids and shall be constructed to the lines, grades, and thicknesses shown on the drawings or as directed. Riprap protection shall be placed to its full course thickness in one operation and in such manner as to avoid displacing the underlying material. Larger stone shall be well distributed and the entire mass of stones shall be roughly graded to conform to approximate gradation. All material going into riprap protection shall be so placed and distributed that there will be no large accumulations or areas composed largely of either the larger or smaller sizes of stone. It is the intent of the specifications to produce a fairly compact riprap protection in which all sizes of material are placed in their proportions. A tolerance of ± 6 inches from the thicknesses shown on the drawings will be allowed in the finished surface of the riprap protection, except that either extreme of such tolerance shall not be continuous over an area greater than 50 square feet. The tolerance limit will be determined on the basis of the average surface elevation within 2 square feet. Placing riprap protection by dumping into chutes or by similar methods likely to cause segregation of the various sizes will not be permitted. Any area in the completed riprap protection which contains objectionable segregation of stone sizes shall be excavated, removed from the site of the work, and shall be replaced with riprap conforming with these specifications at no additional cost to the city. The riprap protection shall be maintained until accepted and any material displaced by any cause, shall be replaced to the lines and grades shown on the drawings at no additional cost to the city.
- 3.04 **PLACEMENT OF JUTE MATTING.** Jute matting shall be unrolled parallel to the flow of water immediately following the establishment of the finished grade. The jute matting shall overlap the adjacent mat a minimum of 4 inches. The ends of the jute matting shall overlap at least 6 inches with the upgrade section on top. The upslope end of each strip of matting shall be staked and buried in a 6-inch-deep trench with the soil firmly tamped against the mat. Three stakes per width of matting (one stake at each overlap) shall be driven below the finish ground line prior to backfilling of the trench. The Engineer may require that any other edge exposed to more than normal flow of water or strong prevailing winds be staked and buried in a similar manner. A check slot shall be placed between the ends of strips by placing

a tight fold of the matting at least 6 inches vertically into the soil. These shall be tamped and stapled the same as upslope ends. Check slots must be spaced so that 1 check slot or 1 end occurs within each 50 feet of slope.

Edges of matting shall be buried around the edges of catch basins and other structures as herein described. Matting must be spread evenly and smoothly and in contact with the soil at all points.

Jute matting shall be held in place by approved wire staples, pins, spikes, or wooden stakes driven vertically into the soil. Matting shall be fastened at intervals not more than 3 feet apart in 3 rows for each strip of matting, with 1 row along each edge and 1 row alternately spaced in the middle. All ends of the matting and check slots shall be fastened at 6-inch intervals across their width. Length of fastening devices shall be sufficient to securely anchor matting against the soil and driven flush with the finished grade.

- 3.05 SAMPLING AND TESTING. The Contractor shall provide samples of the proposed riprap for examination and possible testing by the Engineer. Tests may include specific gravity, absorption, abrasion, accelerated expansion, freezing and thawing, wetting and drying, and such other tests as necessary to demonstrate that the stones are acceptable.

End of Section 02271

1. GENERAL

A. WORK INCLUDED

- 1.01 Scope
- 1.02 Job Conditions
- 1.03 Drilled Intrusion Piles
- 1.04 High-Strength Mortar
- 1.05 Measurement and Payment

- 2.01 Portland Cement
- 2.02 Mineral Filler
- 2.03 Fluidifier
- 2.04 Water
- 2.05 Fine Aggregate

- 3.01 Mixing and Pumping of High-Strength Cement Mortar
- 3.02 Location of Piles
- 3.03 Obstructions
- 3.04 Pile Tops
- 3.05 Augering Equipment
- 3.06 Testing

1.01 SCOPE. The work covered by these specifications consists of furnishing all labor, equipment, and materials for the placing of drilled intrusion piles in foundations composed of augerable materials.

1.02 JOB CONDITIONS shall be surveyed by the Contractor before commencing work.

1.03 DRILLED INTRUSION PILES shall be made by the following method:

A continuous-flight hollow-shaft auger shall be rotated into the ground to the specified pile depth. High-strength mortar shall be pumped as the auger is withdrawn to fill the hole, preventing hole collapse and to cause the lateral penetration of the mortar into soft or porous zones of the surrounding soil. The steel WF section shall be placed while the mortar is still fluid.

1.04 HIGH-STRENGTH MORTAR. The mortar used to fill the holes shall consist of a mixture of portland cement, mineral filler, fluidifier, sand, and water so proportioned and mixed as to provide a mortar capable of maintaining the solids in suspension without appreciable water gain, yet which may be pumped without difficulty and which will laterally penetrate and fill any voids in the foundation material. The materials shall be so proportioned as to provide a hardened mortar having an ultimate compressive strength of 3,000 psi at 28 days. Submit design mix to structural engineer for review at least 1 week prior to commencing drilling.

- 1.05 MEASUREMENT AND PAYMENT. All work under this section shall be included in the applicable unit price or lump sum price bid item.

2. PRODUCTS

- 2.01 PORTLAND CEMENT shall conform to Federal Specifications 55-C-192 or ASTM C 150.
- 2.02 MINERAL FILLER shall be finely powdered siliceous material which possesses the property of combining the lime liberated during the process of hydration of portland cement.
- 2.03 FLUIDIFIER shall be a compound possessing characteristics which will increase the flowability of the mixture, assist in the dispersal of cement grains, and neutralize the setting shrinkage of the high-strength cement mortar (INTERAID as manufactured by the Grout Supply Company, Brecksville, Ohio, meets these specifications).
- 2.04 WATER shall be fresh, clean, and free from injurious amounts of sewage, oil, acid, alkali, salts, or organic matter.
- 2.05 FINE AGGREGATE. Sand shall meet the requirements of ASTM C 33.

The same shall consist of hard, dense, durable, uncoated rock particles and shall be free from injurious amounts of silt, loam, lumps, soft or flakey particles, shale, alkali, organic matter, mica, and other deleterious substances. If washed, the washing method shall be such as will not remove desirable fines, and the sand shall subsequently be permitted to drain until the residual-free moisture is reasonably uniform and stable. The sand shall be well graded from fine to coarse, with fineness modulus between 1.40 and 3.40. The fineness modulus is defined as the total divided by 100 of the cumulative percentages retained on U.S. Standard Sieve Nos. 16, 30, 50, and 100.

3. EXECUTION

- 3.01 MIXING AND PUMPING OF HIGH-STRENGTH CEMENT MORTAR. Only approved pumping and continuous mixing equipment shall be used in the preparation and handling of the mortar. All oils or other rust inhibitors shall be removed from mixing drums and pressure mortar pumps. The mortar pump shall be a positive displacement piston type pump capable of developing pressures at the pump up to 350 psi. The minimum volume of mortar placed in the hole shall be at least equal the volume of the augered hole. All materials shall be such as to produce a homogeneous mortar of the desired consistency. If there is a lapse in the operation, the mortar shall be recirculated through the pump.
- 3.02 LOCATION OF PILES. Piles shall be located as shown on drawings or as otherwise directed by the Engineer. Pile centers shall be located to an accuracy of ± 3 inches.

In locations where there are no concrete slabs or other means of distributing the load of the piling placement equipment, the points where this concentrated load is applied to the soil shall be at least 10 feet away from the pile location. This will prevent the weight of the piling placement equipment from compressing or shearing the soil, which may, in turn, squeeze in the top of the pile.

- 3.03 **OBSTRUCTIONS.** Should any obstruction (including but not limited to boulders and timbers) be encountered which shall prevent placing the pile to the depth required, or shall cause the pile to drift from the required location, the pile shall be completed in accordance with Section 3.0. If required by the Engineer, an additional adjacent pile shall be placed and paid for as extra work.
- 3.04 **PILE TOPS.** Where the pile cutoff is near the surface or above the bottom of the excavation, metal sleeves of the proper diameter shall be placed around the pile tops.
- 3.05 **AUGERING EQUIPMENT.** The hole through which the high-strength mortar is pumped during the placement of the pile shall be located at the bottom of the auger head below the bar containing the cutting teeth.

The auger flighting shall be continuous from the auger head to the top of auger with no gaps or other breaks.

Augers over 50 feet in length shall contain a middle guide.

The drilled intrusion piling leads should be prevented from twisting by a stabilizing arm.

- 3.06 **TESTING.**
- A. **THE MORTAR MIX** shall be tested by making 1 set of 2-by-2-inch cubes for each day during which drilled intrusion piles are placed. A set of cubes shall consist of 2 cubes to be tested at 7 days and 2 cubes to be tested at 28 days. Test cubes shall be made and tested in accordance with ASTM C 109, with the exception that the mortar should be restrained from expansion by a top plate.
- B. **IF PILE LOAD TESTS** are required, the test piles are to be loaded to twice the design load in accordance with ASTM D 1143-61T.

End of Section 02360

1. GENERAL

A. WORK INCLUDED

- 1.01 Scope
- 1.02 Job Conditions
- 1.03 Protection
- 1.04 Measurement and Payment

- 2.01 Aggregate Base
- 2.02 Asphalt Concrete

- 3.01 Street and Shoulder Restoration
- 3.02 Concrete Sidewalks and Curb and Gutter
- 3.03 Cleanup
- 3.04 Acceptance

B. RELATED WORK IN OTHER SECTIONS

Section 02221 - Trenching and Backfilling

- 1.01 SCOPE. The work covered in this section consists of furnishing all labor, material, and equipment for restoration of the road and surfacing as shown on the drawings and as specified.
- 1.02 JOB CONDITIONS shall be surveyed by the Contractor before commencing work. Weather conditions must be observed. No work shall be attempted in frozen conditions without review of the Engineer.
- 1.03 PROTECTION of adjacent work must be accomplished.
- 1.04 MEASUREMENT AND PAYMENT. All work under this section shall be included in the unit price bid.

2. PRODUCTS

- 2.01 AGGREGATE BASE shall be crushed rock conforming to Section 15-1 of the Standard Specifications for Public Works Construction, APWA, Oregon Chapter, 1970.
- 2.02 ASPHALT CONCRETE shall comply with Section 22 of the Standard Specifications for Public Works Construction, APWA, Oregon Chapter, 1970, as supplemented and modified by City of Newberg Standard Specifications.

3. EXECUTION

3.01 STREET AND SHOULDER RESTORATION

- A. GENERAL. Roadway surfacing shall be restored to its original condition as nearly as possible. All excess material shall be removed. Any damaged concrete walks or driveways shall be restored. All dirt and

debris that accumulated from the Contractor's operations shall be removed from the inlets, catch basins, and connecting pipe lines. All trench cuts shall be kept in a smooth condition throughout the length of the Contract. Any material entering manholes or ditch culverts from street resurfacing work and trenching work shall be removed and, if necessary, the adjacent line reflushed to remove any material that may have entered the pipe line.

- B. **AGGREGATE BASE** will be required in all trenches in all driveable areas, including roadway shoulders. On road shoulders of public rights-of-way and in all surfaced driveable areas, the minimum depth of aggregate shall be 9 inches. Aggregate base will not be required in unopened public rights-of-way or on easements not used as driveways. The base placed in 2 lifts over the compacted trench and compacted as specified in Section 02221.
- C. **ASPHALT CONCRETE.** All asphalt street surfacing, where open cuts are made, shall be restored. The limits of the restoration shall include all damaged or undermined surfacing. The edge of the existing asphalt shall be cut in a straight line and a vertical plane with all dirt and loose material removed. The vertical edge of the asphalt shall be coated with an asphalt emulsion to ensure a watertight bond with the new asphalt. Asphalt concrete Class B shall be spread as a leveling course over the total trench area as shown on the drawings, to a minimum compacted depth of 2 inches, or in 2-inch lifts if existing pavement depth exceeds 3 inches. The asphalt shall be compacted with a smooth-wheeled tandem-type roller with a minimum weight of 8 tons. Upon completion of the leveling course or courses, a final surface course of asphalt Class C shall be spread with a spreader, designed for the purpose, to a compacted thickness of 1 inch. The asphalt shall be compacted with the 8-ton roller. The edges of the compacted mat shall be flush with the existing asphalt and provide a smooth riding surface. No asphalt emulsion shall be used on the street surface to seal the new asphalt. Joint shall be sealed with AR-4000 and sanded with a clean uniformly graded sand.

Asphalt shall not be placed during rainfall or before any imminent storm that might damage construction. The application of asphalt when the ground temperature is less than 50°F will not be allowed.

- D. **DUST CONTROL.** When the weather is dry and when, in the estimation of the Engineer the dust becomes a nuisance, the Contractor shall sprinkle water on surfaced streets twice a day in order to keep the dust down. This sprinkling shall be maintained until the project is accepted. On the paved streets, when the backfilling has been completed, the streets shall be washed to remove all dirt and debris, and if the dust becomes a nuisance before the backfilling is completed, the Contractor shall wash the portions of streets being used for traffic.

- 3.02 CONCRETE SIDEWALKS AND CURB AND GUTTER. Any concrete sidewalks or curb and gutter damaged during the course of the work shall be replaced. The new sidewalk shall match the existing concrete walk in width, thickness, slope, and finish, except wheelchair ramps shall be installed if required to comply with state law when curbs are being replaced. The backfill under the concrete shall be machine-compacted.
- 3.03 CLEANUP. As the work progresses, the Contractor shall maintain his operation in as neat a manner as possible and shall cause as little inconvenience as possible to property owners and the general public. After the work has been completed in each area, all excess material, debris, and equipment shall be removed from the area, the roadway restored, and any other damaged improvement restored so that the area is left in the same condition as it was prior to the Contractor's activities. Roadway ditches shall be cleaned and reshaped to match the existing conditions prior to beginning work. The entire roadway shoulder shall be dressed and cleaned of all construction debris and restored to a condition equal to or better than it was prior to the Contractor's activities. If the Contractor fails to comply with the cleanup requirements within 24 hours after receiving written notice from the field Engineer, others will be engaged to do such work and the total expense involved shall be withheld from the Contractor's payments.
- 3.04 ACCEPTANCE. Final acceptance will not be until final completion of the entire project including all tests, restoration, and cleanup to the satisfaction of the Engineer.

End of Section 02600

1. GENERAL

A. WORK INCLUDED

- 1.01 Scope
- 2.01 Transit Mix Concrete
- 2.02 Reinforcing Steel
- 2.03 Forms
- 2.04 Embedded Items
- 2.05 Nonshrink Grout
- 2.06 Curing Compound
- 3.01 Finished Concrete Tolerances
- 3.02 Formwork Construction Details
- 3.03 Form Cleaning
- 3.04 Form Removal
- 3.05 Steel Fabrication
- 3.06 Placing Reinforcing Steel
- 3.07 Depositing Concrete
- 3.08 Protection Requirements
- 3.09 Inserts and Embedding
- 3.10 Curing
- 3.11 Repair of Concrete Construction
- 3.12 Finish of Formed Surfaces

1.01 SCOPE. Requirements of Division 1 apply to work under this section. The extent of work shall be as shown on the drawings and called for in the Summary of Work, Section 01010. Performance shall meet the requirements of the specifications.

2. PRODUCTS

- 2.01 TRANSIT MIX CONCRETE. Concrete used for the construction shall be composed of Type I cement, aggregate, and water and shall conform to ASTM C 94. Minimum cement content shall be 5-1/2 sacks per cubic yard. Maximum slump shall be 4 inches. Aggregate shall be 1-1/2 inch minus material and shall conform to the material and gradation requirements of ASTM C 33. Time in the mixer truck shall not exceed 1-1/2 hours. Minimum concrete strength shall be $f'c = 3,000$ psi.
- 2.02 REINFORCING STEEL shall consist of deformed bars of the size called for on the drawings. Steel shall conform to ASTM A 615, Grade 40 or 60. Deformation shall conform to ASTM A 305.
- 2.03 FORMS. For formed surfaces not exposed to view may be of metal or of smooth planed boards in good condition free from large or loose knots.

2.04 EMBEDDED ITEMS

- A. ANCHOR BOLTS FOR ATTACHED ITEMS. All bolts shall be hot-dip galvanized in accordance with ASTM A 153-67 and unless otherwise indicated shall be 5/8-inch steel bolts, ASTM A 307 with 5-inch embedment. Provide projection as required or shown.
- B. INSERTS shall be as required by other trades. Attach securely to forms. Inserts to be galvanized, nonferrous, or other approved nonrusting material.

2.05 NONSHRINK GROUT. Masterbuilder's "Embeco 153 Grout," or equal.

2.06 CURING COMPOUND. Conform to ASTM C 309, "Masterseal" as manufactured by Masterbuilders, or equal.

3. EXECUTION

3.01 FINISHED CONCRETE TOLERANCES. Every reasonable effort shall be made to maintain plumbness and alignment as shown on the drawings.

3.02 FORMWORK CONSTRUCTION DETAILS**A. EMBEDDED ITEMS**

- 1. Position in forms in location shown or required.
- 2. Provide adequate support to prevent displacement.
- 3. Allow other trades ample times and facilities for placing and installing embedded items.

3.03 FORM CLEANING. All dirt, chips, sawdust, and other foreign matter shall be removed from within the forms before any concrete is deposited therein. Forms previously used shall be thoroughly cleaned of all dirt, mortar, and foreign matter before being used.

3.04 FORM REMOVAL. Forms bracing and shores shall be kept in place until removal is authorized by the Engineer and in no case shall removal commence earlier than 24 hours.

Forms shall not be stripped from concrete which has been placed at a temperature under 50°F without first determining if the concrete has properly set, without regard to the time element. If, in the opinion of the Engineer, stripping of forms on the basis of above results in damage to the concrete, the forms shall not be removed until damage will not result.

3.05 STEEL FABRICATION. Clean, bend, and splice reinforcement in accordance with ACI 315-74. Hooks shall conform to Table 2-1 of ACI 315-74. Do not straighten or rebend Grade 60 reinforcement. All bars bent cold.

3.06 **PLACING REINFORCING STEEL.** Reinforcing steel, before being positioned, shall be cleaned thoroughly of mill rust scale or other coatings that will destroy or reduce the bond. Reinforcement appreciably reduced in section shall be rejected.

- A. **REINFORCING STEEL** shall not be bent or straightened in a manner that will injure the material. Bars with kinks or bends not shown on the drawings shall not be used.
- B. **REINFORCING STEEL** shall be positioned accurately and secured against displacement by using annealed iron wire or suitable clips at intersections and shall be supported by concrete or metal chairs or spacers.

3.07 **DEPOSITING CONCRETE.** Concrete shall not be placed until the forms and reinforcement have been accepted by the Engineer. Concrete shall be conveyed to the place of final deposit as rapidly as possible by methods which will prevent separation or loss of ingredients. It shall be deposited in the form as nearly as practicable in its final position so as to maintain plastic surface approximately horizontal. Concrete shall not be dropped more than 6 feet unless a suitable chute or tube is used. Under no circumstances shall concrete that has partially hardened be deposited in the work.

- A. **IMMEDIATELY AFTER DEPOSITING,** the concrete shall be thoroughly compacted by means of high-frequency mechanical internal vibrators. Concrete shall be thoroughly worked around reinforcement and embedded fixtures and into the corners of the forms.

3.08 **PROTECTION REQUIREMENTS**

- A. **COLD-WEATHER REQUIREMENTS.** No frozen materials or materials containing ice shall be used. All concrete materials and all reinforcement, forms fillers, and ground which the concrete is to come in contact with shall be free from ice and frost.
- B. **PROTECTION OF CONCRETE CONSTRUCTION.** All surfaces shall be protected against injury. During the first 72 hours after placing the concrete, any wheeling, working, or walking on the concrete shall not be permitted.

No concrete top surfaces shall be placed during rain unless acceptable protective shelter is provided; and during such weather, all concrete placed within the preceding 12 hours shall be protected.

3.09 **INSERTS AND EMBEDDING**

- A. **INSERTS.** Where pipes or castings are to pass through concrete, the Contractor shall place such pipes or castings in the forms before pouring the concrete.

B. **EMBEDDING.** The contractor shall set accurately and hold in exact position in the forms until the concrete is poured and set all metal parts that are to be embedded in the concrete, and he shall furnish and set accurately all inserts and anchor bolts necessary for the attaching of piping, valves, and equipment.

3.10 **CURING.** Concrete structures shall be covered with wet burlap mats as soon as the concrete has sufficiently set and shall thereafter be kept wet under wet burlap or other approved means until backfilled or for 10 days after the concrete is placed.

Formed surfaces shall be water cured under burlap mats or by water sprays beginning as soon as the forms are stripped. After 48 hours of water cure, and with the acceptance of the Engineer, the curing of concrete surfaces may be completed by the curing compound method. Curing compounds shall be applied in strict conformance with the manufacturer's instructions.

3.11 **REPAIR OF CONCRETE CONSTRUCTION.** Immediately after the removal of forms, all concrete shall be inspected and all poor joints, rough sections, or rock pockets containing loose materials shall be repaired by cutting back to solid concrete and making an opening such size and shape as will form a 1-inch key for a cement mortar fill. Before the mortar is applied, the surface of the existing concrete shall be coated with an epoxy bonding compound. All form ties holes and small imperfections shall be filled. The fill for small imperfections and form ties shall consist of cement mortar composed of 1 part cement well mixed with 3 parts of fine aggregate by volume and just enough water so that the mortar will stick together on being molded into a ball by slight pressure of the hands; and it shall be thoroughly compacted into place. The exposed surface shall be neatly finished to match the surface and texture of the adjacent concrete. All patches shall be cured as accepted by the Engineer.

3.12 **FINISH OF FORMED SURFACES.** All finished or formed surfaces shall conform accurately to the shape, alignment, grades, and sections as shown on the drawings. Surfaces shall be free from fins, bulges, ridges, offsets, honeycombing, or roughness, and shall present a finished, continuous, hard surface. Slabs shall have a trowel finish.

End of Section 03300

1. GENERAL

A. WORK INCLUDED

- 1.01 Scope
- 1.02 Quality Assurance
- 1.03 Submittals
- 1.04 Product Handling
- 1.05 Measurement and Payment

- 2.01 Structural Steel Shapes and Plates
- 2.02 Bolts, Nuts, and Fasteners
- 2.03 Surface Treatment - Shop Applied
- 2.04 Surface Treatment - Field Applied
- 2.05 Grout
- 2.06 Other Materials

- 3.01 Surface Conditions
- 3.02 Fabrication
- 3.03 Welding
- 3.04 Erection

B. RELATED WORK IN OTHER SECTIONS

Section 05500 - Miscellaneous Metals
Section 09910 - Bridge Painting

1.01 SCOPE. The work covered in this section consists of furnishing all labor, material, and equipment for the fabrication and erection of all structural steel shown on the drawings and as specified.

1.02 QUALITY ASSURANCE

A. QUALIFICATIONS OF SUPPLIERS AND PERSONNEL

- 1. The steel fabricator shall have not less than 5 years of continuous experience in the fabrication of structural steel.
- 2. The steel erector shall have not less than 5 years of continuous experience in the erection of structural steel.
- 3. All welding shall be performed by operators who have been recently qualified as prescribed in "Qualifications Procedure" of the American Welding Society.

B. CODES AND STANDARDS. In addition to complying with all pertinent codes and regulations, comply with:

1. "Specifications for Design, Fabrication and Erection of Structural Steel for Buildings" of the American Institute of Steel Construction.
2. "Code for Welding in Building Construction" of the American Welding Society.
3. "Specifications for Architecturally Exposed Structural Steel" of the American Institute of Steel Construction.
4. "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" of the American Institute of Steel Construction.

C. CONFLICTING REQUIREMENTS. In the event of conflict between pertinent codes and regulations of the requirements of the referenced standards or these specifications, the provisions of the more stringent shall govern.

1.03 SUBMITTALS

- A. SUBMIT shop drawings of all structural steel and all items to be fabricated on this project.
- B. SHOP DRAWINGS shall clearly indicate all shop and field fabrication and erection details and sequences.
- C. SHOW all welds, both shop and field, by the currently recommended symbols of the American Welding Society.
- D. SHOP DRAWINGS shall comply with Section 01300, Submittals.
- E. SUBMIT erection plan showing method for placing steel including magnitude and location of equipment loading.

1.04 PRODUCT HANDLING

- A. PROTECTION. Use all means necessary to protect structural steel before, during, and after installation and to protect the installed work and materials of all other trades.
- B. REPLACEMENTS. In the event of damage, immediately make all repairs and replacements necessary to the acceptance of the Engineer and at no additional cost to the Owner.

1.05 MEASUREMENT AND PAYMENT. All work under this section shall be included in the contract lump sum or unit price bid.

2. PRODUCTS

- 2.01 STRUCTURAL STEEL SHAPES AND PLATES shall meet the requirements for A36 steel.

2.02 BOLTS, NUTS, AND FASTENERS

- A. MACHINE BOLTS and anchor bolts shall meet the requirements of ASTM A 307 unless designated otherwise.
- B. ANCHOR BOLTS, complete with washers and nuts, shall be hot-dip galvanized steel.
- C. HIGH-STRENGTH BOLTS where designated shall conform to the requirements of ASTM A 325.

2.03 SURFACE TREATMENT - SHOP APPLIED

- A. GALVANIZED SURFACES shall conform to applicable requirements of ASTM A 123, A 385, A 386, and A 525. Touch up damaged galvanized metal surfaces with "Galv-Weld," as manufactured by Galv-Weld Products, P.O. Box 1083, Holmes Beach, Florida 33509. Items that must be drilled or cut in the field may be done only with the acceptance of the Engineer.
- B. PAINTED SURFACES. See Section 05500, Paragraph 2.02B.

2.04 SURFACE TREATMENT - FIELD APPLIED

- A. GALVANIZED SURFACES. Items that must be drilled or cut in the field as accepted by the Engineer, or items that have been damaged shall be touched up with a molten galvanizing process before installation.
- B. PAINTED SURFACES. Damaged shop-primed surfaces and all field priming and finish painting shall be done as specified in Section 09910, System No. 3.

2.05 GROUT where required for anchoring, patching and grouting shall conform to the requirements of Grout, Section 03300.

2.06 OTHER MATERIALS. All other materials not specifically described but required for a complete and proper installation of structural steel, shall be new, free from rust, first quality of their respective kinds, and subject to the acceptance of the Engineer.

3. EXECUTION**3.01 SURFACE CONDITIONS****A. INSPECTION**

- 1. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

2. Verify that structural steel may be fabricated and erected in strict accordance with the original design, the reviewed shop drawings, and the referenced standards.

B. DISCREPANCIES

1. In the event of discrepancy, immediately notify the Engineer.
2. Do not proceed with fabrication or installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 FABRICATION

A. GENERAL. Fabricate all structural steel in strict accordance with the reviewed shop drawings and the referenced standards.

B. SHOP CLEANING AND PRIMING

1. Shop paint all structural steel with 1 coat of primer.
2. Thoroughly clean all steel to be encased in concrete.

3.03 WELDING

A. GENERAL

1. For details of joints, comply with requirements for AWS joints accepted with qualification tests.
2. Use ASTM A 233, E-70 series electrodes.
3. Follow applicable sections of AWS specifications.

B. TYPES OF WELDS. Unless otherwise noted:

1. Make all fillet welds 3/16 inch minimum.
2. Make all butt welds full penetration welds, using back-up or chip and back weld.

3.04 ERECTION

A. GENERAL. Erect all structural steel in strict accordance with the drawings, the reviewed shop drawings, and all pertinent regulations and standards.

B. TOLERANCE. Align all structural steel straight, plumb, and level within a tolerance of 1 in 500.

- C. TOUCH-UP. After erection is complete, touch up all shop priming coats damaged during transportation and erection, and prime all field welds on members which have been primed, using the priming paint specified for shop priming.

End of Section 05120

1. GENERAL**A. WORK INCLUDED**

- 1.01 Scope
- 1.02 Submittals
- 1.03 Storage and Handling
- 1.04 Measurement and Payment

- 2.01 Steel Items
- 2.02 Surface Treatment - Shop Applied
- 2.03 Surface Treatment - Field Applied
- 2.04 Nonshrink Grout

- 3.01 Construction
- 3.02 Installation
- 3.03 Replacement of Existing Rivets

B. RELATED WORK IN OTHER SECTIONS

Division 1 - General Requirements
Section 03300 - Cast-in-Place Concrete
Section 09910 - Bridge Painting

1.01 SCOPE. The work covered in this section consists of furnishing all labor, material, and equipment for the fabrication and erection of all miscellaneous metals shown on the drawings and as specified.

1.02 SUBMITTALS**A. SHOP DRAWINGS**

- 1. Submit shop drawings of all items to be fabricated on this project.
- 2. Shop drawings shall clearly indicate all shop and field fabrication and erection details and sequences.
- 3. Shop drawings shall comply with Section 01300, Submittals.

B. FURNISH SAMPLES of railing systems prior to fabrication and delivery to the site, indicating typical joints and construction quality to be expected. Submit samples in accordance with Section 01300, Submittals.

1.03 STORAGE AND HANDLING

A. STORE JOBSITE METALS on blocks above snow or mud and soil. After erection, remove any weld spatter, oil, and grease. Clean abraded, bolted, and welded areas and touch up as required in Section 09910.

1.04 MEASUREMENT AND PAYMENT. All work under this section shall be included in the contract lump sum price.

2. PRODUCTS

2.01 STEEL ITEMS

- A. MISCELLANEOUS STEEL METAL WORK consists of embedded and nonembedded steel metalwork, including brackets, hangers, slip angles, guides, inserts, and miscellaneous structural steel framing. All ferrous material not encased in concrete shall be hot-dip galvanized or painted as specified after fabrication.
- B. MISCELLANEOUS STRUCTURAL STEEL shall conform to ASTM A 36, structural grade and shall be hot-dip galvanized, or painted as specified after fabrication unless fully encased in concrete.
- C. ANCHOR BOLTS AND BOLTS, complete with washers and nuts, shall be hot-dip galvanized steel unless fully encased in concrete.
- D. STAINLESS-STEEL anchor bolts, washers, and nuts shall be used when embedded in concrete for submerged conditions and shall be ASTM A 320, Standard Type 304.
- E. HIGH-STRENGTH BOLTS shall be used to fasten structural steel and shall conform to the requirements of ASTM A 325.
- F. EXPANSION BOLTS where called for or approved shall be Kwik-Bolt as manufactured by McCulloch Industries, Red-Head Wedge Anchors as manufactured by ITT Phillips Drill Division, Molly Parabolt as manufactured by USM Corp., or equal. For wet or corrosive conditions, bolts shall be stainless steel unless completely protected by concrete cover.
- G. ELECTRODES shall be low-hydrogen group 1/8 inch and conform to ASTM E 70-74. Stainless-steel weld shall be performed with AISI 316L electrodes.
- H. STEEL EDGER shall be 1/8-inch by 4-inch steel bar and be secured with 18-inch steel stakes. Finish with coal tar epoxy paint in accordance with Section 09910.
- I. PIPE HANGER RODS shall be cut and threaded to fit and galvanized after fabrication. The use of "all thread rod" will not be accepted.
- J. GRATING shall be United Interlock Grating as manufactured by United McGill Corporation, or approved equal. Grating shall interlock with male-female legs providing a friction lock. Grating shall be manufactured from steel sheets conforming to ASTM A 446. Galvanized coating shall be Class 6-90. The minimum thickness of material shall be 0.075 inches. Grating height shall be 4 inches. Grating shall carry a uniform live load of 100 pounds per square foot and a concentrated load of 800 pounds. The surface shall be anti-skid.

2.02 SURFACE TREATMENT - SHOP APPLIED

- A. GALVANIZED SURFACES shall conform to applicable requirements of ASTM A 123, A 385, A 386, and A 525. Touch up damaged galvanized metal surfaces with "Galv-Weld," as manufactured by Galv-Weld Products, P.O. Box 1083, Holmes Beach, Florida 33509. Items that must be drilled or cut in the field may be done only with the approval of the Engineer.
- B. PAINTED SURFACES
1. Clean steel to SSPC-SP-10 Requirements.
 2. Coating shall be:

Organic Zinc Primer and High Build Epoxy Top Coat

Prime Coat - One coat Porter Zinc Lock 308 red applied at 2.5 to 3 mil dry-film thickness.

Second Coat - High build epoxy Porter MCR-4361 high build epoxy applied at 4 to 5 mil dry-film thickness.

Third Coat - High build epoxy Porter MCR-4361 high build epoxy applied at 4 to 5 mil dry-film thickness.

Minimum total mils DFT:10

2.03 SURFACE TREATMENT - FIELD APPLIED

- A. GALVANIZED SURFACES. Items that must be drilled or cut in the field as approved by the Engineer or items that have been damaged shall be coated with molten "Galv-Weld" before installation.
- B. PAINTED SURFACES. Damaged shop primed surfaces and all field painting shall be as follows: Remove all slag and weld splatter SSPC-SP-3, Clean steel to SSPC-SP-6 requirements. Apply coating as specified in 202B.

- 2.04 GROUT where required for anchoring, patching and grouting shall conform to the requirements of Grout, Section 03300.

3. EXECUTION

3.01 CONSTRUCTION

- A. GENERAL REQUIREMENTS. Metal fabrications shall be installed as shown or as directed. Metal fabrications which are bent, broken, or otherwise damaged shall be repaired or replaced by the Contractor to the satisfaction of the Engineer. Embedding of metal fabrications shall be in strict accordance with Section 03300.

Metal fabrications to be embedded in concrete shall be placed accurately and held in correct position while the concrete is placed, or if shown or accepted, recesses or blockouts shall be formed in the concrete and the metal fabrications shall be grouted in place. The surfaces of metal fabrications in contact with or embedded in concrete shall be thoroughly cleaned of all rust, dirt, grease, loose scale, grout, mortar, and other foreign matter. If accepted, recesses may be neatly cored in the concrete after it has attained its design strength and the metal fabrication grouted in place. All metal fabrication shall have proper fit and shall be job measured where necessary.

3.02 INSTALLATION

- A. ANCHOR BOLTS. Expansion anchors set in holes drilled in the concrete after the concrete is placed will not be permitted in substitution for anchor bolts except with the prior written acceptance of the Engineer. After anchor bolts have been embedded, their threads shall be protected by grease and by having the nuts screwed on or by other accepted means until the time of installation of the equipment or metal fabrication.
- B. EXPANSION BOLTS where used shall be installed with care so that multiple or oversized holes are not drilled. In the event that holes are not drilled properly in accordance with manufacturer's recommendations, repairs shall be made with non-shrink epoxy grout in a manner that the full integrity of the structure is achieved as intended.
- C. STEEL EDGER shall be secured with 18-inch-long steel stakes. There shall be 8 stakes per 20 feet of steel edging.
- D. ALIGNMENT - RAILING
 - 1. Horizontal rails should parallel the finished mounting surface giving a smooth continuous appearance to the total length of railing. Before the base plates are placed, a check shall be made to ensure that the railing presents a smooth continuous appearance and any misalignment shall be corrected to the satisfaction of the Engineer.
 - 2. Posts shall be installed vertical within 1/16 inch per foot of height. Posts shall be spaced on 6-foot centers.
- E. ALUMINUM MATERIALS in contact with concrete, other metals, or other masonry materials shall have surfaces coated with 1 coat of Koppers 654 Epoxy Primer 1 to 2 mils D.F., followed by 2 coats of Koppers Bitumastic No. 300-M 6 to 8 mils D.F., or 1 coat of Porters 7650 Epoxy Primer 1 to 2 mils D.F., followed by 2 coats of Porters Tarslet C-200 6 to 8 mils D.F., or equal.

- F. SEAT ANGLES, SUPPORTS, AND GUIDES. Seat angles for grating and cover plates shall be set so that top is flush with the floor and support the gratings and floor plates evenly.
- G. MISCELLANEOUS ALUMINUM ITEMS shall be fabricated in a workmanlike manner. Welding shall be performed by welders with a minimum of 2 years of experience in welding aluminum.
- H. TOUCH UP shop-finished items with touch-up paint supplied by the manufacturer or fabricator.

3.03 REPLACEMENT OF EXISTING RIVETS

- A. DURING CONSTRUCTION of the bridge, loose, weak, or corroded rivets may be discovered by the Contractor or Engineer. The Contractor shall notify the Engineer of any of the above conditions.
- B. AT THE DIRECTION OF THE ENGINEER, the rivets shall be replaced with high-strength bolts conforming to ASTM A-325. Rivets shall be chipped and drilled out. Flame cutting will not be allowed.
- C. THE BOLTS AND SURROUNDING STEEL shall be sand blasted and coated according to Section 09910, Paragraph 2.03, Coating Schedule.

End of Section 05500

1. GENERAL**A. WORK INCLUDED**

- 1.01 Scope
- 1.02 General Requirements
- 1.03 Submittals
- 1.04 Handling of Pipe
- 1.05 Measurement and Payment

- 2.01 Ductile-Iron Pipe and Fittings
- 2.02 Concrete Cylinder Pipe and Fittings
- 2.03 Steel Pipe and Fittings
- 2.04 Butterfly Valves
- 2.05 Butterfly Valve Box
- 2.06 Insulation
- 2.07 Combination Air Release Valves
- 2.08 Pressure Gages

- 3.01 Verifications
- 3.02 Laying and Jointing of Pipe
- 3.03 Backfill
- 3.04 Installation of Ductile-Iron Water Mains
- 3.05 Valve Boxes
- 3.06 Valves
- 3.07 Connections to Existing Mains
- 3.08 Air/Vacuum and Air Release Valves
- 3.09 Testing, Disinfection and Final Review

B. RELATED WORK IN OTHER SECTIONS

Section 02221 - Trenching and Backfilling

1.01 SCOPE. The work covered by this section consists of furnishing all labor, material and equipment required for the pipe, fittings and appurtenances as shown on the drawings and as specified.

1.02 GENERAL REQUIREMENTS

A. DELIVERY AND STORAGE. All pipe and fittings shall be delivered in sound condition. Care shall be taken to protect exterior coatings and linings. Place no material of any kind inside of any piece of pipe or fitting during handling, storage or transit. Pipe and fittings, and valves shall be stored in a protected dry area to avoid cracking of cast iron or damage to coatings or linings.

1.03 SUBMITTALS

- A. SCHEDULE. The Contractor shall submit a schedule for the laying of pipe. Fabricating and ordering of the pipe shall not be made until the Engineer has reviewed the schedules.
- B. SHOP DRAWINGS. The Contractor shall provide shop drawings in accordance with Section 01300, showing fabrication, joint details, and each special fitting to be furnished. Shop drawings shall also be provided for all valves. These details and drawings shall be submitted to the Engineer for review prior to fabrication and ordering.
- C. MANUFACTURER. Pipe and valves shall be manufactured by a firm regularly engaged in the successful manufacturer of the type of pipe furnished.

1.04 HANDLING OF PIPE. The pipe shall not be dropped or subjected to any unnecessary jar, impact or other treatment that might damage the pipe. Any unit of pipe that, in the opinion of the Engineer, is damaged beyond repair by the Contractor shall be replaced by another unit. Any pipe that is damaged and repairable shall be repaired in the field or, at the direction of the Engineer, returned to the manufacturing plant for repair.

1.05 MEASUREMENT AND PAYMENT. All work under this section shall be included in the applicable unit price or lump sum price bid item.

2. PRODUCTS

2.01 DUCTILE-IRON PIPE AND FITTINGS shall conform to the following:

A. PIPE

- 1. Material: Ductile Iron 60-42-10
- 2. Conform to ANSI A21.51.
- 3. Class: 51.
- 4. Cement mortar lined and bituminous seal coated conforming to ANSI 21.4.
- 5. Exterior bituminous coating conforming to ANSI 21.10.

B. JOINTS

- 1. Flanged, mechanical, push-on, or grooved end as shown on drawings.
- 2. Flanged - Class 125 conforming to ANSI B16.1, 250 psi water working pressure, ductile iron or galvanized steel nuts and bolts, full face factory formed gaskets. Flanged pipe shall be Class 53.

3. Mechanical - conform to ANSI A21.10 and ANSI A21.11.
4. Push-on - conform to ANSI A21.10 and ANSI A21.11.
5. Grooved end - grooved mechanical type which engages grooved pipe ends. Victaulic style 31, Smith-Blair 472 ME-PRE-GRUV, or equal.

C. FITTINGS

1. Mechanical joint, flanged, or grooved as shown on the drawings.
2. Cast or ductile iron.
3. Cement mortar lined and bituminous seal coated conforming to ANSI 21.4, exterior bituminous coating ANSI 21.10.
4. Furnish conforming joint accessories for each joint fitting.
5. Design working pressure: 250 psi.
6. Mechanical joint conforming to ANSI A21.10 and ANSI A21.11.
7. Flanged conforming to Class 125 ANSI B16.1.

D. RESTRAINED JOINTS AND FITTINGS shall conform to the following:

1. Restrained joints and fittings shall be utilized where called for on the drawings.
2. Fittings shall be mechanical joint; joints to be bell and spigot or mechanical joint.
3. Ductile-iron retainer rings.
4. Corrosion resistant (Corten), low alloy, high strength tee head bolts and nuts.
5. Cement mortar lined and bituminous seal coated ANSI 21.4.
6. Bituminous coating ANSI A21.51 and ANSI 21.10.
7. 350 psi design working pressure.
8. Lock mechanical joint as manufactured by Pacific States, or equal.
9. Restrained joints using set screws to fasten the follower to the pipe will not be accepted.

E. BOLTS AND NUTS

1. Buried Service - ASTM A325 bolts. Bolts and nuts to be manufactured from high strength low alloy steel conforming to ASTM A-242, Corten or equal.
2. Above Ground - galvanized steel.

F. COUPLINGS

1. All exterior exposed surfaces, including bolts and follower rings shall have a 20-mil minimum coal-tar epoxy coating, unless otherwise noted.
2. The coupling's rated working pressure shall not be less than the service rating of the pipe in which it is installed.
3. Plain-end cast-iron coupling: Straight-type cast-iron coupling for cast-iron or ductile-iron pipe shall be Rockwell No. 431, Dresser Style 38, or approved equal.
4. Plain-end transition coupling: Transition-type cast-iron coupling for connecting pipe with different O.D. shall be Rockwell No. 433 or No. 415, Dresser Style 62, or approved equal.
5. Flanged adaptor: Cast-iron coupling for joining plain-end pipe to flanged valves, pumps, fittings, etc., with tapped hole for set screw shall be Rockwell No. 912 or 913, Dresser Style 127 or 128, or approved equal.
6. Plain-end steel coupling: Straight-type steel coupling for joining plain-end steel pipe shall be Rockwell No. 411, Dresser Style 38, or approved equal.

2.02 CONCRETE CYLINDER PIPE FITTINGS

- A. GENERAL. Mortar lined and coated steel cylinder pipe shall be bell-and-spigot, pretensioned conforming to AWWA C 303-70. It shall be capable of withstanding 100 psi internal working pressure and required external loads.
- B. PROTECTIVE COATING. Bare steel at the ends of the pipe sections and all buried fittings shall be coated at the factory with polyamide cured epoxy suitable for steel surfaces in accordance with the manufacturer's instructions. The coating system shall be applied in 2 coats as follows:
 1. Prime: 1 coat, 2-mil dry-film thickness.
 2. Top coat: 1 coat, 8-mil dry-film thickness.
- C. JOINT GASKET. Joint gaskets shall be in accordance with the pipe manufacturer's recommendations.
- D. DATA REQUIRED. The manufacturer shall provide the following data in addition to the other requirements herein: an affidavit of compliance; design calculations; steel test reports; concrete test reports; rubber gasket test reports; and details of specials and fittings.

- E. FITTINGS FOR CONCRETE CYLINDER PIPE. Shop drawings showing details and dimensions of all fabricated fittings shall be submitted to acceptance before fabrication.

2.03 STEEL PIPE AND FITTINGS

- A. GENERAL. Welded steel water pipe shall be manufactured in accordance with AWWA C 200 with spiral seams and 3/16-inch wall thickness.
- B. PROTECTIVE COATING
1. Interior corrosion protection shall consist of primer and coal tar enamel applied in accordance with AWWA C 203.
 2. The exterior of the pipe and mechanical couplings shall be painted with chlorinated rubber-alkyd paint system in accordance with AWWA C204. Pipe to be shop primed and painted.
 3. In addition to painting, all buried piping shall be protected with coal tar enamel and bonded asbestos felt wrap.
- C. FITTINGS. Fittings shall be fabricated of the same gage material as that of the adjacent straight pipe section and in accordance with AWWA C 208. Fittings shall be coated to the same specification as the pipe coating.
- D. COUPLINGS
1. All pipe ends shall be plain ends prepared for mechanical compression couplings. Joint tolerance shall not exceed those specified in AWWA C 200. Joints and couplings shall be coated to the same specification as the pipe coating. The length between couplings shall be 42 feet. Couplings shall be placed midway between cross beam.
 2. Coupling shall be straight-type steel coupling for joining plain end steel pipe, Rockwell No. 411, Dresser Style 38, or approved equal.
- E. WELDING. Welding of steel pipe shall conform to AWWA C 206.

2.04 BUTTERFLY VALVES shall meet the following requirements:

- A. CONFORM to AWWA C 504, Class 150B.
- B. SIZE as indicated on drawings.
- C. CAST-IRON BODY, one piece stainless steel shaft.
- D. MECHANICAL or flanged joint as shown on the drawings.
- E. PROTECT exterior surfaces with additional coat of coal tar enamel.
- F. TIGHT-CLOSING, RUBBER SEAT-TYPE with seats bonded to the valve body; no metal to metal surfaces.
- G. BUBBLE TIGHT at 150 psi rated pressure with flow in either direction.

- H. DISCS shall rotate 90 degrees from full open to tight shut position.
 - I. OPEN in counterclockwise direction; minimum of 30 turns to move from fully opened to the fully closed position.
 - J. PROVIDE with 2-inch square operating nut.
 - K. MANUAL OPERATORS for buried service.
 - 1. Traveling nut, link and level-type, or worm gear, fully enclosed.
 - 2. Units furnished for buried service shall be fully gasketed and grease-packed and designed to withstand submergence in water to 10 psi.
 - 3. Operator components shall, at the extreme position, withstand an input torque of 300 foot pounds.
 - L. BURIED VALVE ACCESSORIES (box, operating nut, removable cover, etc.) shall be supplied by equipment supplier.
 - M. BURIED VALVES shall be "groundhog" as manufactured by Henry Pratt, Kennedy Butterfly Valve, or equal.
- 2.05 BUTTERFLY VALVE BOX. Valve boxes shall be 6-inch outside diameter 12-gage steel pipe extension section, length as required. The top section shall be 6-1/4-inch inside diameter cast iron, 15 inches long and shall have the word "Water" cast into the top of the lid. Where the depth of the operating nut is more than three feet, operating extensions shall be provided to bring the operating nut to a point 18 inches below the surface of the pavement. The extension shall be constructed of steel.
- 2.06 INSULATION. Piping and valves exposed to the atmosphere shall be insulated with a 1-inch, expanded polyurethane wrap with a minimum of R-12 rating where shown on the drawings. All insulation shall be protected by 0.016-inch-thick aluminum jacketing of alloy No. 5005, 1145, or 3003.
- There shall be a continuous friction-type joint, providing a positive waterproof seal along the entire length of the aluminum jacket.
- 2.07 COMBINATION AIR RELEASE VALVES shall exhaust large quantities of air when line is being filled and exhaust small pockets of air that collects when line is operating under pressure.
- A. MATERIAL. Cast-iron body, cover and lever frame; stainless steel float Buna-N seat; stainless or bronze fittings.
 - B. SIZE. As shown on drawings or as indicated herein.
 - C. FOUR-INCH COMBINATION, Apco Model No. 149C, as manufactured by Valve and Primer Corporation, or approved equal.

- D. EXPOSED galvanized pipe threads coated with rust-inhibitive paint.
- E. PROVIDE with inlet gate valve.

2.08 PRESSURE GAGES shall be installed at the locations shown on drawings.

Shut-off cocks and flushing cock shall be provided and installed at all pressure gages. Provide and install viton diaphragm seals at all pressure gages.

Pressure gages and diaphragm seals shall be Marsh, Ashcroft, or equal.

3. EXECUTION

3.01 VERIFICATIONS. Verify layout, check excavation and condition of trenches for underground work. Prepare for any cast-in-place components. Check connections to equipment and/or other types of piping. Provide for installation of accessory items.

3.02 LAYING AND JOINTING OF PIPE

A. GENERAL. After the trench bottom has been properly prepared so as to give the pipe firm and uniform support, the pipe is ready to be placed and joined in the trench. Pipe laid along the road for installation shall not obstruct drives, streets, or be a traffic hazard.

1. Pipe laying: Laying of ductile iron, cast iron, and steel pressure pipelines shall conform to applicable portions of Section 3 of AWWA C 600.

Anchorage shall be provided for fittings where there is a possibility of pulling the joint under pressure. Anchors shall be in accordance with applicable portions of Section 3.8, AWWA C 600, except as otherwise shown.

Pipe shall be handled with canvas slings or devices to prevent damage to the pipe exterior. Each piece of pipe shall be laid in such a manner as to prevent any sudden offsets in the flow line. As the work progresses, the interior of the pipe shall be cleared of all dirt and debris of every description. Pipe shall not be laid when the condition of the trench or the weather is unsuitable. At times when work is not in progress, open ends of pipe and fittings shall be closed.

Thrust restraint for concrete cylinder pipe shall be provided for all joints from pipe to fittings and from fittings to structures by providing bolts at spring line or by intermittent welding of the steel joint rings. Details shall be submitted to the Engineer for approval.

2. Pipe jointing:

- a. Mechanical joints or push-on joints shall be installed in accordance with the manufacturer's recommendations. Victaulic couplings shall not be used for buried services.
- b. Concrete cylinder pipe: The rubber gasket shall be carefully positioned in the spigot ring groove and shall be lubricated with an approved lubricant. After the joint has been made, the position of the rubber gasket shall be checked with a specially made feeler gage. Joints found to be improperly made shall be fully separated, rejointed and checked.

The inside joint space shall be manually filled. The outside joint space shall be field coated in an approved manner using the cement mortar of a consistency which will ensure that the entire space is filled.

- B. LAYING. All piping shall be laid true to line and grade, and all water shall be removed from the trench during laying and joining. The pipe shall be kept thoroughly clean so that joining gaskets will seat properly. Each laid length of pipe shall be thoroughly swabbed to remove all foreign material before the next length is laid. Ductile-iron pipe shall be laid in accordance with AWWA C 600, Section 3, Installation.
- C. WATERTIGHTNESS. It is a major requirement of this contract that all lines be built watertight, and that they be built properly to stay watertight. Therefore, it shall be the Contractor's responsibility to see that all joints are made in a manner sufficient to ensure the results specified.
- D. JOINTING MATERIALS of approved type shall be installed in strict accordance with their manufacturer's specifications.

3.03 BACKFILL shall be provided as detailed and shall conform to the applicable portions of Section 02221, Trenching and Backfilling.

3.04 INSTALLATION OF DUCTILE-IRON WATER MAINS

- A. GENERAL. All installation and backfilling shall be carried out under applicable portions of Section 02221 and as shown on the drawings.
- B. CORRECTION OF DEFECTS. Defects shall be corrected to the satisfaction of the Engineer.

3.05 VALVE BOXES. Center the valve boxes and set plumb over the wrench nuts of the valves. Set valve boxes so that they do not transmit shock or stress to the valves. Set the valve box covers flush with the surface of the finished pavement as shown, or such other level as may be ordered by the Engineer. Cut extensions to the proper length so that the valve box does not ride on the extension when set at grade. Valve boxes shall be installed in conformance with 'standard details.

Backfill shall be the same as specified for the adjacent pipe. Place backfill around the valve boxes and thoroughly compact to a density equal to that specified for the adjacent trench and in such a manner that will not damage or displace the valve box from proper alignment or grade. Misaligned valve boxes shall be excavated, plumbed, and backfilled at the Contractor's expense.

- 3.06 VALVES. Before installation, the valves shall be thoroughly cleaned of all foreign material, and shall be inspected for proper operation, both opening and closing, and to verify that the valves seat properly. Valves shall be installed so that the stems are vertical unless otherwise directed. Jointing shall conform to AWWA C 600. Valves shall be installed in accordance with standard details. Joints shall be tested with the adjacent pipeline. If joints leak under test, valves shall be disconnected and reconnected, and the valve and/or the pipeline retested.

Faces of flanges shall be cleaned thoroughly before flanged joint is assembled. After cleaning, the gasket shall be inserted and the nuts tightened uniformly around the flange. If flanges leak under test, the nuts shall be loosened, the gasket reset or replaced, the nuts retightened, and the valve and/or pipeline retested.

- 3.07 CONNECTIONS TO EXISTING MAINS shall be as shown on drawings. Connections shall be made after installation is completed, tested, and disinfected. Connections shall be made between the hours previously approved by the Owner. The Contractor shall notify the City of Newberg 48 hours prior to shutting off the line and proceed only after receiving permission. On wet connections, sleeve must be tested for leaks prior to boring pilot hole. Paint shackle rock with bitumastic after installation. The Contractor shall notify all affected users at least 48 hours in advance by a circular. Testing of the connections shall be by visual inspection.

All fittings, valves, pipe and couplings shall be disinfected as specified in Paragraph 3.10 and flushed prior to making the connection. Installation methods to be used in the making of their connections to the existing systems shall be reviewed by the Engineer and/or Owner. All salvaged fittings shall become the property of the Owner and shall be delivered to the location specified by the Owner.

Complete service installation ready for changeover prior to shutting off water. Notify users just prior to shut-off. Bleed air from hose bibb after connection is completed. Inspection prior to backfilling is required.

- 3.08 AIR/VACUUM AND AIR RELEASE VALVES shall be installed as a single unit at the high point of the water main as shown on the drawing. Exact location will be based on the field-laying conditions and pipe grade as laid by the Contractor. The exact location will be determined in the field by the Engineer. The air/vacuum and release valve assembly will be constructed as shown in the standard water main details and as specified on the drawings.

3.09 TESTING, DISINFECTION AND FINAL REVIEW

- A. TESTING - GENERAL.** Upon completion of installation of piping, fittings, valves and appurtenances, the Contractor shall test the system. All thrust blocks shall be in place and shall have a minimum strength of 2000 psi at 28 days. At least 7 days shall be allowed for the concrete to cure before testing. The Contractor shall install adequate blocking or other means of resisting test pressure. It shall be the Contractor's responsibility to adequately block or otherwise support all factory attached caps.

Pipelines and pumping unit shall be initially filled by the Contractor at a rate of no greater than 1 foot per second. The Contractor shall allow 15 minutes from the time of completely full to purge any residual air from the piping systems.

The Contractor shall furnish all labor, tools and equipment for testing, including pressure pumps, piping, gates, temporary caps and supports. Water for testing purposes shall be furnished by City of Newberg. Conveying and special connection costs shall be the responsibility of the Contractor. Any damage resulting from or caused by these tests shall be repaired at the Contractor's expense.

Testing of pipelines shall be done as nearly as possible in completed runs between valves, or to a convenient cutoff, to enable all outlets of the run to be plugged or capped. Selection of test runs shall be reviewed by the Engineer to assure that the desired test coverage can be obtained.

- B. HYDROSTATIC TESTING** of water mains and hydrants shall be in accordance with AWWA C 600.
1. A leakage test shall be performed on all pressure lines, joints, and air release valves in the system prior to the Owner's acceptance of the system.
 2. Perform the test as follows:
 - a. Fill line with water.
 - b. Ensure all air is out of the line.
 - c. Allow line to sit 24 hours full of water.
 - d. Apply test pressure to line.
 - e. Maintain test pressure for 2 hours.

3. Test pressure shall be 100 psi.
4. Allowable Leakage
 - a. Leakage shall be defined by AWWA C 600 Section 4, Paragraph 4.2.1.
 - b. Leakage shall not exceed values for "L" calculated below:

$$L = \frac{ND(P)^{1/2}}{7400}$$

where L = allowable leakage, gal/hr
N = number of joints tested
D = pipe diameter, inches
P = test pressure, psi gage

- C. DISINFECTION OF WATER MAINS. Main and appurtenances shall be disinfected in accordance with AWWA C 601.

The Contractor shall obtain the samples for testing in the presence of the Engineer, and the Engineer shall submit the samples to the State Board of Health for approval. Water main shall not be acceptable or ready for service until the Board of Health has approved the necessary samples.

- D. CLEANUP AND REPAIR shall conform to the applicable requirements of Section 02221, Trenching and Backfilling.

End of Section 15060