

TOWN OF LA CONNER

Project Manual

Washington Street & Road Street Pedestrian Improvements

Ref #TOLC00002014

January 2025



DAVID EVANS
AND ASSOCIATES INC.

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GENERAL INFORMATION

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ADVERTISEMENT FOR BIDS
TOWN OF LA CONNER
Washington & Road Streets Pedestrian Improvements

Bid Date:

Notice is hereby given that the Town of La Conner will receive sealed bids for construction of Washington St & Road St Pedestrian Improvements. The bids for the above contract will be received at the offices of the Town of La Conner, Post Office Box 400, 204 Douglas Street, La Conner, Washington 98257 until **10:30 AM on Tuesday, February 18, 2025**, at which time the bids will be opened and publicly read aloud. Note that the Town office is open Monday – Thursday, 8:30 AM – 4:00 PM (closed on Fridays).

Scope:

Principal items of the project are:

- Construct 220 SY of sidewalk
- Construct 160 SY of driveway
- Construct 780 LF of curb and gutter
- Construct 480 LF of 8" CPP storm drain
- Construct 80 TN of HMA trench patch and overlay
- Install 2 Rectangular Rapid Flashing Beacons (Town-provided)

Engineer's Estimate: \$290,000

Pre-Bid Walk Through:

All bidders are encouraged to visit the site and familiarize themselves with the conditions.

Plans and Specifications:

Each bid shall be in accordance with the Project Manual which includes Specifications and Contract Drawings provided via electronic mail.

Free-of-charge access to project bid documents (plans, specifications, addenda, and Bidders List) is provided to Prime Bidders, Subcontractors, and Vendors by going to www.bxwa.com and clicking on "Posted Projects", "Public Works", and "Town of LaConner". This online plan room provides Bidders with fully usable online documents with the ability to: download, view, print, order full/partial plan sets from numerous reprographic sources, and a free online digitizer/take-off tool. It is recommended that Bidders "Register" in order to receive automatic e-mail notification of future addenda and to place themselves on the "Self-Registered Bidders List". Bidders that do not register will not be automatically notified of addenda and will need to periodically check the on-line plan room for addenda issued on this project. Contact Builders Exchange of Washington at (425) 258-1303 should you require assistance with access or registration.

Bidders and/or contractors are notified to examine thoroughly the bid instructions, proposals, the form of Contract, Drawings and Specifications. If there be any doubt or obscurity as to the meaning of same, intending bidders or contractors should ask the Engineers for an explanation before submitting their proposal and/or accepting their Contract.

Project Contact:

Contact: Zack Worley, PE – David Evans and Associates, Inc.
Phone: (425) 519-6529
Email: zack.worley@deainc.com

Each bid shall be accompanied by a Bid Bond, Cashier's Check or Certified Check, made payable to the Town of La Conner Treasurer as indicated in the Instruction for Bidders.

The three lowest bids may not be withdrawn for 60 days after the day of bid opening.

The Owner reserves the right to reject any and all bids or waive any informalities in the bidding.

MARIA DE GOEDE, FINANCE DIRECTOR
TOWN OF LA CONNER
SKAGIT COUNTY, WASHINGTON

SECTION 00100

INSTRUCTION TO BIDDERS

1. PREPARATION OF BID

The Owner invites Bids on the form attached to be submitted at such time and place as is stated on the Advertisement for Bids. All blanks in the Bid Form must be appropriately filled in with typewriter or ink, and all unit prices must be stated in both words and figures.

Bidders shall fill in the separate Bid Forms furnished with the bound Specifications. Do not fill in the bound set of Bid Forms.

All Bids must be submitted in sealed envelopes bearing on the outside the name of the project for which the Bid is submitted. It is the sole responsibility of the Bidder to see that his Bid is received by the Owner in proper time. Any Bids received after the scheduled closing time for receipt of Bids will be returned to the Bidder unopened. Bid forms shall be submitted with bid guarantee and other materials required to be submitted with the bid as described in the contract documents or specifications.

2. SIGNATURES

The Bid must be signed in the name of the Bidder and must bear the signature in long hand of the person or persons duly authorized to sign the Bid.

3. MODIFICATIONS

Changes in or additions to the Bid Forms, recapitulations of the work bid upon, alternative proposals or any other modifications of the Bid Form which are not specifically called for in the Contract Documents may result in the Owner's rejection of the Bid as not being responsive to the advertisement. No oral or telephone modification of any Bid submitted will be considered and a telegraphic modification may be considered only if the post mark evidences that a copy of the modification by the telegram, signed by the Bidder, was placed in the mail prior to the opening of the Bid.

4. ERASURES

The Bid 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 corrections the surname of the person or persons signing the Bid.

5. EXAMINATION OF THE SITE, DRAWINGS, ETC.

Each Bidder shall visit the site of the proposed work and fully acquaint himself with the conditions relating to the construction and labor so that he may fully understand the facilities, difficulties, and restrictions attending the execution of the work under this 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 forms, instrument or addendum or other document or to visit the site and acquaint himself with conditions there existing shall in no way relieve the Bidder from obligations with respect to his Bid or to the Contract. The submission of a Bid shall be taken as a *prima facie* evidence of compliance with this section.

6. WITHDRAWAL OF BIDS

Any Bidder may withdraw his Bid, either personally, by written request, or by telegraphic request conformed in the manner specified in paragraph 3, at any time prior to the scheduled closing time for receipt of Bids.

7. AGREEMENT AND BONDS

The form of agreement which the successful Bidder, as Contractor, shall be required to execute, and the form and amounts of surety bonds, which he shall be required to furnish at the time of execution of the agreement, are included in the Contract Documents and should be carefully examined by the Bidder. The agreement and the surety bonds shall be executed in four (4) original counterparts.

8. INTERPRETATION OF DOCUMENTS PRIOR TO BID OPENING

Bidders and/or Contractors are notified to examine thoroughly the Instructions to Bidders, Bid Form, the form of contract (Agreement), Drawings and Specifications.

If any person contemplating submitting a Bid for the proposed Agreement is in doubt as to the true meaning of any part of the Drawings, Specifications or other contract Documents, or finds discrepancies, in or omissions from the Drawings or Specifications, he may submit to the Engineer a written request for an interpretation or correction thereof. The person submitting the request shall be responsible for its prompt and timely delivery. Any interpretation or correction of the Contract Documents will be made only by Addendum issued by the Engineer. A copy of such Addendum will be provided to each person receiving a set of Contractor Documents. The means of providing such Addendum will be determined by the Engineer and may include provision by facsimile, regular mail, email or posting online in the same manner as contract documents were distributed. However, responsibility shall rest solely with each of the intending Bidders to determine that he has, by time of bidding, received all Addenda applicable. The Owner or Engineer will not be responsible for any other explanation or interpretation of the Contract Documents. No oral interpretation or provisions in the Contract Documents will be made to the Bidder.

Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule by examination of the site and a review of the Drawings and Specifications including addenda. After bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done.

9. BIDDERS INTERESTED IN MORE THAN ONE BID

No person, firm, or corporation shall be allowed to make, or file, or be interested in more than one Bid for the same work unless alternate Bids are specifically called for. A person, firm, or corporation that has submitted a sub proposal to a Bidder, is not thereby disqualified from submitting a sub-

proposal or quoting prices to other Bidders or making a prime proposal.

10. RECIPROCAL PREFERENCE FOR RESIDENT CONTRACTORS

In accordance with RCW 39.04.380 the State of Washington is enforcing a Reciprocal Preference for Resident Contractors. For any public works bid received from a nonresident contractor from a state that provides an in-state percentage bidding preference, a comparable percentage disadvantage must be applied to the bid of that nonresident contractor. A nonresident contractor from a state that provides a percentage bid preference means a contractor that:

1. Is from a state that provides a percentage bid preference to its resident contractors bidding on public works contracts.
2. At the time of bidding on a public works project, does not have a physical office located in Washington.

The state of residence for a nonresident contractor is the state in which the contractor was incorporated or, if not a corporation, the state where the contractor's business entity was formed.

All nonresident contractors will be evaluated for out of state bidder preference. If the state of the nonresident contractor provides an in-state contractor preference, a comparable percentage disadvantage will be applied to their bid prior to contract award.

This section does not apply to public works procured pursuant to RCW 39.04.155, 39.04.280, or any other procurement exempt from competitive bidding.

11. BIDDER RESPONSIBILITY CRITERIA

It is the intent of Owner to award a contract to the low responsible bidder. Before award, the bidder must meet the following bidder responsibility criteria to be considered a responsible bidder. The bidder may be required by the Owner to submit documentation demonstrating compliance with the criteria. The bidder must:

1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of bid submittal;
2. Have a current Washington Unified Business Identifier (UBI) number;
3. If applicable:
 - a. Have Industrial Insurance (workers' compensation) coverage for the bidder's employees working in Washington, as required in Title 51 RCW;
 - b. Have a Washington Employment Security Reference Number, as required in Title 50 RCW;
 - c. Have a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).
5. Until December 31, 2013, not have violated RCW 39.04.370 more than one time as determined by the Department of Labor and Industries.
6. If bidding on a public works project subject to the apprenticeship utilization requirements in RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the date of the bid solicitation.

12. SUBCONTRACTOR RESPONSIBILITY

1. The Contractor shall include the language of this section in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for

the contracting parties. Upon request of the Owner, the Contractor shall promptly provide documentation to the Owner demonstrating that the subcontractor meets the subcontractor responsibility criteria below. The requirements of this section apply to all subcontractors regardless of tier.

2. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:
 - a. Have a current certificate of registration in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;
 - b. Have a current Washington Unified Business Identifier (UBI) number;
 - c. If applicable, have:
 - i. Industrial Insurance (workers' compensation) coverage for the subcontractor's employees working in Washington, as required in Title 51 RCW;
 - ii. A Washington Employment Security Reference Number, as required in Title 50 RCW;
 - iii. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
 - iv. An electrical contractor license, if required by Chapter 19.28 RCW;
 - v. An elevator contractor license, if required by Chapter 70.87 RCW.
 - d. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065 (3).
3. Until December 31, 2013, not have violated RCW 39.04.370 more than one time as determined by the Department of Labor and Industries.
4. If bidding on a public works project subject to the apprenticeship utilization requirements in RCW 39.04.320, not have been found out of compliance by

the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the date of the bid solicitation.

13. SUPPLEMENTAL BIDDER RESPONSIBILITY CRITERIA

None.

14. AWARD OF CONTRACT

The Owner shall review the Bid submittal. In the case of a discrepancy between unit prices and total cost extensions, unit price shall be used to determine the total amount bid. In the case of a discrepancy between prices stated in words and figures, prices stated in words shall be used to determine the total amount bid.

For a public works bid received from a nonresident contractor from a state that provides an in-state percentage bidding preference, a Comparable Percentage Disadvantage (CPD) will be applied to the bid of that nonresident contractor. The CPD is the in-state contractor percent advantage provided by the contractor's home state. For the purpose of determining the successful bidder, multiply the Nonresident Contractor bid amount by the CPD. The "bid amount" shall be the total of the base bid and all accepted alternate bid items. The CPD shall be added to the Nonresident Contractor bid amount which equates to the Nonresident Disadvantage Total. The Nonresident Disadvantage Total shall be compared to the Washington contractor bid amounts. The bidder with the lowest total shall be the successful bidder, providing the bidder meets all other requirements. For example, if the Nonresident Disadvantage Total is lower than all other Washington contractor bid amounts, the Nonresident Contractor is the successful bidder at their bid amount. If the Nonresident Disadvantage Total is higher

than a Washington contractor bid amount, the successful Washington bidder will be awarded a contract for the bid amount.

The Owner reserves the right to reject all Bids, waive any informality in the bidding and/or not make an award. The award of the Contract, if made by the Owner, will be made to the responsible Bidder submitting the lowest and best Bid, but the Owner shall determine at his own discretion, whether a Bidder is qualified to perform the Contract, and what Bid is the lowest and whether it is to the interest of the Owner to accept the Bid.

A bidder will be deemed not responsible if:

- a) The Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1), as amended; or
- b) Evidence of collusion exists with any other Bidder or potential Bidder. Participants in collusion will be restricted from submitting further bids; or
- c) The Bidder, in the opinion of the Owner, is not qualified for the work; or
- d) An unsatisfactory performance record exists based on past or current Owner work or for work done for others, as judged from the standpoint of conduct of the work; workmanship; or progress; affirmative action; equal employment opportunity practices; termination for cause; or
- e) There is uncompleted work (for Owner or otherwise) which in the opinion of the Owner might hinder or prevent the prompt completion of the work bid upon; or
- f) The Bidder failed to settle bills for labor or materials on past or current contracts, unless there are extenuating circumstances acceptable to the Owner; or

- g) The Bidder has failed to complete a written public contract or has been convicted of a crime arising from a previous public contract, unless there are extenuating circumstances acceptable to the Owner; or
- h) The Bidder is unable, financially or otherwise, to perform the work, in the opinion of the Owner; or
- i) There are any other reasons deemed proper by the Owner; or
- j) The Bidder fails to meet the Project-specific supplemental bidder responsibility criteria, if any, listed in Section 00220.

As evidence that the Bidder meets the bidder responsibility criteria above, the apparent two lowest Bidders must submit to the Owner within 24 hours of the bid submittal deadline, documentation (sufficient in the sole judgment of the Owner) demonstrating compliance with all applicable responsibility criteria, including all documentation specifically listed in the supplemental criteria. The Owner reserves the right to request such documentation from other Bidders as well, and to request further documentation as needed to assess bidder responsibility.

The basis for evaluation of Bidder compliance with these supplemental criteria shall be any documents or facts obtained by Owner (whether from the Bidder or third parties) which any reasonable owner would rely on for determining such compliance, including but not limited to: (i) financial, historical, or operational data from the Bidder; (ii) information obtained directly by the Owner from owners for whom the Bidder has worked, or other public agencies or private enterprises; and (iii) any additional information obtained by the Owner which is believed to be relevant to the matter.

If the Owner determines the Bidder does not meet the bidder responsibility criteria above and is therefore not a responsible Bidder, the Owner shall notify the Bidder in

writing, with the reasons for its determination. If the Bidder disagrees with this determination, it may appeal the determination within 24 hours of receipt of the Owner's determination by presenting its appeal to the Owner. The Owner will consider the appeal before issuing its final determination. If the final determination affirms that the Bidder is not responsible, the Owner will not execute a contract with any other Bidder until at least two business days after the Bidder determined to be not responsible has received the final determination.

A proposal may be considered irregular and may be rejected if:

- a) Any of the unit prices are excessively unbalanced (either above or below the amount of a reasonable bid) to the potential detriment of the Owner; or
- b) The Bid Form is not used or is altered; or
- c) The completed Bid Form contains any unauthorized addition, deletions, alternate bids, or conditions; or
- d) The Bidder adds provisions reserving the right to reject or accept the award, or enter in the Contract; or
- e) The price per unit cannot be determined from the Bid Form; or
- f) The Bid Form is not properly executed; or
- g) The Bid does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation; or
- h) More than one proposal is submitted for the same project from a Bidder under the same or different names.

15. EVIDENCE OF QUALIFICATION

Upon request of the Owner, a Bidder whose Bid is under consideration for the award of the Contract, shall submit within two business days to the Owner satisfactory evidence showing the Bidder's experience, his record of performance on previous work

for the Owner, and his organization available for the performance of the Contract.

16. NON-COLLUSION AFFIDAVITS

Upon a specific request of the Owner, the Bidder, before the award of a Contract, shall submit non-collusion affidavits to the Owner covering the Bidder and all subcontractors.

17. BID AND PERFORMANCE GUARANTEES

A certified check, cashier's check, or Bid Bond payable as designated in the Advertisement for Bids in an amount equal to at least five (5%) of the total amount Bid shall accompany each Bid, as evidence of good faith and as guarantee that if awarded the Contract the Bidder will execute the Contract and give bond as required. The successful Bidder's check will be retained until he has executed the Contract and furnished a 100% performance and payment bond in the form included in these Contract Documents with a qualified corporate Surety. The Owner reserves the right to hold the Bid security from the three lowest Bidders until the successful Bidder has entered into the Contract and furnished the performance bond, but in no event longer than the hold period specified in the Advertisement for Bids.

Successful Bidders will be required to file a performance bond in the full amount of the Contract price, which bond shall be furnished by a Surety company acceptable to the Owner. Should the successful Bidder fail to enter into a Contract and furnish a satisfactory performance bond within ten (10) days after his proposal has been accepted, the Bid security will be forfeited as liquidated damages.

18. INSURANCE REQUIREMENTS

The form of Certificate of Insurance which the successful Bidder, as Contractor, shall be required to execute is included in the Contract Documents.

19. ERRORS AND OMISSIONS

No consideration will be given by the Owner to claim of error in a Bid unless such claim

is made to the Owner within 24 hours after the time stated in the Advertisement for receiving Bids, and unless supporting evidence of such claim, including cost breakdown sheets, is delivered to the Owner within 48 hours after the time stated in the Advertisement for receiving Bids.

*** END OF SECTION ***

SECTION 00200

INFORMATION AVAILABLE TO BIDDERS

1. The Town of La Conner will provide a Right-Way-Permit.
2. The Town of La Conner has determined that this project meets the requirements for State Sales Tax – Rule 171 (WAC 458-20-171). Those bid items shall include applicable retail sales taxes and no additional amounts will be computed or added to the amounts due the contractor. See Specification 00700.19.10.
3. Road Closure Restrictions – The Contractor may schedule road closures to aid in the construction. A closure plan and schedule must be approved by the Town Public Works a minimum of two full working days before planned implementation. A minimum of single lane access must be maintained for commercial business access during work hours and two lane access whenever the Contractor is not present.

*** END OF SECTION ***

SECTION 00300 BID FORM

TO: Town of La Conner

1. Pursuant to and in compliance with your Advertisement for Bids and the other documents relating thereto, the undersigned Bidder, having familiarized himself with the terms of the project related to those items herein bid, being aware of the local conditions affecting the performance of a Contract covering the items bid, having familiarized himself with the Contract Documents, hereby proposes and agrees to perform the work and/or to furnish the equipment, and to furnish any and all of the labor, materials, tools, expendable equipment and all utility and transportation services necessary to perform a Contract covering any or all of those items herein bid and to complete in a workmanlike manner, all work covered by said Contract in connection with the Owner's **Washington St & Road St Pedestrian Improvements Project**, for an amount computed upon the basis of the quantity of work actually performed at the following bid prices

STATE ALL UNIT PRICES IN BOTH WORDS AND FIGURES, PER SECTION 00100

ITEM NO.	ESTIMATED QUANTITY	DESCRIPTION OF ITEM	UNIT PRICE	TOTAL COST
1.	LS (Per Lump Sum)	Mobilization	\$	_____
2.	LS (Per Lump Sum)	Temporary Erosion and Sediment Control	\$	_____
3.	LS (Per Lump Sum)	Traffic Control	\$	_____
4.	LS (Per Lump Sum)	Shoring	\$	_____
5.	480 LF (Per Linear Foot)	8" CPP Storm Drain Pipe	\$	_____ \$
6.	3 EA (Per Each)	Concrete Inlet	\$	_____ \$
7.	3 EA (Per Each)	Type 1 Catch Basin	\$	_____ \$
8.	3 EA (Per Each)	Connect to Existing Storm Structure	\$	_____ \$

ITEM NO.	ESTIMATED QUANTITY	DESCRIPTION OF ITEM	UNIT PRICE	TOTAL COST
9. (Per Ton)	520 TN	Crushed Rock	\$ _____	\$ _____
10. (Per Square Yard)	520 SY	Asphalt Planing	\$ _____	\$ _____
11. (Per Ton)	80 TN	HMA CL ½" PG 64-22	\$ _____	\$ _____
12. (Per Square Yard)	220 SY	Concrete Sidewalk (4")	\$ _____	\$ _____
13. (Per Linear Foot)	50 LF	Pedestrian Curb	\$ _____	\$ _____
14. (Per Each)	3 EA	Detectable Warning Surface	\$ _____	\$ _____
15. (Per Linear Foot)	780 LF	Curb and Gutter	\$ _____	\$ _____
16. (Per Square Yard)	160 SY	Concrete Driveway (6")	\$ _____	\$ _____
17. (Per Linear Foot)	2000 LF	Pavement Striping	\$ _____	\$ _____
18. (Per Square Foot)	90 SF	Thermoplastic Crosswalk Marking	\$ _____	\$ _____
19. (Per Each)	2 EA	Thermoplastic Stop Line Marking	\$ _____	\$ _____

ITEM NO.	ESTIMATED QUANTITY	DESCRIPTION OF ITEM	UNIT PRICE	TOTAL COST
20.	820 LF (Per Linear Foot)	Landscape Restoration	\$ _____	\$ _____
21.	2 EA (Per Each)	Rectangular Rapid Flashing Beacon	\$	_____
<u>TOTAL</u>				\$ _____

2. The undersigned Bidder hereby proposes and agrees to commence work under this Contract, if awarded to him, on or before ten (10) consecutive calendar days after the issuance of the Owner's Notice to Proceed and agrees to complete the entire Contract **within ninety (90) calendar days**. The agreed liquidated damage to the Owner shall be Five hundred dollars and 00/100ths (\$500.00) for each calendar day over and above the stated number required to complete the contract. There shall be no exceptions or revisions to the stated time schedules without written Notice from the Owner or as specifically provided in the contract documents.
3. The above stated bid includes all use, compensating and other taxes except applicable Washington State sales tax which will be added to the moneys actually due the Contractor as outlined in the Contract Documents.
4. The Owner reserves the right to delete all or any portion of the work as outlined in the Contract Documents.
5. It is understood that the quantities for unit price bids are approximate only and are subject to either increase or decrease and are stated only for the purpose of comparing bids and fixing the amount of surety bonds, and payment shall be as described in Article III of the Agreement.
6. The required bid security in the amount of \$ _____ is hereto attached.
7. It is understood that the Contractor is responsible for obtaining and completing all required government forms.
8. Receipt of the following Addenda to the Contract Documents is hereby acknowledged.

<u>Addendum No.</u>	<u>Date of Receipt of Addendum</u>	<u>Signed Acknowledgment</u>
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____

(Note: Failure to acknowledge receipt of the addenda may be considered an irregularity in the proposal.)

9. NON-COLLUSION DECLARATION

I, by signing the proposal, hereby declare, under penalty of perjury under the laws of the United States that the following statements are true and correct:

- A. That the undersigned person(s), firm, association or corporation has (have) 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 connection with the project for which this proposal is submitted.
- B. That by signing the signature page of this proposal, I am deemed to have signed and to have agreed to the provisions of this declaration.

10. Notice of Acceptance of this bid or requests for additional information should be addressed to the undersigned at the address stated below:

Date: _____

PROPER NAME OF BIDDER

By: _____

ADDRESS

Phone: _____

Email: _____

Federal Taxpayer ID Number: _____

State Uniform Business ID Number: _____

State Contractor's License Number: _____

State Contractor's License Primary Classification: _____

State Employment Security (ES) Reference
Number: _____

*** END OF SECTION ***

AGREEMENT

THIS AGREEMENT made this _____ day of _____, 2025, by and between the Town of La Conner herein called the Owner and _____, hereinafter called the Contractor.

ARTICLE I. SCOPE OF WORK. The Contractor shall perform, within the time stipulated, the Contract as herein defined, of which this agreement is a component part, and everything required to be performed and shall provide and furnish any and all utility and transportation services necessary to perform the contract and complete in a workmanlike manner all of the construction work covered by the contract in connection with the Owner's **Washington St & Road St Pedestrian Improvements Project** in strict conformity with the plans and specifications, including any and all Addenda issued by the Owner, with the other contract documents hereinafter enumerated.

It is agreed that said labor, materials, tools, equipment, and services shall be furnished and the contract performed and completed subject to the approval of the Owner or its authorized representative.

ARTICLE II. LUMP SUM PRICES. The Owner shall pay the Contractor as full consideration for the performance of the contract, an amount equal to the Lump Sum amounts as set forth in the bid.

ARTICLE III. UNIT PRICES. The Owner shall pay to the Contractor as full consideration for the performance of the contract, an amount computed upon the basis of the quantity of work actually performed at the unit prices as set forth in the bid.

It is understood that the quantities stated are approximate only and are subject to either increase or decrease, and should be quantities of any of the items of work be increased, the Contractor shall perform the additional work at the unit prices set forth in the bid and should the quantities be decreased, payment will be made on actual quantities installed at the unit prices set forth in the bid and the Contractor will make no claim for anticipated profits for any increase or decrease in the quantities. Actual quantities will be determined upon completion of the work.

ARTICLE IV. COMPONENT PARTS OF THIS CONTRACT. The Contract entered into by the acceptance of the Contractor's bid and the signing of this agreement consists of the following documents all which are component parts of said Contract and as fully a part thereof as if herein set out in full, and if not attached, as if hereto attached.

1. This Agreement	8. Standard Specifications Incorporated by Reference
2. Change Orders	9. Instruction to Bidders
3. Addenda No. _____	10. Invitation to Bid
4. Specifications (Division 1 through 16 of Project Manual)	11. Bid Form
5. Contract Drawings	12. Performance and Payment Bond
6. Supplementary Conditions	13. Notice of Award
7. General Conditions	14. Notice to Proceed

In the event of any conflict or inconsistency between any of the foregoing documents, the conflict or inconsistency shall be resolved upon the basis of the numerical order. The document or documents assigned the small number or numbers being controlling over any document having a larger number in the numerical order set forth above. Provided, however,

although the supplemental conditions incorporate standard specifications by reference, in case of conflict or inconsistency, these standard specifications have a numerical order as shown above.

IN WITNESS WHEREOF, four (4) identical counterparts of this Agreement, each of which shall for all purposes be deemed an original thereof, have been duly executed by the parties hereinabove named, on this day and year first above written.

The Town of La Conner
OWNER

Corporate Seal:

By: _____

Title: _____

By: _____

Title: _____

By: _____

Title: _____

CONTRACTOR

Corporate Seal:

By: _____

Title: _____

WITNESS, if individual or partnership

ATTEST (if corporation)

By: _____

Title: _____

*** END OF SECTION ***

PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, That we, _____, the Contractor named in the Contract hereinafter referred to as PRINCIPAL, and _____ as SURETY, are held and firmly bound unto the State of Washington, and unto The Town of La Conner, hereinafter called the Owner named in said contract, **Washington & Road Streets Pedestrian Improvements Project** in the penal sum of _____ (\$_____), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, assigns, administrators and successors jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that Whereas, the Principal entered into a contract with the Owner, dated _____, 2025, for providing for such Work in connection with the Owner's **Washington St & Road St Pedestrian Improvements Project** in La Conner, County of Skagit, State of Washington.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform all of the provisions and fulfill all of the undertakings covenants, terms, conditions and agreements of said contract during the period of the original contract and any extensions thereof that may be granted by the Owner, with or without notices to the surety; and during the life of any guarantee required under the contract; and shall also well and truly perform and fulfill all of the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made; notice of which modifications to the surety being hereby waived; and furthermore shall pay all laborers, mechanics, and subcontractors and material men, and all persons who shall supply such person or persons and such principal or subcontractors with provisions and supplies for the carrying on of such work, shall indemnify and save harmless Owner from all costs and damage by reason of the principal's default of failure to do so, and shall pay the State of Washington sales and use taxes, and amounts due said state pursuant to Titles 50 and 51 of the revised Code of Washington then this obligation to be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, the above bonded parties have executed this instrument under their separate seals this _____ day of _____, 2025, the name and corporate seal of each corporate party hereto affixed, and these presents duly signed by its undersigned representatives pursuant to authority of its governing body.

PRINCIPAL

TWO WITNESSES:

ATTEST: (If Corporation)

By: _____

Title: _____

Corporate Seal: _____

SURETY

By: _____

Title: _____

CERTIFICATES AS TO CORPORATE SEAL

Thereby certify that I am the (Assistant) Secretary of the Corporation named as Principal in the within Bond: that _____ who signed the said Bond on behalf of the Principal was _____ of said Corporation, that I know his signature thereto is genuine, and that said Bond was duly signed, sealed, and attested for and in behalf of said Corporation by authority of its governing body.

Secretary or Assistant Secretary

* * * END OF SECTION * * *

INSURANCE QUESTIONNAIRE

****NOTE:** THIS QUESTIONNAIRE MUST BE COMPLETED AND ATTACHED TO CERTIFICATE OF INSURANCE

Contractor:

Project: Washington & Road Streets Pedestrian Improvements

Ref. #:

Owner: Town of La Conner

Are the following coverage's and/or conditions in effect?

The Policy form is ISO Commercial General Liability form CG 00 01 or CG 00 02 (circle one). If NO, attach a copy of the policy with required coverage's clearly identified

YES NO

_____ _____

_____ _____

_____ _____

Products and Completed operation coverage

Cross Liability clause (or equivalent wording)

Personal Injury Liability coverage
(with employee exclusion deleted)

Broad Form Property Damage with X, C and U Hazards included

Blanket Contractual Liability coverage applying to this contract

Employers Liability – Stop Gap

Deductibles or SIR's:

GL _____ AL _____

Excess _____

Insurer Best Rating

GL _____ AL _____

Excess _____

This Questionnaire is issued as a matter of information. This Questionnaire is not an insurance policy and does not amend, extend or alter the coverage afforded by the policies indicated on the attached Certificate Of Insurance.

Agency/Broker

Completed by (type)

Address

Completed by (signature)

Name of person to contact

Telephone number

* * * END OF SECTION * * *

ACORD. CERTIFICATE OF INSURANCE

DATE (MM/DD/YY)

PRODUCER

Name and Address of Agent

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

COMPANIES AFFORDING COVERAGE

COMPANY

A Insurance Carrier #1

COMPANY

B Insurance Carrier #2

COMPANY

C

COMPANY

D

INSURED

Name and Address of Contractor

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, 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. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
	GENERAL LIABILITY				GENERAL AGGREGATE \$ 1,000,000
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR OWNER'S & CONT PROT	XXXXX	X	X	PRODUCTS-COMP/OP AGG \$ 1,000,000 PERSONAL & ADV INJURY \$ 1,000,000 EACH OCCURRENCE \$ 1,000,000 FIRE DAMAGE (Any one fire) \$ 50,000 MED EXP (Any one person) \$ 5,000
A	AUTOMOBILE LIABILITY	XXXXX	X	X	COMBINED SINGLE LIMIT \$ 1,000,000
A	<input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS				BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE \$
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT \$ OTHER THAN AUTO ONLY: EACH ACCIDENT \$ AGGREGATE \$
A	EXCESS LIABILITY	XXXXX	X	X	EACH OCCURRENCE \$ 2,000,000 AGGREGATE \$ 2,000,000 \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY (Stop Gap) THE PROPRIETOR/ PARTNERS/EXECUTIVE OFFICERS ARE: <input type="checkbox"/> INCL <input checked="" type="checkbox"/> EXCL	XXXXX (or Labor & Industries Account #)	X	X	<input checked="" type="checkbox"/> STATUTORY LIMITS EACH ACCIDENT \$ DISEASE - POLICY LIMIT \$ DISEASE - EACH EMPLOYEE \$
B	OTHER Asbestos	XXXXX	X	X	\$ #####

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

Owner and Consulting Engineer are named as "insureds" as respects work done on their behalf by the named insured, per attached endorsement.

CERTIFICATE HOLDER

Owner

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 45 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

SIGNATURE

SECTION 00700

GENERAL CONDITIONS

1. DEFINITIONS

Wherever used in the Contract Documents, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof.

1.1 ADDENDA

Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the Contract Documents, Drawings and Specifications, by additions, deletions, clarifications or corrections.

1.2 ADDITIONAL DRAWINGS

All drawings prepared and issued by the Engineer subsequent to the signing of the Contract, and for further explanation or amplification of the Contract Drawings, or for the revision of the same, all as herein provided.

1.3 APPROVAL OR APPROVED

To accept as satisfactory in concept, type, size and standard of quality.

1.4 BID

The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the work to be performed.

1.5 BIDDER

Any person, firm or corporation submitting a bid for the work.

1.6 BONDS

Bid, Performance and Payment Bonds and other instruments of security, furnished by the Contractor and his Surety in accordance with the Contract Documents.

1.7 CHANGE ORDER

A written order to the Contractor authorizing an addition, deletion or revision in the work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract price or Contract time.

1.8 CONTRACT OR THIS CONTRACT

The particular Contract executed by the Contractor and the Owner, of which these General Conditions are integral parts.

1.9 CONTRACT DOCUMENTS

All of the documents and information set forth in Article IV of the Agreement.

1.10 CONTRACT DRAWINGS OR DRAWINGS

The part of the Contract Documents which shows the characteristics and scope of the work to be performed and which have been prepared or reviewed by the Engineer.

1.11 CONTRACTOR'S EQUIPMENT

All items of materials or equipment remaining in the Contractor's ownership and removed from the site upon completion of the project.

1.12 CONTRACTOR

The person, firm or corporation to whom this Contract is awarded by the Owner and who is party thereto.

1.13 CONTRACT PRICE

The total moneys payable to the Contractor under the terms and conditions of the Contract Documents.

1.14 CONTRACT TIME

The number of consecutive calendar days stated in the Contract Documents for the completion of the work.

1.15 DAY

In the Contract the term day shall mean a calendar day of 24 hours beginning at 12:00 midnight.

1.16 ENGINEER

The Consulting Engineer employed by the Owner, acting either directly or through his authorized assistants.

The owner has the right and authority to employ several engineering firms, engineers, inspectors and the like and assign to them various engineering or administrative duties, functions and responsibilities of the "Engineer" as that term is used in this Contract. In such case the Owner shall advise the Contractor at the pre-construction

conference or thereafter in writing of those divisions or assignments of engineering or administrative duties, functions and responsibilities and the firms or persons designated to perform them, and the designee shall be the "Engineer" for contract purposes within the context of the designation.

1.17 **EQUIPMENT**
The machinery, accessories, appurtenances and manufactured articles to be furnished and/or installed under the Contract.

1.18 **EQUIPMENT DATA**
Manufacturer's catalog sheets, brochures, diagrams, schematic drawings, performance charts and other descriptive data for equipment to be furnished by the Contractor as required and provided in the Contract Documents.

1.19 **EQUIVALENT**
When applied to an alternate of any kind, the word "equivalent" shall mean the following: equal in force, amount, functional performance, appearance and like in significant import but not necessarily admitting to superposition or be like in detail.

1.20 **FURNISH AND PROVIDE**
All essentials to performance of the function implied by the named subject, article or material shall be supplied for use, and unless otherwise specifically excepted, the named article, subject or material is to be incorporated into the work in the proper place and sequence and in a manner to attain satisfactorily the results required.

1.21 **INSTALL**
To set up for use or service. However, the use of this word shall not be deemed to imply that the subject shall not be supplied by and at the sole expense of the Contractor.

1.22 **ITEM**
A convenient subdivision of work.

1.23 **LATEST REVISION (AMENDMENT, ISSUE, SPECIFICATION)**
Wherever this (these) phrase(s) is (are) used "Latest" shall refer to the revision (amendment, issue, specification) in effect on the date of the Advertisement for Bids for the Contract involved.

1.24 **LAWS**
The laws of the place where the work is to be performed (Federal, State and Local).

1.25 **LINE AND GRADE**
Horizontal and vertical control for all work which shall be carried from the Engineer's points in a manner established by the Engineer.

1.26 **MATERIAL OR MATERIALS**
Machinery, manufactured articles, materials of construction (fabricated or otherwise), and any other classes of material to be furnished in connection with the Contract.

1.27 **MODIFY (MODIFIED)**
To alter, that is to make changes, minor, major, or basic.

1.28 **NOTICE OF AWARD**
The written notice of the acceptance of the bid from the Owner to the successful Bidder.

1.29 **NOTICE TO PROCEED**
Written communication issued by the Owner to the Contractor authorizing him to proceed with the work and establishing the date of commencement of the work.

1.30 **OWNER**
The entity that is a party to this Contract, contracting under the official name set forth in the Agreement.

1.31 **PLANS**
All official drawings or reproductions of drawings made or to be made pertaining to the work provided for in the Contract, or to any structure connected therewith.

1.32 **POINTS**
All marks, bench marks, reference points, stakes, hubs, tacks, etc., established by the Engineer for horizontal and vertical control of the work.

1.33 **PRODUCT**
This term shall include materials, systems and equipment.

1.34 **PROJECT**

The structure or improvement to be constructed in whole or in part through the performance of the Contract.

1.35 PROJECT MANUAL
The Project Manual includes the bidding requirements, conditions of the Contract and the Specifications.

1.36 RELATED REQUIREMENTS SPECIFIED ELSEWHERE AND RELATED WORK SPECIFIED ELSEWHERE
General terms. Items listed under these headings are for convenient cross reference but the items listed are not exclusive of other Contract requirements and in no way limit the specifications applicable.

1.37 REQUIRE
To call for as necessary and essential.

1.38 REQUIREMENTS
A necessity.

1.39 RESIDENT PROJECT REPRESENTATIVE
The authorized representative of the Owner who is assigned to the project site or any part thereof and is sometimes referred to as Resident Engineer or Inspector.

1.40 SHOP DRAWINGS
All shop details necessary for the fabrication and installation of structural steel, pipe, machinery, equipment, including schedules and bending diagrams of reinforcing steel, and other detailed drawings, to be furnished by the Contractor as required and provided in the Contract Documents.

1.41 SIDE SEWER STUB
The side sewer pipeline beginning at the main line sewer and extending to the vicinity of the property line if construction is on public property or to the margin of the permanent easement if construction is on private property.

1.42 SPECIFICATIONS
The prescribed directions, requirements, explanations, terms and provisions pertaining to the various features of the work to be done, or manner and method of performance, and the manner and method of measurements and payments contained in Division 1 through 16 of the Project Manual. They also include directions, requirements and explanations as set forth on the Plans.

1.43 SPECIAL PROVISIONS
This term, when used, shall refer to the section of the Specifications which describes special features of contract requirements.

1.44 SUBCONTRACTOR
Any person, firm or corporation other than an employee of the Contractor, supplying for and under agreement, either with the Contractor, or any Subcontractor of the Contractor, labor or materials, or both, at the site of the project in connection with this Contract.

1.45 SUBSTANTIAL COMPLETION
The date as certified by the Engineer when the construction of the project or a specified part thereof is sufficiently completed, so that the project or specified part can be utilized by the Owner for purposes for which it is intended.

1.46 SUITABLE
Qualified and in all respects adapted to the use and purpose specified.

1.47 SUPPLEMENTARY CONDITIONS
Modifications to General Conditions to meet requirements that may be imposed by applicable federal, state and local laws and regulations, and such other Contract conditions as are required for the project.

1.48 SUPPLIER
Any person or organization who supplies materials or equipment for the work, including that fabricated to a special design, but who does not perform labor at the site.

1.49 SURETY
Any firm or corporation executing a surety bond or bonds payable to the Owner, securing the performance of the Contract either in whole or in part.

1.50 WORDS AND PHRASES

Whenever the words, "as required", "as permitted", or words of like effect are used, it shall be understood that the requirements, or permission of the Owner or Engineer is intended. The words, "sufficient", "necessary", "proper", and the like shall mean sufficient, necessary, or proper in the judgment of the Owner and Engineer, except in reference to provisions for safety facilities where the judgment of the State Safety Inspectors or persons in similar authority (other than the Engineer or Owner) shall be intended.

1.51 WORKING DAY

The term "working day" shall mean any calendar day except Saturdays, Sundays, and legal holidays at the place of building.

1.52 TIME LIMITS

All time limits stated in the Contract Documents are of the essence of the Contract.

1.53 WORK

The work necessary to manufacture and deliver the machinery, equipment and material and/or the furnishing of all labor, tools, material, equipment, construction equipment, working drawings where required, and other necessities for the construction or erection of the structures, facilities or improvements shown and called for in the Contract Documents and the act of constructing or erecting said structures, facilities or improvements complete.

It is specifically stipulated that the Drawings, Specifications, and other Contract Documents do not purport to control the method of performing the work, but only the requirements to the nature of the completed work, the Contractor assuming the entire responsibility for methods of performing and installing the work. Suggestions as to method included in the Contract Documents or given by the Engineer shall be deemed advisory only and the feasibility of such methods or the lack thereof shall not affect the Contractor's liability under this Contract.

1.54 WRITTEN NOTICE

Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the project.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

2.1 SCOPE OF WORK

The Contractor may be furnished additional instructions and detail drawings, by the Engineer as necessary to carry out the work required by the Contract Documents.

2.2 ADDITIONAL DRAWINGS

The additional drawings and instructions thus supplied will become a part of the Contract Documents. The Contractor shall carry out the work in accordance with the additional detail drawings and instructions.

2.3 NOTICES TO THE CONTRACTOR

Any notices or services, which it may be necessary to deliver to the Contractor in connection with this Contract may be sent to the Contractor by regular mail to the Contractor's address as recorded in the signed Contract Documents or, if such address is lacking, to such other address as the Owner may deem proper.

3. CORRELATION AND INTENT OF DOCUMENTS

3.1 CONTRACT DOCUMENTS

As provided in the Agreement, the Contract Documents are complementary and what is called for by any one shall be binding as if called for by all. The intention of the Documents is to include, unless otherwise specifically stated, all labor and materials, equipment, and transportation necessary for the proper execution of the work. It is the intent of this Contract and its Drawings and Specifications and other Contract Documents to specify and set forth a complete operating unit or system ready for use between the Contract limits. In determining the scope of work the Plans and Specifications and Contract Documents shall be considered in their entirety. Where items of the work are specified or shown in general terms or without complete detail it is intended that such item shall be a complete operating item regardless of whether or not every detail has been set forth in the Contract Documents and omission of such details shall not be construed to mean that they are to be omitted by the Contractor

and the cost of such details shall be included in the prices bid and set forth in the proposal items. Omission of a major item shall not be construed to mean that such item may be omitted by the Contractor and the Contractor may be required to perform such major item but any increased cost resulting there from shall be provided for in accordance with Article 13 of these General Conditions.

3.2 REFERENCE STANDARDS

Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or law or regulation in effect at the time of Advertisement for Bids, (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of Owner, Contractor or Engineer, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Engineer, or any of Engineer's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the other provisions of this contract.

4. CONFORMITY TO DRAWINGS AND SPECIFICATIONS

4.1 CONTRACT DOCUMENTS

- 4.1.1. All work shall be done in strict conformity to the Drawings and Specifications and to the exact line and grades as fixed by field survey.
- 4.1.2. The Owner reserves the right to make reasonable changes in location of materials and equipment, if such is considered expedient for a better constructed and operable unit or system; considering, however, that such changes are made prior to any work done on said item to be changed. Such changes to be done at no additional cost to the Owner unless Contractor gives written notice within ten (10) days of receipt of such change. In which event, the Contractor will be entitled to a change in the contract in accordance with Article 13 of the General Conditions.

4.2 ALTERNATE DESIGNS INITIATED BY THE CONTRACTOR

- 4.2.1. In the event that the Contractor shall request, or submit, an alternate design, or designs for some portion of his work, the Engineer will consider such alternate designs with reasonable promptness. Such requests for either a design review of alternate plans submitted by the Contractor, or request for a redesign initiated by the Contractor, as set forth above shall be made in writing to the Engineer. When the Contractor submits plans for an alternate design they shall be in the form of reproducible drawings.
- 4.2.2. Provided that such proposed alternate designs, or requested redesigns appear reasonable and satisfactory to the Engineer, the Engineer will perform an engineering review of the proposed alternate design, or if requested by the Contractor the Engineer will perform an engineering redesign of the work to assure its compatibility within the framework of a complete operating unit, or system, ready for use between the Contract limits.
- 4.2.3. The cost of the engineering review of the proposed alternate, or the cost of an engineering redesign as requested by the Contractor will be charged to the Contractor by the Owner at the Engineer's currently established rate.

5. MATERIALS AND APPLIANCES

5.1 PROVISIONS

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and all other facilities necessary for the execution and completion of the work.

6. DOCUMENTS

6.1 FURNISHED BY THE CONTRACTOR

- 6.1.1. Contractor shall provide himself with Drawings and Project Manual at the location and under the conditions described in the Advertisement for Bids.

- 6.1.2. Contractor shall provide himself with such documents as may be incorporated into the Contract by reference.
- 6.1.3. Contractor shall provide himself with such Government Specifications, American National Standards, State Standards and other such drawings, specifications or standards as may be referred to in the Project Manual or on the Drawings, which are by such reference incorporated into the Contract Documents as if set forth herein in full.
- 6.1.4. Contractor shall provide himself with access to such codes, local regulations and laws as may be required by law, regulation and/or the Contract.
- 6.2 **FURNISHED BY THE OWNER**
Unless otherwise shown in the Supplementary Conditions the Contractor will be furnished free of charge, five (5) copies of the Contract Drawings and five (5) copies of the Project Manual and will be furnished as many additional copies as he may require, at cost of reproduction and handling.
- 6.3 **OWNERSHIP OF DRAWINGS**
All Drawings and Specifications are to become the property of the Engineer upon completion of the work, and shall be turned over to the Engineer upon demand, and shall not be used for any other work.

7. STATUS OF THE ENGINEER

- 7.1 **INSPECTION**
 - 7.1.1. The Engineer shall act as advisor and consultant to the Owner in engineering matters relating to the Contract. The Engineer shall have access to the site of the work and all work and material to observe the progress and quality of the executed work.
 - 7.1.2. The Owner, through its duly authorized official, shall have the authority to stop the work whenever in his opinion such stoppage is necessary to insure the proper execution of the Contract, and any order by the Owner to stop work shall in no case relieve the Contractor from the obligations of his Contract.
- 7.2 **INTENT OF DRAWINGS AND SPECIFICATIONS**
To avoid any misunderstandings which might arise as to the import of anything contained in the Drawings and Specifications or as to any discrepancy, error, or omission therein, seeming or actual, the Engineer's decision as to the true intent and meaning, and correction thereof, shall be binding and final. All dimensions will be considered valid. In the event of omitted dimensions, work shall not be started until the necessary dimensions have been obtained from the Engineer in writing.
- 7.3 **ENGINEER TO HAVE ACCESS**
The Engineer shall at all times have access to all parts of the work and to the shops wherein the work is in preparation for the purpose of inspection, and the Contractor shall at all times maintain proper facilities and provide safe access for such inspection.

8. PAYMENT FOR QUALITY CONTROL

- 8.1 **GENERAL**
 - 8.1.1. The Owner shall provide all inspection and testing services not required by the Contract Documents.
 - 8.1.2. The Contractor shall provide at his expense the testing and inspection services required by the Contract Documents.

9. ROYALTIES AND PATENTS

- 9.1 **PAYMENT AND USE**
 - 9.1.1. If the Drawings or Specifications require, as part of the completed work the installation of a patented appliance, device or article or the continued use after completion of the work of a patented process, for use of which any royalties or license fees are chargeable for such continued use, the Owner will pay such royalties or license fees from and after the completion date of the contract.

9.1.2. The Contractor shall pay all other royalties and license fees, and shall hold and save the Owner and its officers, agents or employees harmless from liability for violation of patent rights, including all costs and legal expenses, for, or on account of, any patented invention, process, article, or appliance manufactured for or used in the performance of the Contract, including its use by the Owner.

10. SURVEYS

10.1 STAKES AND MARKS TO BE PRESERVED

10.1.1. All marks, bench marks, reference points and stakes established by the Engineer to control construction of this project, shall be carefully preserved by the Contractor, and in case of their destruction by the Contractor or any of his employees, such stake will be replaced by the Engineer at the Contractor's expense and the full cost of replacement will be borne by the Contractor.

10.1.2. Where in the opinion of the Engineer, any section corner, section subdivision corner, plat, USC and GS, USGS or other official monument or bench mark is in danger of being disturbed by normal construction operations, it will be referenced by the Engineer and replaced by the Engineer after completion of all construction work. All costs in connection with the referencing and replacing of monuments shall be at the expense of the Owner.

10.1.3. Any other monuments not referenced by the Engineer that are disturbed by construction operations shall be reset by the Contractor in accordance with recognized Engineering and Surveying practices at his expense. Property corners, fences and other indications of property lines shall be referenced by the Contractor prior to construction and reset after completion of the construction operations in accordance with recognized Engineering and Surveying practices at the expense of the Contractor. In the event that any of these items are not replaced by the Contractor, they shall be replaced by the Engineer and the cost of this work shall be billed to the Contractor by the Owner and such costs shall constitute a basis for a lien against the Contractor's work. In the event that the Contractor fails to pay such bill or bills by the 30th day of the month billed, then such payment may be handled in accordance with Article 19.8 of these General Conditions.

11. PROTECTION OF WORK, PROPERTY AND PERSONS

11.1 SAFETY AND HEALTH REGULATIONS

11.1.1. In order to protect the lives and health of his employees under the Contract, the Contractor shall comply with all pertinent provisions of applicable laws and regulations as they pertain to health and safety standards; and with all state and local safety acts and regulations applicable to the work; and shall maintain an accurate record of all cases of death, occupational disease and injury arising out of and in the course of employment on work under the Contract. The Contractor shall be solely and completely responsible for safety and safety conditions on the job site, including the safety of all persons and property during performance of the work and additionally, while workers are in transit to and from the job site. The services of the Owner's or its engineer's personnel in conducting a construction review of the Contractor's performance is not intended nor shall be interpreted to include review of the adequacy of the Contractor's work methods, equipment, bracing, scaffolding, or trenching, or safety measures in, on, or near the construction site. The Contractor shall be solely and completely responsible to perform all work and furnish all materials in strict compliance with all applicable state, city, county, and federal laws, regulations, ordinances, orders and codes. The Contractor's attention is directed to the requirements of the Washington Industrial Safety and Health Act, WISHA, RCW 49.17. The Contractor shall provide

safe access for the Owner and its inspectors to adequately inspect the quality of work and the conformance with project specifications.

11.1.2. The Contractor shall defend, indemnify and save harmless the Owner, its officers, Engineer, employees and agents, from any and every claim and risk and all losses, damages, demands, suits, judgments and attorney fees, and other expenses of any kind, on account of injury to or death of any and all persons and/or on account of all property damage of any kind, whether tangible or intangible, including loss of use resulting therefrom, in connection with the work performed under this contract, or caused or occasioned in whole or in part by reason for the presence of the Contractor or its subcontractors, or their property, employees or agents, upon or in proximity to the property of the Owner or any other property upon which the Contractor is performing any work called for or in connection with this contract, except only for those losses resulting solely from the negligence of the Owner, its officers, Engineer, employees and agents. Should a court of competent jurisdiction determine that this Agreement is subject to RCW 4.24.115, then, in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the Contractor and the Owner, its members, officers, Engineer, employees, and agents, the Contractor's liability hereunder shall be only to the extent of the Contractor's negligence. It is further specifically and expressly understood that the indemnification provided herein constitutes Contractor's waiver of immunity under industrial insurance, Title 51 RCW, solely for the purposes of this indemnification. This waiver has been mutually negotiated by the parties. If a lawsuit results with respect to this hold harmless provision, the Contractor shall appear and defend that lawsuit at its own cost and expense, and if judgment is rendered or settlement made requiring payment of damages by the Owner, its officers, Engineer, agents, employees and agents, the Contractor shall pay the same.

11.2 EMERGENCIES

In emergencies affecting the safety of persons or the work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or Owner, shall act to prevent threatened damage, injury or loss. He will give the Engineer prompt written notice of any significant changes in the work or deviations from the Contract Documents caused thereby, and such changes and deviations shall be noted by a Change Order.

11.3 CARE AND PROTECTION OF WORK

11.3.1. The Contractor shall be responsible for all damages that occur as a result of his fault or negligence in connection with the prosecution of the Contract and shall be responsible for the proper care and protection of all materials delivered and work performed until completion, and final acceptance by the Owner. Such proper care and protection shall include necessary provisions to prevent damage or loss of material and equipment due to fire, flood, theft and/or vandalism.

11.3.2. The Contractor shall provide such heat, covering and enclosures as are necessary to protect all work and materials against damage by weather conditions.

12. SUPERVISION

The Contractor shall keep on his work during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Engineer. The Superintendent shall represent the Contractor in his absence and all directions given to him shall be binding as if given to the Contractor. The Contractor shall designate, in writing, who his superintendent is to be.

The Contractor shall give efficient supervision to the work, using his best skill and attention. He shall carefully study and compare all Drawings and Specifications and other instructions, and shall at once report to the Engineer any error, inconsistency, or omissions which he may discover.

13. EXTRA, ADDITIONAL OR OMITTED WORK - PAYMENT

13.1 CHANGES IN CONTRACT

13.1.1. The Owner may, at any time, upon proper action of its governing body, without notice to the sureties, by written order designated or indicated to be a change order, make any change in the work within the general scope of the contract, including but not limited to changes:

- (1) In the specifications (including drawings and designs);
- (2) In the time, method or manner of performance of the work;
- (3) In the Owner furnished facilities, equipment, materials, services, or sites; or
- (4) Directing acceleration in the performance of the work.

13.1.2. In the case of a public or municipal contract no employee, agent or representative of the Owner, with the exception of the governing body authorized to award this Contract, has any power to approve any change in this Contract, unless the Owner has designated in writing that the employee, agent or representative shall have such power.

13.1.3. It is the responsibility of the Contractor before proceeding with any change, to satisfy himself that the change has been properly authorized on behalf of the Owner. No charge for extra work or any other change in the Contract will be allowed unless the extra work or change has been authorized in writing by the Owner, and the compensation or method thereof is stated in such written authority.

13.1.4. Written or oral orders, including directions, instructions, interpretations or determinations, from the Owner, not designated or indicated to be change orders, shall not be treated as change orders, provided however, that if the Contractor is of the opinion that the order is, in fact, a change order and the Contractor intends to assert a claim for extra compensation because of the order, the Contractor must give the Owner written notice within 7 days of receipt of the order, stating the date, circumstances and the source of the order, and that the Contractor regards the order as a change order and intends to assert a claim for extra compensation based upon that order. Such notice is a condition precedent to the right of the Contractor to assert that the order is a change order and entitles the Contractor to any additional compensation therefore.

13.1.5. If the Contractor proposes to assert a claim for extra compensation on the basis of any order under Article 13.1.1 or 13.1.4, he must, within 30 days after receipt of the order, submit to the Owner a written statement setting forth the nature and amount of the claim, unless the Owner extends the period. Submission of such statement within the time above limited shall be a condition precedent to the recovery of any compensation as a result of the order.

The costs included in such statement and the compensation provided shall be limited to those adjustments provided in Article 13.3.

13.1.6. No claim by the Contractor for an adjustment hereunder shall be allowed if asserted after final payment under this Contract.

13.1.7. The Engineer may in the case of emergency, authorize changes in the field, provided such changes do not involve costs in excess of One Thousand Dollars (\$1,000.00).

13.2 DETERMINATION OF EXTRAS

Adjustments, if any, in the amounts to be paid the Contractor by reason of any change, addition, or deduction shall be determined by one or more of the following methods: (1) By an acceptable lump sum proposal from the Contractor, (2) By unit Contract prices contained in the Contract Proposal, or by unit prices mutually agreed upon by the Contractor and the Owner, (3) By force account.

13.3 COST REIMBURSEMENT (FORCE ACCOUNT)

13.3.1. If the Owner orders in writing the performance of any work not covered by the Plans or included in the Specifications and for which no item is provided in the Contract and for which no unit price or lump sum basis can be agreed upon,

then such extra work shall be done upon a cost reimbursement (force account) basis as described below. No claim for such force account work will be allowed except where ordered in writing by the Owner.

13.3.2. **Labor:** The Contractor shall be reimbursed for all labor, and for foreman supervision dedicated to the particular operation. The Contractor will not be reimbursed for general superintendents, or general foremen, the amount of which shall be as outlined hereinafter. The same wage rates shall be paid on force account work which prevails on other work in the Contract. Straight time labor only, shall be used on force account work unless otherwise specifically authorized in writing by the Owner.

The wage rate for all labor used shall include and be restricted to the current basic wage the Contractor is obligated to pay and shall reflect the Contractor's actual cost. Fringe benefits will be added to the basic wage rates and will include benefits paid on behalf of labor by the Contractor as follows:

- (1) Federal Insurance Compensation Act (FICA)
- (2) Federal Unemployment Tax Act (FUTA)
- (3) State Unemployment Compensation Act (SUCA)

The above items shall be combined into a single wage rate for each classification of labor used. Copies of the entire payroll shall be furnished by the Contractor if requested by the Owner.

The Contractor shall be reimbursed the actual cost of travel and/or subsistence allowances paid to labor engaged upon the work when said allowances are required by regional labor agreement or is customarily paid by the Contractor to comparable labor for performing other work.

The Contractor shall receive reimbursement for Marine Industrial Insurance, State Industrial Insurance and Medical Aid premiums which become an obligation of the Contractor and are chargeable to the force account work on the basis of time worked. The rate(s) of compensation for the above premiums shall be composite rate(s) based upon the full premium for Industrial Insurance and one-half the premium for Medical Aid which premiums are prescribed by the regulatory body for the Contractor(s) actually performing the force account work.

The Contractor shall be reimbursed an amount equal to twenty-six (26) percent of the sum of the items herein before listed to cover overhead and profit thereupon and any other cost in supplying such labor.

13.3.3. **Materials:** The Contractor shall be reimbursed for all materials as directed by the Owner, the amount of payment for which shall be the actual cost of such materials, including freight charges and applicable taxes. A deduction shall be made for all offered or available discounts and rebates, notwithstanding the fact that they may not have been taken by the Contractor. An amount equal to twenty-one (21) percent thereof of the cost of all materials shall be added to these costs for overhead and profit.

The Contractor shall furnish valid copies of vendor's invoices including freight and express bills as support for all charges for materials. Materials that may be furnished from Contractor's stocks for which an invoice is not available, the Contractor shall furnish an affidavit certifying to his actual cost of these materials.

In the event the Contractor's cost of such materials furnished is excessive, or if the Contractor does not furnish satisfactory evidence of his cost, the Owner reserves the right to establish a cost of all or part of such materials at the lowest current wholesale prices from a source where the required quantity of materials is available. The Owner may furnish such materials as it deems necessary and in which event the Contractor shall have no claim for any costs, overhead or profit for these materials.

13.3.4 **Equipment:** The Contractor's reimbursement for any machine power tools or equipment as directed by Owner shall be the maximum rental rate as set forth in the schedule currently used by the state highway department in the state in which the work is located, for each and every hour that said tools or equipment are in use on such work, provided, rental allowances will be made for machine

power tools and equipment of modern design and in good working condition. These rates shall be full compensation for all fuel, oil, lubrication, repairs, maintenance, insurance, and small tools, overhead, profit, incidental expenses, except labor for operation thereof. In the event equipment is required for which a rental rate is not included in the current schedule, an agreed rate shall be established. An amount equal to twenty-one (21) percent thereof or the cost of all equipment shall be added to these costs for overhead and profit if overhead and profit are not included in state highway department rates.

13.3.5 Subcontractor: The Contractor's reimbursement for any work which the Owner may direct to be done by subcontractors, shall be the cost of such subcontracted work plus a markup of the cost of the subcontracted work. The markup for work performed by subcontractor shall be as follows: on amounts up to \$25,000, 12%; on amounts greater than \$25,000, up to \$100,000; 10%; on amounts greater than \$100,000, 7%. The Subcontractor shall compute his cost in the same manner as outlined herein for force account work. All requirements of this subsection shall be complied with by the Subcontractor.

13.3.6 The compensation as herein provided shall be payment in full for all work done on a force account basis and shall cover all expenses of every nature, kind and description, including but not limited to overhead expenses, profit, occupational tax and any other federal, state or city revenue act, premiums on public liability and property damage insurance policies, use of small tools and equipment for which no rental is allowed and profits.

13.3.7 The Contractor shall submit his costs to the Engineer each day. Three (3) copies of an itemized statement of force account work shall be submitted not later than thirty (30) days after completion of the force account work. All claims will be accompanied by the original receipted bills for materials, supplies and freight. Materials and supplies furnished by the Contractor's stock shall be supported by an affidavit certifying to their value. The amount and cost of any force account work will be submitted to the Engineer for verification and/or re-computation and when approved by the Engineer shall be included in the next partial payment. The Contractor's cost records pertaining to work paid for on a force account basis shall be open to inspection or audit or adjustment at Owner's option during life of the Contract and for a period of not less than three years after the date of acceptance thereof and the Contractor shall retain such records for the period.

14. WARRANTY OF TITLE

14.1 MATERIAL, SUPPLIES, AND EQUIPMENT

No material, supplies, or equipment for the work under this Contract shall be purchased subject to any security transaction, chattel mortgage or under a conditional sale or other agreement by which an interest therein or if any part thereof is retained by the seller or supplier or any other person. The Contractor warrants good title to all material, supplies and equipment installed or incorporated in the work and agrees upon completion of all work to deliver the premises together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens, or charges and further agrees that neither he nor any person, firm or corporation furnishing any materials or labor for any work covered by this Contract shall have any right to a lien upon the premises or any improvement or any appurtenances thereon, provided that this shall not preclude the Contractor from installing metering devices and other equipment of utility companies or of municipalities, the title of which is commonly retained by the utility company or the city. In the event of the installation of any such metering devices or equipment, the Contractor shall advise the Owner as to the owner thereof. Nothing contained in this article, however, shall defeat or impair the right of such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this subsection shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

15. TIME OF COMPLETION, LIQUIDATED DAMAGES, AND OVERTIME ENGINEERING

15.1 LIQUIDATED DAMAGES

Time of commencement and completion shall be as stated in the Bid. The Contractor shall prosecute the work diligently and without interruption from the date of commencement and shall fully complete the work required under this Contract. For each and every day any portion of the work remains unfinished after the date herein fixed for such completion, the Owner may deduct and retain out of the moneys which may be due the Contractor under this agreement, the sum shown in the Bid Form as liquidated general damages, which amount is, in lieu of the difficulty in estimating damages, hereby fixed and agreed upon and determined by the parties hereto as liquidated compensatory damages which the Owner will suffer by the failure of the Contractor to complete the work within the time agreed upon, and such compensation and reimbursement shall apply to each portion of the work after the date herein agreed upon for its completion.

15.2 OVER CONTRACT ENGINEERING FEES

In addition to liquidated damages, the Contractor shall reimburse the Owner for fees for all engineering and inspection services (herein called "over contract engineering fees") incurred by the Owner after the completion date provided in this Contract.

Over contract engineering fees will be charged to the Contractor, at the Engineer's current billing rate. Such charges will be billed directly to the Contractor by the Owner and said costs shall be a lien against the Contractor's work. In the event the Contractor fails to pay said bill, or bills, by the 30th day of the month billed, such payment may be handled in accordance with Article 19.8 of the General Conditions.

The over contract engineering fees chargeable to the Contract shall apply to each portion of the work after the date herein agreed upon for its completion.

15.3 HINDRANCES OR DELAYS, AND EXTENSION OF TIME

15.3.1. The Contractor shall not be charged with damages and the contract time shall be extended if:

- (a) The delay in the completion of the work arises from causes which are beyond the control and without the fault or negligence of the Contractor, including but not restricted to abnormal weather conditions, acts of Gods, acts of the public enemy, acts of the Owner in either its sovereign or contractual capacity, acts of another contractor in the performance of a contract with the Owner; fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or delays of subcontractors or suppliers arising from causes other than normal weather beyond the control and without the fault or negligence of both the Contractor and such subcontractors or suppliers; and
- (b) The Contractor, within ten (10) days from the beginning of any such delay (unless the Owner grants a further period of time before the date of final payment under the contract), notifies the Owner in writing of the causes of delay. The Owner shall ascertain the facts and the extent of the delay and extend the time for completing the work when, in his judgment, the findings of fact justify such an extension. His findings of fact shall be final and conclusive on the parties, subject only to appeal as the remedies clause of this Contract provides.
- (c) As used in this article, the term "subcontractors or suppliers" means subcontractors or suppliers at any tier.

15.4 OVERTIME AND HOLIDAY WORK

Should the Contractor elect to work more than eight (8) hours per day or more than five (5) days per week, or on holidays, during the course of the stated Contract time limit, all costs of engineering and inspection thus entailed will be charged to the Contractor, at the Engineer's current billing rate. Such charges will be billed directly to the Contractor by the Owner and said costs shall be a lien against the Contractor's work. In the event the Contractor fails to pay said bill, or bills, by the 30th day of the month billed, such payment may be handled in accordance with Article 19.8 of the General Conditions.

16. CORRECTION, UTILIZATION OF DEFECTIVE WORK

16.1 REJECTED MATERIALS AND WORKMANSHIP

The Engineer shall have the right to reject materials and workmanship which are defective, or to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the Owner. If the Contractor does not correct such rejected work within a reasonable time, fixed by written notice, the Owner may correct same and charge the expense to the Contractor.

16.2 RE-INSPECTION

Should it be considered necessary or advisable by the Engineer at any time before final acceptance of the entire work to make an examination of work already completed, by removing or tearing out any portion thereof, the Contractor shall on request promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any respect due to the fault of the Contractor or his Subcontractor, he shall defray all the expenses of such examinations and satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the additional cost of labor and materials necessarily involved in such examination and placement shall be paid to Contractor as provided elsewhere.

16.3 UTILIZATION OF DEFECTIVE WORK

Should the Engineer and Owner decide that the defective work can be utilized, they may elect to make an equitable deduction rather than require correction. If corrections are ordered, such corrections of defective work shall be made to the Engineer's satisfaction before final payment is made, but final payment shall not be a waiver of the Owner's right to demand correction of faulty workmanship or material which becomes apparent during the guarantee period stipulated in this Contract.

16.4 OWNER MAY CORRECT DEFECTIVE WORK

If Contractor fails within a reasonable time after written notice from the Engineer to proceed to correct defective work or to remove and replace rejected work as required by Engineer in accordance with Article 16.1, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven (7) days' written notice to Contractor, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph Owner shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, Owner may exclude Contractor from all or part of the site, take possession of all or part of the Work, and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the site and incorporate in the work all materials and equipment stored at the site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees such access to the site as may be necessary to enable Owner to exercise the rights and remedies under this Article. All direct, indirect and consequential costs of Owner in exercising such rights and remedies will be charged against Contractor in an amount approved as to reasonableness by Engineer, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the work: and Owner shall be entitled to an appropriate decrease in the contract price. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, all court or arbitration costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of Contractor's defective work. Contractor shall not be allowed an extension of the contract time because of any delay in performance of the work attributable to the exercise by Owner of Owner's rights and remedies hereunder.

17. SUBSURFACE CONDITIONS AND UNDERGROUND IMPROVEMENTS

17.1 SOIL AND/OR SUBSURFACE CONDITIONS

Any data on soil and/or subsurface conditions which may be shown in the Plans or Section 02010 of the Specifications is not to be taken as a representation, but is

based on limited information and is at best only an opinion; consequently, such data cannot be considered precise or complete and there is no guarantee as to its completeness, accuracy, or precision. All Bidders and/or Contractors should thoroughly familiarize themselves with the subsurface conditions anywhere on this project, the nature of which is to be determined and ascertained by Bidders and Contractors on their own independent investigations and to their own satisfaction.

18. SUSPENSION OF WORK, TERMINATION AND DELAY

18.1 SUSPENSION

The Owner may suspend the work or any portion thereof for a period of not more than ninety (90) days or such further time as agreed upon by the Contractor, by written notice to the Contractor and the Engineer, which notice shall fix the date on which work shall be resumed. The Contractor will resume that work on the date so fixed. The Contractor will be allowed an increase in the Contract price, in accordance with Article 18.3 of the General Conditions, or an extension of the Contract time, or both, directly attributable to any suspension.

18.2 TERMINATION

18.2.1 If the Contractor refuses or fails to prosecute work, or any separable part thereof, with such diligence as will insure its completion within the time specified in this Contract, or any extensions thereof, or fails to complete said work within such time, or the Contractor is adjudged as bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the Contractor or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to subcontractors or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction over the work or if he disregards the authority of the Engineer, or if he otherwise violates any provision of the Contract Documents, then the Owner may, without prejudice to any other right or remedy and after giving the Contractor and his Surety a minimum of ten (10) days from delivery of a written notice, terminate the services of the Contractor and take possession of the project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor, and finish the work by whatever method he may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price exceeds the direct and indirect costs of completing the project, including compensation for additional professional services, such excess shall be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor will pay the difference to the Owner. Such costs incurred by the Owner will be determined by the Engineer and incorporated in a Change Order.

18.2.2 Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any right of the Owner, against the Contractor then existing or which may thereafter accrue. Any retention or payment of moneys by the Owner due the Contractor will not release the Contractor from compliance with the Contract Documents.

18.2.3 After ten (10) days from delivery of a written notice to the Contractor and the Engineer, the Owner may, without cause and without prejudice to any other right or remedy, elect to abandon the project and terminate the Contract. In such case, the Contractor shall be paid for all work executed and any expense sustained plus reasonable profit on the work performed to the date of termination.

18.3 DELAY

If the Owner or his agents or representatives hinders or delays the Contractor for an unreasonable time in his performance of a significant aspect of the work under the contract, and the delay caused by the Owner or his agents or representatives brings

about new conditions which the Contractor should not have been required to have discovered or anticipated, then the Contractor shall be entitled to reimbursement for extra direct costs and expenses (plus ten (10) percent thereof for overhead, profit and taxes) which are proximately caused by the delay as well as an extension of time. The parties recognize the difficulty of determining indirect, consequential, impact, economic and all other general damage claims and agree that if there are any such damages proximately caused by delay of the Owner or his agents or representatives, the Contractor shall be awarded for such general liquidated damages only for such delay to be computed at the rate per day stipulated in this Contract as liquidated damages for failure of the Contractor to complete the Contract on time.

19. PAYMENTS

19.1 PARTIAL PAYMENTS TO CONTRACTOR

- 19.1.1 Not more often than once each calendar month, the Owner will make a payment to the Contractor on the basis of a duly certified and approved estimate of the work satisfactorily completed in the opinion of the Engineer, under each of the pay items in this Contract during the preceding monthly pay period subject to the following:
- 19.1.2 Unless otherwise provided by law, the Owner shall retain from the moneys earned by the Contractor on estimates during the progress of the improvement or work, a sum equal to five (5) percent of such estimates, said sum to be retained by the Owner as a trust fund for the protection and payment of any person or persons, material man who shall perform any labor upon the Contract or the doing of the work, and all persons who shall supply such person or persons or subcontractors with provisions and supplies for the carrying on of the work, and any state taxes which may be due from the Contractor. The Owner, at any time after fifty (50) percent of the original Contract work has been completed, if it finds that satisfactory progress is being made, may make any of the subsequent partial payments in full, but in no event shall the amount to be retained be reduced to less than five (5) percent of the amount earned by the Contractor. The funds reserved under the provision of this paragraph shall be retained for the minimum period following the final acceptance of the completed work covered by the Contract as provided by state law and after receipt of certificate required by law or these specifications.
- 19.1.3 If the Owner administering a Contract after a substantial portion of the work has been completed, finds that an unreasonable delay will occur in the completion of the remaining portion of the Contract for any reason not the result of a breach thereof, he may, if the Contractor agrees, delete from the Contract the remaining work and accept as final the improvement at the stage of completion then attained and make payment in proportion to the amount of the work accomplished. In such case any amounts retained and accumulated under this section shall be held for a period of thirty days following such acceptance. In event that the work shall have been terminated before final completion as provided in this section, the Owner may thereafter enter into a new contract with the same Contractor to perform the remaining work or improvement for an amount equal to or less than the cost of the remaining work as was provided for in the original Contract without advertisement or bid. The provisions of any state law shall supersede all provisions and regulations in conflict herewith.

19.2 WORK TO BE PAID

The Owner shall determine the pay quantities for each partial payment. All payments to the Contractor 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, including the final estimate, should be issued and/or the amount of said certificate or estimate shall be based entirely upon the opinion of the Owner.

19.3 MATERIAL ON SITE

- 19.3.1 Cost of mechanical or electrical equipment, properly stored, protected and insured at the site of the work will be paid on monthly estimates. In preparing monthly statements, advancement will be made for pipeline materials as outlined in Section 01025 or for ninety (90) percent of the cost of such other materials, as evidenced by invoices to the Contractor.
- 19.3.2 Advancement will not be made for any item of material amounting to less than five hundred dollars (\$500.00). All materials must conform to the requirements of the Specifications; however, advancement for materials will not constitute acceptance, and any faulty material will be condemned although advancement may have been made for same in the estimates.
- 19.3.3 Computation of amount of advancement as outlined herein shall be made prior to computation of retainage required by these General Conditions.

19.4 STATUS OF WORK COVERED BY PARTIAL PAYMENT

The making of any payment to the Contractor under this Contract shall not relieve the Contractor of his obligations hereunder. The Contractor is obligated to complete the Contract in its entirety and to deliver to the Owner such completed work, finished product or structure as is specified in the Contract, and until this Contract is fully performed by the Contractor and the work, product or structure produced thereby is accepted by the Owner, the Contractor shall be obligated to repair, replace, restore, or rebuild any fully or partially completed work or structure, or any materials or equipment required to be provided under the Contract which may be damaged, lost, stolen, or otherwise injured in any way. Provided, however, at the option of the Owner, with respect to any major unit of the Contract this particular obligation of the Contractor may be terminated by the Owner upon the completion by the Contractor and acceptance by the Owner.

19.5 USE OF WORK BY OWNER

- 19.5.1 Upon substantial completion the Owner may use any completed or substantially completed portions of the work. Such use shall not constitute a final acceptance of such portions of the work.
- 19.5.2 The Owner shall have the right to enter the premises for the purpose of doing work not covered by the Contract Documents. This provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the work, or the restoration of any damaged work except such as may be caused by agents or employees of the Owner.

19.6 PAYMENTS BY THE 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 such services are rendered; (b) for all materials, tools, and other expendable equipment to the extent that partial payments are made by the Owner, 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 delivered at the site of the project; 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 the respective Subcontractor, to the extent of such Subcontractor's interest therein. Nothing in this Article shall preclude the parties from exercising any legal rights they may have under state law.

19.7 INDEMNIFICATION

The Contractor will indemnify and save the Owner or the Owner's agents harmless from all claims and cost of defense thereof including by illustration but not limited to attorneys' fees, expert witness fees, and the cost of the services of engineering and other personnel whose time is reasonably devoted to the preparation and attendance of depositions, hearings, arbitration proceedings, settlement conferences and trials growing out of the demands of subcontractors, other contractors, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment tools, and all supplies, incurred in the furtherance of the performance of the work. The Contractor shall, at the Owner's request, furnish satisfactory evidence

that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so the Owner may proceed as in Article 19.8 of this Specification.

19.8 OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS AND MAKE APPLICATION THEREOF

19.8.1 In addition to the amount which the Owner may otherwise retain under the Contract, the Owner may withhold a sufficient amount or amounts of any payment or payments otherwise due to the Contractor including nullifying the whole or part of any previous payment because of subsequently discovered evidence or subsequent inspections, and in its judgment may be necessary to cover the following:

- (a) The cost of defective work not remedied.
- (b) Fees incurred for material inspection, and overtime engineering and inspection for which the Contractor is obligated under this Contract.
- (c) Fees and charges of public authorities or municipalities including, but not limited to, premiums for employer industrial insurance due the State.
- (d) Liquidated damages and engineering and inspection fees beyond completion date.

19.8.2 Payment may be withheld for the following items for private contracts, but not for Public Works Contracts:

- (a) Payments which may be past due and payable for claims against the Contractor or any Subcontractor for labor or materials furnished for the performance of this Contract.
- (b) Payments owed by the Contractor to his Subcontractors when such Subcontractors bring notices of claims against the Contractor to the Owner's attention in writing.
- (c) The estimated actual cost of completing the Contract, when, in the Engineer's opinion, there is doubt that the Contract can be completed for the unpaid balance.

19.8.3 The Owner in its discretion may apply the amount or amounts withheld under the above subsections of these Specifications to the payment of such claims after giving the Contractor fifteen (15) days prior written notice of intent to so do, and prior to the expiration of said fifteen (15) day period no legal action has commenced to resolve the validity of such claims. In making such payments the Owner shall be deemed the agent of the Contractor, and any payment so made by the Owner shall be considered as payment made under the Contract by the Owner to the Contractor, and the Owner shall not be liable to the Contractor for such payment made in good faith. If legal action has been instituted to determine the validity of claims prior to the expiration of the fifteen (15) day period herein above mentioned, the Owner shall hold the funds until determination of the action or written settlement agreement of the parties. Where the Owner has made disbursements after a fifteen (15) day notice and failure of any legal action to be brought within said fifteen (15) day period, the Owner will render to the Contractor a proper accounting for such funds disbursed on behalf of the Contractor.

19.9 FEDERAL TAXPAYER IDENTIFICATION NUMBER REQUIRED OF CONTRACTORS/VENDORS

The Owner is required by the Internal Revenue Service to have each Contractor provide a Federal Taxpayer Identification No. (TIN) and so indicate on his bid. The TIN consists of either a Social Security Number (000-00-000) for a self-employed Contractor or an Employer Identification Number (00-0000000). Failure by the successful low bidder to provide the Owner with this number will result in 15 percent of 1099 reportable compensation being withheld by the Owner from each payment in addition to the usual retained percentage.

19.10 WASHINGTON STATE SALES TAX

19.10.1 Washington State sales taxes payable by the Owner shall not be included in the Contractor's bid items. In each periodic estimate and in the final estimate, the amount of the sales tax applicable shall be added to the estimate and paid by the Owner. The Contractor shall furnish to the Owner, before final

payment will be made, a certificate from the State Excise Tax Department of the State of Washington showing that all taxes due the State of Washington have been paid in full.

- 19.10.2 All use taxes, compensating and other excise taxes shall be included in the Contractor's bid items, and will not be added to estimate nor paid by the Owner.
- 19.10.3 Reference is hereby made to WAC 458-20-170 (Rule 170) and WAC 458-20-171 (Rule 171) relative to the application of the Washington State sales tax on public roadway contracts.
- 19.10.4 If the law or regulations of the State of Washington are amended during the performance of the contract which relieve the Contractor of any use or compensating taxes included in the bid item and imposes an additional sales tax liability on the Owner, the Owner shall pay such sales tax and be credited with the amount of the use or compensating taxes Contractor would have paid absent such amendment.

20. CERTIFICATION AND FINAL PAYMENT

20.1 ENGINEER'S CERTIFICATION

All payments must have prior certification by the Engineer, but certification is not to be construed as acceptance of work not done in accordance with the terms of the Contract.

20.2 FINAL PAYMENT

Contractor shall furnish to the Owner with the final pay request, a Certification of Payment of Industrial Insurance Premiums Form certifying that the Washington State Department of Labor and Industries Industrial Insurance Premiums have been paid for this project throughout the duration and through completion of the project. Final payment will not be made until Certification is received. Providing Certification does not release the Contractor from liability for paying the required premiums. A copy of the form can be found at Section 00660.

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 other than claims in stated amounts as may be specifically excepted by 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. Any payment, however, final or otherwise, shall not release the Contractor or his Sureties for any obligations under the Contract Documents or the Performance Bond, nor reduce the amount or the Bond obligation.

21. INSURANCE

21.1 GENERAL

The Certificate of Insurance and Insurance Questionnaire shall be completed and submitted to the Owner prior to construction beginning on the project.

The Contractor shall furnish the Owner with original endorsements and a workers' compensation status letter effecting coverage required by this clause. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be received and approved by the Owner before work commences. The Owner reserves the right to require complete, certified copies of all required insurance policies, at any time.

21.2 WORKMEN'S COMPENSATION AND LIABILITY INSURANCE

21.2.1 In addition to such other insurance that may be required under this Contract, the Contractor shall provide workmen's compensation insurance for all employees employed under this Contract on the project who may come within the protection of workmen's compensation laws and shall provide, where practicable, Employer's Liability (Stop Gap) insurance for the benefit of his employees not protected by such compensation laws, and proof of such insurance satisfactory to the Owner shall be given. The Contractor's Labor and Industries account number shall be noted on the Certificate of Insurance. Limits of coverage as required by the State of Washington.

21.2.2 Subcontractors: The Contractor will be charged with responsibility for proper and adequate workmen's compensation coverage for all his subcontract operations, and in the event the Contractor's insurance does not cover each and every Subcontractor, certificates of insurance issued on policies by companies that may be acceptable to the Owner covering each and every Subcontractor shall be filed with the Owner prior to the commencement of such subcontract operation.

21.2.3 Indemnification: In any and all claims against the Owner or the Engineer, or any of their agents or employees, by any employee of the Contractor, the Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts. It is specifically and expressly understood that the indemnification provided herein constitutes Contractor's waiver of immunity under industrial insurance, Title 51 RCW, solely for the purposes of this indemnification. This waiver has been mutually negotiated by the parties.

21.3 PUBLIC LIABILITY INSURANCE

21.3.1. The Contractor shall obtain and keep in force during the term of any contract, Commercial General Liability insurance policies with insurance companies which have an A. M. Best's rating of "A VII" or better, and who are approved by the Insurance Commissioner of the State of Washington pursuant to Title 48 RCW.

21.3.2. Prior to the execution of any contract, the Contractor shall purchase a Comprehensive General Liability Insurance policy meeting the requirements set forth herein. The Contractor shall file with the Owner a certified copy of all policies or a Certificate of Insurance evidencing such policies to be in force. The certificate shall be accompanied by such policy endorsements as are necessary to comply with the requirements set forth herein. Failure of the Contractor to fully comply with the requirements regarding insurance shall be considered a material breach of any contract and shall be cause for immediate termination of any contract and of any and all Owner obligations, regarding same.

21.3.3 The Contractor shall not begin work under any contract or under any special condition, until all required insurance has been obtained and until such insurance has been approved by the Owner. Said insurance shall provide coverage to the Contractor, Subcontractors, Owner and Engineer. The coverage so provided shall protect against claims from bodily injuries, including accidental death, as well as claims for property damages which may arise from any act or omission of the Contractor, his subcontractors, or by anyone directly or indirectly employed by either of them.

21.3.4 The insurance policies shall include an endorsement which specifically names the Owner, its elected or appointed officers, officials, employees, Engineer and agents as Insureds with regards to damages and defense of claims arising from: (a) activities performed by or on behalf of the Contractor; (b) products and completed operation of the Contractor, or (c) premises or equipment leased, owned or used by the Contractor. The insurance shall be maintained in full force and effect at the Contractor's expense throughout the term of any contract with the Owner.

21.3.5 The Owner shall be given at least 45 days notice of cancellation, nonrenewal, material reduction or modification of coverage. Such notice to Owner shall be made by certified mail, return receipt requested to the Owner. The insurance policies shall include an endorsement which requires that the Owner be given such 45 days notice.

The coverages provided by the Contractor's insurance policies are to be primary to any insurance maintained by the Owner, except as respects losses attributable to the sole negligence of the Owner. Any insurances that might

cover any contracts which are maintained by the Owner, shall be in excess to the Contractor's insurance and shall not contribute with it.

- 21.3.6 The Contractor's insurance policies shall protect each insured in the same manner as though a separate policy had been issued to each. The inclusion of more than one insured shall not affect the rights of any insured as respects any claim, suit or judgment made or brought by or for any other insured or by or for any employee of any other insured.
- 21.3.7 The General Aggregate provision of the Contractor's insurance policy shall be amended to show that the General Aggregate Limit of the policies apply separately to this project.
- 21.3.8. The Contractor's insurance policies shall not contain deductible or self-insured retentions in excess of \$10,000 unless approved by the Owner.
- 21.3.9 The Contractor's insurance policies shall contain a provision that the Owner has no obligation to report events which might give rise to a claim until a claim has been filed with the Owner's Board of Commissioners or other appropriate governing body.
- 21.3.10. Providing of coverages in the stated amounts shall not be construed to relieve the Contractor from liability in excess of such limits.
- 21.3.11. In addition the Contractor shall have its Insurance Agent/Representative complete the Insurance Coverage Questionnaire contained in the Project Manual and attach it to the Certificate of Insurance for Owner's approval.
- 21.3.12. The contractual coverage of the Contractor's policy or policies shall be sufficiently broad enough to insure that the provisions of the hold harmless clause included in the Owner's Agreement are given full force and effect.

21.3.13. Type of Limits of Insurance Required:

- (a) Commercial General Liability
 - \$1,000,000 Combined Single Limit Bodily Injury and Property Damage Liability (Including extended bodily injury)
 - Employees and agents as Insureds
 - Premises and operations
 - Broad form property damage including under- ground, explosion and collapse hazards (XCU)
 - Products completed operations (through guaranty period)
 - Blanket contractual
 - Subcontractors
 - Personal Injury with EE exclusion deleted
 - Employer's liability (Stop gap)
- (b) Automobile Liability
 - \$1,000,000 per accident Bodily Injury and Property Damage Liability, covering any owned automobile, hired automobile or non-owned automobile
- (c) Umbrella Liability
 - \$2,000,000 per occurrence
 - \$2,000,000 aggregate
 - As an alternative to the above indicated Commercial General Liability and Umbrella Liability insurance policies, the Contractor may provide the Owner with an Owner and Contractors Protective Policy with a limit of coverage of \$5,000,000.

21.3.14. For projects where asbestos containing materials have been identified on the plans or in the project manual:

In addition to the other insurance requirements in this Contract, the Contractor shall provide liability insurance for Bodily Injury and Property Damage coverage for asbestos removal and disposal as follows protecting the Owner, its officers, Engineer, agents and employees from any and all liability arising from the removal and disposal of the asbestos and all work and efforts done incidental and as a consequence to such removal. The limits of such coverage shall be as follows:

(a) Occurrence Basis	
Bodily Injury	\$1,000,000 per occurrence
Property Damage	\$1,000,000 per occurrence
Combined Single Limit	\$2,000,000 aggregate
Claims Made Basis	\$2,000,000 per occurrence
Bodily Injury	\$2,000,000 aggregate
Property Damage	\$2,000,000 aggregate
	\$1,000,000 per claim
	\$1,000,000 per claim
	\$2,000,000 aggregate all claims one year Policy shall contain extended reporting of claims for 3 years from completion of the project.

21.4 BUILDER'S RISK INSURANCE

For project or portion of project involving structures (e.g. pump/lift/booster stations, reservoirs, buildings of any type), the Contractor shall maintain for the life of the contract Builder's Risk All Risk Insurance, including coverage for earthquake and flood perils, for 100% of the completed value of the structure portion of the project. An installation floater with coverage no more restrictive than the Builder's Risk coverage described above may be used in lieu of the Builder's Risk coverage when appropriate. The Owner is to be an insured on the policy. The insurance carrier shall be notified of partial occupation or use by the Owner. Such partial occupation or use shall not void the insurance.

22. CONTRACT SECURITY

22.1 PERFORMANCE BOND

22.1.1. The Contractor shall within ten (10) days after the receipt of the Notice of Award furnish the Owner with a Performance Bond in penal sum equal to the amount of the contract price, conditioned upon the performance by the Contractor of all undertakings, covenants, terms, conditions and agreements of the Contract Documents, and upon the prompt payment by the Contractor to all persons supplying labor and materials in the prosecution of the work provided by the Contract Documents. Such bonds shall be executed by the Contractor and a corporate bonding company licensed to transact such business in the state in which the work is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570.

22.1.2. The expense of these bonds shall be borne by the Contractor. If at any time a Surety on any such bond is declared a bankrupt or loses its right to do business in the state in which the work is to be performed or is removed from the list of Surety Companies Acceptable on Federal Bonds, Contractor shall 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 an acceptable bond to the Owner.

23. ASSIGNMENT OF CONTRACT

23.1 PROVISIONS

The Contractor shall not assign this Contract or any part thereof, nor any moneys due or to become due thereunder without the prior written consent of the Owner, or without the consent of the Surety unless the Surety has waived its right to notice of assignment. No assignment of this Contract shall be valid unless it shall contain a provision that the funds to be paid to the assignee under the assignment are subject to a prior lien for services rendered or materials supplied for performance of the work called for under this Contract in favor of all persons, firms, or corporations rendering such services or supplying such materials.

24. PROPERTY RESTORATION

24.1 PUBLIC COMPLAINTS

Whenever the Contractor fails to repair or restore existing improvements damaged by his operations within seventy-two (72) hours of written notice, the Owner may order said work done by others and all costs incurred shall be paid by the Contractor, or withheld from his moneys due under this Contract.

25. SEPARATE CONTRACTS

25.1 RELATIONS WITH OTHER CONTRACTORS AND OWNER

- 25.1.1. The Owner reserves the right to award other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs.
- 25.1.2. If any part of the Contractor's work depends for proper execution or results upon the work of any other contractor, the Contractor shall inspect, and within fourteen (14) calendar days after given notice to proceed, report in writing to the Engineer, any defect in such work that render it unsuitable for such proper execution and results. His failure so to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of his work except as to the defects which may develop in the other contractor's work after the execution of the Contractor's work.
- 25.1.3. To insure proper execution of his subsequent work, the Contractor shall measure work already in place and shall, within fourteen (14) calendar days after given notice to proceed, report in writing, to the Engineer any discrepancies between the executed work and the Drawings.

25.2 OWNER FREE FROM DAMAGE CLAIMS

If, through acts of neglect or unjustified omissions or default on the part of the Contractor, another contractor or any subcontractor of any other contractor shall suffer loss or damage to the work, the Contractor agrees to settle with such other contractor or subcontractor by agreement or arbitration, if such 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 so sustained, the Owner shall notify the Contractor, who shall indemnify, and save harmless the Owner and shall assume and pay for the defense costs of any such claims, provided however that the Contractor shall have no liability to indemnify against liability for loss or damages caused by or resulting from the sole negligence of the Owner and/or Engineer, and in the event that such liability for loss or damages to work is caused by the concurrent negligence of the Owner and/or Engineer or its agents or employees and the Contractor or its agents or employees, the obligation hereof shall be enforceable only to the extent of the Contractor's negligence.

25.3 OCCUPANCY OF THE SITE

The Contractor must ascertain to his own satisfaction the scope of the project and the nature of any other contracts that have been or may be awarded by the Owner in the prosecution of the project to the end that the Contractor may perform this Contract in the light of such other contracts, if any. Nothing herein contained shall be interpreted as granting to the Contractor exclusive occupancy of the site of the project. The Contractor shall not cause any unnecessary hindrance or delay to any other contractor working on the project. If the performance of any contract is likely to be interfered with by the simultaneous execution of some other contract or contracts, the Owner shall decide which contractor shall cease work temporarily and which contractor shall continue, or whether the work under the contracts can be coordinated so that the contractors may proceed simultaneously. The Owner shall not be responsible for any damages suffered or extra costs incurred by the Contractor resulting directly or indirectly from the performance or attempted performance of any other contract or contracts existing or known to be pending at time of bid.

26. SUBCONTRACTORS

26.1 SPECIALTY SUBCONTRACTORS

Specialty Subcontractors shall be utilized for the performance of such parts of the work under this Contract as under normal contract practices, are performed by Specialty Subcontractors, unless the Owner determines that the Contractor has heretofore customarily performed such specialty work with his own organization and

is equipped to do so, or unless the Owner determines that performance of the specialty work by Specialty Subcontractors will result in increased costs or inordinate delays.

26.2 CONTRACTOR RESPONSIBLE FOR SUBCONTRACTORS

The Contractor shall not subcontract any work to be performed or any materials to be furnished in the performance of the Contract without the prior written consent of the Owner. If the Contractor shall subcontract any part of this Contract, the Contractor shall be fully responsible to the Owner for the acts and omissions of his Subcontractor and of the persons either directly or indirectly employed by the Subcontractor, as he is for the acts and omissions of himself and of persons directly employed by him. Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the Owner.

26.3 OWNER'S APPROVAL OF SUBCONTRACTOR

The Owner's consent to or approval of any subcontract under this Contract shall not in any way relieve the Contractor of his obligations under this Contract and no such consent or approval shall be deemed to waive any provisions of this Contract.

26.4 LIMITATION

The Contractor shall not award work to subcontractor(s) when the cost of labor and materials is in excess of fifty (50) percent of the Contract price, without prior written approval of the Owner. Before any work is begun by any subcontractor, the Contractor shall submit to the Owner a written statement of the percentage of the total contract price of the work which will be performed by such subcontractor and all other subcontractors.

27. ENGINEER'S AUTHORITY

27.1 LIMITATION

The Engineer will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

28. LAND AND RIGHT-OF-WAY

28.1 PROVIDED BY OWNER

28.1.1. Generally prior to issuance of the Notice to Proceed, the Owner will have obtained all land and right-of-way necessary for carrying out the completion of the work to be performed pursuant to the Contract Documents except as otherwise provided or unless otherwise mutually agreed.

28.1.2. If the Contractor is delayed due to acts of omission on the part of the Owner in obtaining easements, he will be entitled to an extension of time as his sole remedy and the Contractor agrees that he will assert no claims for additional compensation or costs, damages, overhead or profit due to such delay, nor will such delay be a breach of the Contract.

28.1.3. The Contractor shall meet and fulfill all covenants and stipulations of each easement obtained by the Owner for this project. The Contractor is required to protect the Owner on all easements and to do all necessary work required to protect the covenants and stipulations on each easement.

28.1.4. The Owner will provide to the Contractor information which delineates and describes the lands owned and right-of-way acquired.

28.2 PROVIDED BY CONTRACTOR

The Contractor shall provide at his own expense and without liability to the Owner any additional land and access thereto that the Contractor may desire for temporary construction facilities, or for storage of materials.

28.3 WORK ON RIGHT-OF-WAY OTHER THAN OWNER'S

28.3.1. Work on railroad, state highway, other public road, or any right-of-way other than the Owner's shall be in conformity with the requirements of the authority having jurisdiction over such right-of-way. It will be the Contractor's responsibility to notify said authority before beginning work on the right-of-way at least forty-eight (48) hours in advance, and to ascertain the restoration requirements and determine that the schedule of operations proposed is satisfactory to the authority.

28.3.2. In case of a public contract, the method of payment or variable items such as road restoration, temporary patching, or special backfill requirements shall be

included in the Contract and covered by bid items. Any variation between the actual requirements and the requirements as covered by the bid items that are not caused by the Contractor's default or delay, which result in additional or increased cost to the Contractor shall be paid in accordance with the provisions in Article 13 of the General Conditions.

28.4 WATER COURSES

The Contractor shall provide for the flow of all water courses, sewers or drains, intercepted or disturbed by the Contractor during the progress of the work, and shall pay any damage that may be caused by flood waters, alterations of flow patterns and all erosion damage resulting therefrom.

29. WARRANTIES

29.1 GENERAL GUARANTEE AND WARRANTY

29.1.1. For a period of one (1) year from the date of final acceptance of the project, or for the time fixed in Section 01700, workmanship and materials, and equipment furnished by the Contractor and incorporated in the project, shall be guaranteed by the Contractor to remain in normal working order and condition except where abused or neglected by the Owner, and the Contractor shall repair or replace at his own expense any work or material that may prove to be defective during the period of this guarantee. The Contractor shall obtain warranties from subcontractors and suppliers of materials or equipment where such warranties are specifically required herein, and shall deliver copies to the Owner upon completion of the work.

29.1.2. Neither the final certificate of payment nor any provision in the Contract nor partial or entire use or occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibilities for faulty materials and workmanship.

29.2 EQUIPMENT WARRANTY

Where required, equipment furnished shall bear a one (1) year (from date fixed in Article 29.1.1.) manufacturer's warranty against defects in materials and workmanship, in addition to the Contractor's one year guarantee unless specified elsewhere in these Specifications. All parts or equipment found defective or showing signs of undue wear within one (1) year from date of final acceptance, shall be replaced at no cost to the Owner. The warranty shall be in full effect with no qualifications or reservations.

29.3 BREACH OF WARRANTY

In the event of breach of warranty, Owner may exercise the rights provided in Article 16.4.

30. COMPLIANCE WITH LAWS

In all operations connected with the work embraced in this agreement, the Contractor shall be held responsible for any failure to respect, adhere to, and comply with, all ordinances, laws and public permits governing, controlling or limiting in any way the action of those engaged upon the work.

If Contractor observes that the Specifications or Drawings are at variance with any laws or regulations, Contractor shall give Engineer prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in Article 13. If Contractor performs any work knowing or having reason to know that it is contrary to such laws or regulations, and without such notice to Engineer, Contractor shall bear all costs arising therefrom; however, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with such laws and regulations.

31. LEGAL WAGES ON PUBLIC WORKS

The prevailing rate of wages to be paid to all workmen, laborers, or mechanics employed in the performance of any part of this Contract shall be in accordance with applicable state and federal laws, rules and regulations, and the schedule of prevailing wage rates for the locality or localities where this Contract will be performed.

Inasmuch as the Contractor will be held responsible for paying the prevailing wages, it is imperative that all contractors familiarize themselves with the current wage rates before

submitting bids based on these Specifications. See the attached wage rate schedules for current prevailing wages.

The Contractor shall file intent to pay prevailing wage statements and wage rate affidavits as may be required by applicable state and federal laws, rules and regulations.

On projects governed by wage rates determined by the state and federal agencies if there is a difference between the two in the prevailing rate of wage for a similar classification of labor, the Contractor shall pay not less than the wage which is the higher of the two.

32. EMPLOYMENT OF STATE RESIDENTS

The Contractor shall comply with any applicable and valid state laws and regulations requiring preference in employment of state residents and/or citizens, which laws and regulations are incorporated in this Contract by this reference as if set forth in full.

In the case of federally funded projects, Federal Regulations prohibit preferential hiring and therefore it should be understood between the parties that work required by these Contract Documents shall not be governed by the provisions of any State Statute or Code in view of the provisions contained in said regulations. The award of the contract will be made to the responsible bidder submitting the lowest responsive bid, which shall be determined without regard to state or local law whereby preference is given in factors other than the amount of the Bid.

33. ENVIRONMENTAL POLLUTION AND PRESERVATION OF PUBLIC NATURAL RESOURCES

The Contractor shall always comply with all laws, ordinances and regulations - federal, state or local that affect the work under the project.

Changes in laws: The Owner will not adjust payment to compensate the Contractor for changes in legal requirements unless those changes are specifically within the scope of RCW 39.04.120, relating to federal, state or local statutes, ordinances and regulations dealing with the prevention of environmental pollution and preservation of public natural resources that affect or are affected by the project. For changes under RCW 39.04.120 the Owner shall issue a change order setting forth the additional work that must be undertaken, and this shall not invalidate the contract. The cost of such change order to the Owner shall be determined in accordance with the provisions of the contract for change orders or force account, including the provision that no such additional work will be undertaken and no compensation paid to the Contractor therefore unless the work is first authorized in writing given the Contractor by the Owner.

*** END OF SECTION ***

SECTION 00820

WAGE RATE SCHEDULE

1. The Contractor shall be responsible for reviewing and complying with the wage rate schedule found at www.lni.wa.gov/TradesLicensing/PrevWage/WageRates prior to submittal of bids based on these specifications.
 - a. The effective date of the prevailing wage rates shall be January 28, 2025—found in box at bottom of menu on the Journey Level wage rate page—the top of the page provides guidance as to which date to use; the page is accessed from the menu at the above cited URL.
 - b. The County in which the project is located is Skagit County.
 - c. A copy of the applicable prevailing wage rates is available for viewing at the office of David Evans and Associates, Inc., 14432 SE Eastgate Way, Suite 400, Bellevue, WA 98007. Normal business hours are Monday through Friday, 8:00 AM to 4:30 PM.
 - d. A hard copy will be mailed upon request for the non-refundable copying and mailing charges.

* * * END OF SECTION * * *

SECTION 00860
CONTRACT DRAWINGS INDEX

The following list of contract drawings are a part of this contract. The date of issue or latest revision date shall be applicable unless the drawing is revised by change order or addendum.

Drawing Number	Title	Date of Drawing of Latest Revision
1	Cover Sheet	August 2024
2	Washington St Plan and Profile STA -0+25 to 3+49	May 2024
3	Road St Plan and Profile STA -0+25 to 1+59	May 2024
4	RRFB Location	August 2024
5	Details	May 2024
6	Details	May 2024
7	Details	May 2024
8	Details	May 2024

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DIVISION 1

GENERAL CONSTRUCTION PROVISIONS

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SECTION 01001

SPECIFICATION STRUCTURE

1. GENERAL

1.1 FORMAT

- A. This specification is organized on the format promulgated by the Construction Specification Institute. (CSI Format)
- B. This format assigns permanent numbers to all Divisions and Sections and so far as possible assigns all products, processes, activities and construction requirements permanent places in the specifications. A number is assigned which will not change from specification to specification.
- C. Division, Section and Subsection numbers which are not required are omitted from the Specification.
- D. Reference to an Article is a numbered clause in the General Conditions.

1.2 INDEX

- A. All Sections required for a complete Contract appear in the index. Sections not required are omitted.
- B. Bidders and Contractors should check Sections present against the index to assure the presence of all required Sections of the Contract.

1.3 ARRANGEMENT

- A. The Project Manual is organized as follows:
 1. Procedural and legal documents are in the opening Sections.
 2. Specifications are in Divisions number 1 to 16.
- B. No attempt has been made in these specifications or plans to segregate work covered by any trade or subcontractor under one specification. Such segregation and establishment of subcontract limits shall be solely a matter of specific agreement between the Contractor and his subcontractors and shall not be based upon an inclusion, segregation or arrangement in or of these specifications. The Contractor and subcontractor in each case is warned that work included in any subcontract may be divided between several general specifications and that each general specification or subhead of the Technical Specifications may include work covered by two or more subcontracts in excess of any one subcontract.
- C. The Contractor shall be responsible for all work shown or specified, regardless of location in the Contract Documents.

1.4 LANGUAGE

- A. These Specifications are written in imperative and abbreviated form.
- B. This imperative language of the technical sections is directed at the Contractor, unless specifically noted otherwise.
- C. Incomplete sentences shall be completed by inserting "shall", "the Contractor shall", and "shall be", and similar mandatory phrases by inference in the same manner as they are applied to notes on the drawings. The words "shall be" shall be supplied by inference where a colon (:) is used within sentences or phrases.
- D. Except as worded to the contrary, fulfill (perform) all indicated requirements whether stated imperatively or otherwise.

* * * END OF SECTION * * *

SECTION 01010 SUMMARY OF WORK

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Project Coordination: Section 01041
- B. Construction Schedules: Section 01310
- C. Schedule of Values: Section 01370
- D. Protection and Maintenance of Work and Property: Section 01545
- E. Traffic Regulation: Section 01570
- F. Material and Equipment: Section 01600

1.2 SCOPE OF WORK

- A. The work covers construction work specifically shown on the Contract Drawings and described herein.

1.3 CONTRACTOR'S DUTIES

- A. Except as specifically noted, provide and pay for:
 - 1. Labor, materials and equipment
 - 2. Tools, construction equipment, machinery and fuel
 - 3. Water, heat, and utilities required for construction
 - 4. Other facilities and services necessary for proper execution and completion of work
- B. Pay legally required sales, consumer use and other taxes as may be required by law.
- C. Give required notices.
- D. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of work.
- E. Promptly submit written notice to Engineer of observed variance of Contract Documents from legal requirements. It is not Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations.
- F. Enforce strict discipline and good order among employees.
- G. Do not employ:
 - 1. Unfit persons
 - 2. Persons not skilled in assigned task

1.4 CONTRACTOR FURNISHED

- A. Labor, materials and equipment required for the project.
- B. Water for construction, fire protection and all field offices.
- C. All gates, barricades, fences, handrails, guardrails, and security required by the Contract or by laws and regulations.
- D. Sanitary facilities adequate for all workers and complying with all codes and regulations.
- E. Shelter and drying facilities for personnel.
- F. Guards, marks, shields, protective clothing, rain gear, and other equipment required by law, ordinance, labor contracts, OSHA and other regulations for the maintenance of health and safety.
- G. First Aid Kits and equipment required by law and regulations.

1.5 PERMITS AND LICENSES

- A. The Owner shall secure and pay for all Department of Fish and Wildlife permits, State Highway permits, railroad permits, road permits, excavation street use permits, general building permits, and shall pay the fee prescribed for all permanent franchises, permits, licenses and easements.

B. The Contractor shall acquire and pay for all specialty permits such as electrical permits, plumbing permits, transportation permits, fill and grade permits, burning permits, wage and hour regulations permits, and all other permits of a temporary nature relating to the construction of the project.

1.6 TYPE AND EXTENT OF WORK

A. All work incidental and necessary to the completion of the work described herein and shown on the drawings shall be completed under the bid items listed in the Bid Form and no other compensation will be allowed.

1.7 WORK UNDER SEPARATE CONTRACTS

A. As provided in Article 25 of the General Conditions the Owner may award separate contracts. Successful bidders should anticipate the work under these separate contracts as indicated on the drawings. Cooperation between successful bidders for completion of the work as defined in the individual contracts, especially where the work is to be completed in the same general area, is expected of all parties concerned.

B. Bidders are cautioned to anticipate reasonable delays due to this construction by others under the separate contracts. In addition, bidders are cautioned to anticipate the effect of this construction work on the General Conditions in the areas where one or more contracts are scheduled. Changes in soil or water conditions because of construction work performed by others under these separate contracts shall not be the basis for a claim to the Owner.

C. Contractors shall include allowances in their prices bid to allow for the above factors, delays, inconveniences, etc., and these items will not be a basis for a claim for a time extension and/or additional compensation.

D. At locations where these separate contracts are joined to form a completed system, the Contractor last completing the work at the point of connection, as determined by the Engineer, shall be responsible for making said connection.

1.8 OWNER FURNISHED PRODUCTS

A. Owner will furnish no material unless specifically called for in other sections of the specifications or the drawings.

1.9 CONSTRUCT WORK IN STAGES

A. As required in specifications, agreed with owners and reflected in the contract schedule.

1.10 USE OF PREMISES

A. Limitation:

1. The Contractor shall confine his apparatus, storage of materials, and construction operations to such limits as may be directed by the Owner, and shall not unreasonably encumber the premises with his materials.
2. The Contractor shall enforce any instructions of the Owner regarding signs, advertising, fires, danger signals, barricades, and smoking, and the Contractor shall require all persons employed on the work to comply with all building, post or institutional regulations while on the premises.
3. The Contractor shall not permit any part of any structure to be loaded with a weight that will injure its safety.

B. Confine operations at site to areas permitted by:

1. Laws
2. Ordinances
3. Permits
4. Contract Documents
5. Right-of-Way

1.11 USE OF OFF-SHORE ITEMS

- A. State statutes may require that upon the completion of a public contract, the Contractor shall submit a certified statement to the Owner, setting forth the nature and source of off-shore items in excess of twenty-five hundred dollars (\$2,500.00), which have been utilized in the performance of the contract.
- B. Off-shore items are defined as those items procured from sources beyond the territorial boundaries of the United States, including Alaska and Hawaii.

* * * END OF SECTION * * *

SECTION 01025

MEASUREMENT AND PAYMENT

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Bid Form: Document 00300
- B. Payments: Article 19 General Conditions
- C. Schedule of Values: Section 01370

1.2 MEASUREMENT OF PAY QUANTITIES

- A. The Engineer shall make all measurements and determine all quantities and amounts of work done under the Contract. At the time measurements are made for quantity determinations, the Contractor or his authorized assistant shall be present to verify such measurements. From quantity figures so ascertained, it will be the Contractor's responsibility to prepare a monthly periodical estimate of the work accomplished to date. This estimate shall be submitted to the Engineer each month for his review and check not later than the date established at the preconstruction conference. The form of such monthly estimates is to be subject to the approval of the Engineer.
- B. Description of Tally Method for Payment Quantities:
 - 1. When Items are specified to be paid for by the cubic yard, ton, or truck count, the following tally system will be used unless in-place measurements is specified:
 - a. All trucks to be employed on this work shall be measured by the engineer to determine the capacity of each truck.
 - b. The loads shall be leveled when vehicles arrive at the point of delivery to facilitate measurement.
 - c. Each truck shall be clearly numbered with no duplication of numbers.
 - d. Duplicate tally tickets shall be prepared to accompany each truckload of material delivered on the project. The tickets shall bear at least the following information:
 - i. Truck Number.
 - ii. Quantity delivered in cubic yards or tons as applicable.
 - iii. Driver's name and a date.
 - iv. Location of delivery by street and stationing on each street.
 - v. Place for receiving by the inspector.
 - e. It will be the Contractor's responsibility to see that a ticket is given to the inspector on the project for each truckload of material delivered. Pay quantities will be prepared on a basis of said tally tickets.
 - 2. When the bid item stipulates quantities by weight, they shall be weighed on scales that are in accordance with the requirements of the state highway department for similar use. Certified weight bills shall be furnished.
 - 3. If this method is impracticable, or if the bid item stipulates payment by cubic yards, then the weight of the material delivered shall be computed from the volume of material delivered on the basis of one cubic yard of backfill gravel weighing 2,800 pounds and one cubic yard of crushed surfacing weighing 2,600 pounds.
- C. No measurement will be made for:
 - 1. Work performed or materials placed outside of lines indicated in the plans or established by the Engineer.

2. Materials wasted, used, or disposed of in a manner not called for under the contract.
3. Rejected materials (including material rejected after it has been placed, if the rejection is due to the Contractor's failure to comply with the provisions of the contract).
4. Hauling and disposing of rejected materials.
5. Material on hand after completion of the work.
6. Any other work or material when payment is contrary to any provision of the contract.

1.3 ESTIMATED QUANTITIES

- A. The estimated quantities shown in the bid forms are estimates only, being given only as the basis for the comparison of bids, and the Owner does not warrant, expressly or by implication, that the actual amount of work will correspond therewith. The right to increase or decrease the amount of any class or portion of the work, or to make changes in the work required as may be deemed necessary is reserved by the Owner as provided elsewhere in these specifications. The basis of payment will be the actual unit bid items of work performed and measured in accordance with the contract. All prospective bidders should note that certain bid items may be included in the Bid Form to establish a unit price should the use of those items become necessary during construction. Allowance will not be made for loss of anticipated profits or additional compensation should the use of these items be deemed unnecessary.

1.4 PAYMENT FOR LUMP SUM ITEMS

- A. Measurement shall be for work actually complete.
- B. Work is listed in the Schedule of Values (Section 01370).

1.5 PAYMENT FOR UNIT PRICE ITEMS

- A. Payments to be made to the Contractor will be made as set forth in Article 19 of the General Conditions according to the unit price schedule provided.

1.6 PAYMENT FOR MATERIALS ON HAND

- A. Partial payments may be made on monthly estimates to the extent of 90 percent of the cost of materials not yet incorporated into the completed work, if the materials conform to the following requirements:
 1. Meet the requirements of the Contract based upon inspections or testing by the Engineer, and
 2. Are delivered to or stockpiled in the vicinity of the project or other storage site(s) specifically approved by the Engineer, and
 3. Are properly stored; protected; and insured as to loss, damage, and title.
- B. Material delivered to an off-site storage facility will be considered for partial payment only if:
 1. The storage site has been approved by the Engineer
 2. The off-site storage of materials is required for more than thirty calendar days.
 3. The material is tagged, labeled, or otherwise identified as belonging to the project.
 4. The cost of transportation to the site is provided for in advance.

C. The cost of the material on hand will be determined by written evidence supplied by the Contractor in sufficient detail as will permit the Engineer to determine the Contractor's actual cost of the materials. The Contractor shall furnish the Engineer an invoice prior to the progress payment.

1.7 DESCRIPTION OF BID ITEMS

Payment will be made only for those items listed in the bid form. All other items required for the work, including survey, shall be considered incidental to the construction.

A. **Mobilization**

1. This item shall consist of preconstruction costs of preparatory work and operations performed by the Contractor including, but not limited to, those necessary for the movement of his personnel, equipment, supplies and incidentals to the project site; for the establishment of his offices, buildings and other facilities necessary for work on this project; for premiums on bonds and insurance for the project, and for work and operations which he must perform or costs he must incur before beginning production work on the various items on the project site. Mobilization costs for all subcontracted work shall be considered to be included.
2. Items which are not to be included in this item, include, but are not limited to:
 - a. Any portion of the work covered by a specific bid item or incidental work which is to be included in a bid item or items.
 - b. Profit, interest on borrowed money, overhead or management costs.
3. The lump sum contract price for "Mobilization", partial payments will be made as follows:
 - a. When 5% of the total original contract amount is earned from other bid items, 50% of the amount bid for mobilization, or 5% of the total original contract amount, whichever is the least, will be paid.
 - b. When 10% of the total original contract amount is earned from other bid items, 100% of the amount bid for mobilization, or 10% of the total original contract amount, whichever is the least, will be paid.
 - c. Upon completion of all work on the project, payment of any amount bid for mobilization in excess of 10% of the total original contract amount will be paid.

B. **Temporary Erosion and Sediment Control**

1. The lump sum price bid for Temporary Erosion and Sediment Control (TESC) shall constitute complete compensation for materials, work, labor, and equipment necessary to furnish, place, maintain, and remove, when appropriate, TESC measures in accordance with federal, state, and local requirements and the contract documents.

C. **Traffic Control**

1. The lump sum price bid for traffic control shall be full compensation for all labor, materials and equipment necessary to safely maintain pedestrian and vehicle access.
2. This item shall include the cost of personnel for flagging to control traffic during construction operations and maintenance of and protection of traffic control measures.
3. Development, submittal, and revision of traffic control plan per MUTCD.

D. Shoring

1. The lump sum bid for furnishing, placing and maintaining shoring shall constitute complete compensation for materials, work, labor and equipment necessary to provide shoring in accordance with federal, state and local safety requirements.
2. The Contractor shall include costs for all shoring needed to protect the work, adjacent property and improvements, utilities, structures, etc., and to provide safe working conditions in the trench.
3. See Section 02150 for additional information.

E. Corrugated Plastic Pipe (CPP) Storm Drain Pipe

1. The unit price per linear foot for corrugated plastic pipe shall consist of full compensation for labor, materials, and equipment to supply and install corrugated plastic pipe of the size and type indicated as a storm drain line, complete-in-place and ready for use. Pay measurements will be along the centerline of the pipe.
2. Pay for all work required and specified under the contract, except for those items segregated in the Bid Form, shall be included in the unit price paid per linear foot of pipe.
3. Specifically included in the unit price is the removal, hauling and proper disposal of any vegetation as required to install the storm drainage, sidewalk or other appurtenance as shown in the plans.
4. Specifically included in the unit price, but not limited to, are all costs of clearing, grubbing, grading for the trenching operations, potholing for existing utilities prior to construction, dewatering, excavation (including hauling and disposing of excess and excavated materials), backfill, compaction, disposal of debris, repair to any damaged or removed landscaping, mailboxes, etc., testing, and cleanup.
5. The unit price shall also include connections to existing and new drainage structures where payment is not otherwise provided.
6. Also included in the bid price for this item are all costs in connection with furnishing and placing gravel bedding.
7. Also specifically included in the unit price for this item, but not limited to, shall be all costs or expenses involved in maintaining and/or replacing all public or private utilities, structures or improvements which may have to be moved, or which may in any way be affected or damaged by operation of the Contractor.
All work involved in restoration is included in this bid item, and all costs of said restoration shall be included in the price bid and no additional compensation will be allowed except for road restoration items and other items included under separate bid items.

F. Catch Basin/Inlet

1. The unit price bid per each for furnishing and installing catch basins/inlets of the type specified shall consist of full compensation for all materials, labor, and equipment necessary for furnishing and installing or constructing a complete and operable catch basin/inlet.
This item includes, but is not limited to, excavation, haul and disposal of excess materials, backfill, compaction and surface area restoration.

G. Connect to Ex. Storm Structure

1. The unit price bid per each shall constitute full compensation for all labor, materials and equipment required to connect to the existing catch basin at the locations as shown on the plans.
2. This item includes, but is not limited to, all temporary blocking/bracing, fittings to pressurize and testing per the specifications.
3. Work includes adjusting existing catch basins to finish grade and providing any covers necessary.

H. Crushed Rock

1. The unit price bid per ton for Crushed Rock shall constitute full compensation for all labor, materials and equipment required to furnish, deliver and place crushed rock on roads or within the trench as backfill to the width and depth shown on the plans or as designated by the Owner.
2. Also included in this item shall be the cost of all motor patrol or grader work, or any other equipment required to shape the roadway to proper grade before the crushed rock is placed, as well as all equipment required to spread and compact the crushed rock uniformly on the road. Grader work shall include necessary scarification of existing road rock that may be required to achieve proper grade and consolidation.
3. During dry periods, the Engineer may require water sprinkling prior to placement of the crushed rock and while spreading rock. The cost of such sprinkling shall be included in the unit price bid for crushed rock.
4. Measurement: Certified weight bills shall be furnished with each load of materials delivered and payment quantities shall be tallied from the bills.

I. Hot Mix Asphalt (HMA CL 1/2" PG 64-22):

1. The unit price bid per ton shall constitute full compensation for all labor, materials and equipment required to remove and dispose of existing asphalt and base, carry out all necessary ground treatment in accordance with these specifications, and furnish and place a compacted layer of plant mix asphalt concrete.
2. Payment under this item shall be made only at such locations as shown on the plans, in the Specifications or as directed by the Owner.
3. The unit price bid shall also include:
 - a. All costs of "saw cutting" or grinding the existing asphalt as designated on the plans.
 - b. All costs to haul away and dump all excess and excavated materials.
 - c. All costs of preparation of existing surface and any work required to match existing pavement.
 - d. All costs of all motor patrol or grader work, or any other equipment required to shape the roadway to proper grade before the crushed surfacing is placed, as well as all equipment required to spread and compact the crushed surfacing uniformly on the road. Grader work shall include necessary scarification of existing road surfacing that may be required to achieve proper grade and consolidation.
 - e. All costs of placing pavement patch on all streets that currently have asphalt.
 - f. The cost of placing a pre-leveling course, when it is required.
 - g. The cost to "feather" the asphalt at all existing paved driveways as well at the intersecting roads designated on the construction drawings.
 - h. The cost to seal all butt joints or other seams with a hot applied asphalt emulsion.

4. The cost of furnishing import backfill (crushed surfacing) shall be paid for under the specific bid item provided.
5. Certified weight bills shall be furnished with each load of materials delivered and payment quantities shall be tallied from the bills.

J. **Concrete Sidewalk (4")**

1. The unit price bid per square yard for furnishing and installing concrete sidewalk shall consist of full compensation for all materials, labor, and equipment necessary for installing or constructing concrete sidewalk, all concrete ramps, landings and other concrete walking surfaces.
2. This item includes, but is not limited to, removal and disposal of existing concrete sidewalk as specified on drawings.
3. This item includes, but is not limited to, furnishing and installing welded wire fabric or fibermesh in the sidewalk.
4. This item shall include any and all coloring agents used to tint the concrete to match existing aged concrete.
5. Measurement shall be of the top surface of sidewalk and shall exclude driveways, which are described in a separate bid item.

K. **Pedestrian Curb**

1. The unit price bid per linear foot for furnishing and installing pedestrian curb shall consist of full compensation for all materials, labor, and equipment necessary for installing or constructing concrete pedestrian curb.
2. This item shall include any and all coloring agents used to tint the concrete to match existing aged concrete.
3. Measurement shall be along the top of the curb.

L. **Detectable Warning Surface**

1. The unit price bid per each for detectable warning surface shall consist of full compensation for all materials, labor, and equipment necessary for installing detectable warning surfaces within ramps as shown on the plans.
2. Measurement shall be counted as one (1) per each location shown or directed.

M. **Curb and Gutter**

1. The unit price per lineal foot for concrete Curb and Gutter shall constitute full compensation for labor, materials and equipment necessary for installing or constructing concrete curb and gutter.
2. Measurement shall be installed lineal feet along the toe of the curb.

N. **Concrete Driveway Entrance (6")**

1. The unit price bid per square yard shall constitute full compensation for all labor, materials and equipment required to install or construct concrete driveway at the locations shown on the plans.
2. Measurement shall be of the top surface of driveway and shall exclude curb & gutter, which are described in a separate bid item.

O. **Pavement Striping**

1. The unit price per linear foot of pavement striping shall constitute full compensation for all labor, materials and equipment required to furnish and replace traffic marking and striping as shown on the plans.
2. Measurement shall be along center line of stripe.

P. **Thermoplastic Crosswalk Marking**

1. The unit price per square foot shall constitute full compensation for all labor, materials and equipment required to furnish and placing thermoplastic crosswalk markings as shown on the plans.
2. Measurement shall be for square footage of applied marking.

Q. **Thermoplastic Stop Line Marking**

1. The unit price per each shall constitute full compensation for all labor, materials and equipment required to furnish and place thermoplastic stop line markings as shown on the plans.
2. Measurement shall be counted as one (1) per each location shown or directed.

R. **Landscape Restoration**

1. The unit price per linear foot shall constitute full compensation for all labor, materials and equipment required for restoration including, but not limited to all necessary sodding, seeding, planting, washed rock or other items necessary to restore the areas disturbed during construction.
2. Measurement shall be linear along the face of adjacent curb or sidewalk.

S. **Rectangular Rapid Flashing Beacons**

1. The unit price bid per each for Rectangular Rapid Flashing Beacons shall constitute full compensation for all materials, work, labor and equipment necessary to install Town-provided Rectangular Rapid Flashing Beacons (RRFBs) at the general locations show in the plans.
2. This item includes, but is not limited to, picking up the RRFBs at a location coordinated with the Town, delivering the RRFBs to the general installation locations, and coordinating the exact installation locations with the Town prior to installation.
3. All restoration associated with the installation of the RRFBs shall be included in the Landscape Restoration line item.
4. Measurement shall be based on the number of RRFBs in place and operational.

It is understood that any additional material or work required to perform the contract shall be provided by the Contractor as work covered by the above listed bid items and is considered incidental thereto.

*** END OF SECTION ***

SECTION 01028

CHANGE ORDER PROCEDURE

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Changes: Article 13 General Conditions
- B. Measurement and Payment: Section 01025
- C. Construction Schedule: Section 01310

1.2 INITIATION OF CHANGES

- A. The Owner may order, in writing, changes in the specifications, drawings, materials, timing, location or other alteration of the work as he may deem advisable.
- B. Upon receipt of a change order, signed by the Owner, the Contractor shall immediately cease any actions that may be in conflict and shall proceed with the work directed by the change order.

1.3 PROCEDURE

- A. The Owner or the Engineer may initiate a request for change order cost proposal.
- B. Upon receipt of such a request, the Contractor shall promptly prepare a cost and time proposal, in as much detail as the Owner may request, and forward that proposal to the Engineer and shall immediately cease any actions that may be in conflict if so requested by the Engineer.
- C. The Contractor may at his option and initiative, propose changes which he may deem practical and/or advantageous to himself and the Owner.
- D. If an equitable adjustment can be negotiated, the Owner shall prepare and both Owner and Contractor shall sign a change order in the amount and terms agreed.

1.4 COST REIMBURSEMENT (FORCE ACCOUNT)

- A. If a change order cannot be negotiated or if there is insufficient time to follow the normal procedures of Article 13.3, the Owner may issue a Notice to Proceed for Cost Reimbursement with a request for lump sum cost proposal.
- B. The Notice to Proceed will have the same contractual status as a change order.
- C. The Contractor may proceed promptly with the changed work directed by the Notice to Proceed and shall maintain records as are required by Article 13.3 of the General Conditions.
- D. The Contractor may prepare a proposal as in Paragraph 1.3 B and a change order may be negotiated as in Paragraph 1.3 D.
- E. A change order shall be executed for the negotiated amount or for the Cost Reimbursement amount as appropriate.

1.5 UNIT PRICE

- A. The Owner may issue a change order for unit price at such prices as are set forth in the Contract.
- B. The Contractor will, upon presentation, affix his signature and proceed with the changed work.

* * * END OF SECTION * * *

SECTION 01041

PROJECT COORDINATION

1. GENERAL

- 1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**
 - A. Separate Contracts: Article 25 General Conditions
 - B. Subcontractors: Article 26 General Conditions
 - C. Summary of Work: Section 01010
 - D. Job Site Administration: Section 01043
 - E. Cutting and Patching: Section 01045
 - F. Field Engineering: Section 01050
 - G. Preconstruction Conferences: Section 01210
 - H. Progress Meetings: Section 01220
 - I. Shop Drawings, Project Data and Samples: Section 01340
 - J. Inspection Services: Section 01420

- 1.2 POLICY IN PRACTICE**

- A. Engineer is the Owner's Advisor and Consultant:
 1. Inspection and Testing Laboratories are to furnish data and guidance only and may make no decisions involving changes in the Contract.
 2. All job located problems shall be handled through the Resident Engineer or Inspector.
 - B. Owner's desires and instructions are to be channeled through the Engineer regarding all phases of the Contract.
 - C. Contract related communication from Contractor shall be handled through the Engineer.
 - D. Coordination of all subcontractors is the responsibility of the Contractor.
 - E. Documents of the Contract are directed to the Contractor and not to the subcontractors involved.
 - F. The Contractor is solely responsible for construction methods and the results thereof regardless of any advice, information, methodology or scheduling unless such advice, methodology or scheduling is written into the Contract or given in writing by the Engineer or the Owner.

- 1.3 COORDINATION OF TRADES AND SUBCONTRACTORS**

- A. Coordination is the responsibility of the Contractor. He shall assure coordination with suppliers, electrical contractors, mechanical contractors and all trades to the end that:
 1. All necessary equipment, work and structures are scheduled, installed and tested in proper sequence.
 2. He shall assure that electrical and mechanical equipment, wiring and control equipment, piping and plumbing, grading and landscaping and all problems of supply, installation and scheduling are coordinated and that the relations of all elements are carried out in an orderly manner in accordance with the Contract.
 3. Contractor shall coordinate all suppliers of equipment, controls and electrical supplies before submittal of shop drawings.

- 1.4 COORDINATION OF UTILITIES**

- A. Contractor shall schedule and supply utilities as required in the Contract.

- 1.5 PUBLIC AGENCIES**

- A. Contractor shall coordinate his schedule and activities with the Owner, the Engineer and various agencies involved as the necessity arises and as required by the Contract:
 1. Power

2. City
3. County
4. Other Utilities
5. Police
6. Fire
7. Schools
8. State
9. Other public agencies

*** END OF SECTION ***

SECTION 01043

JOB SITE ADMINISTRATION

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Supervision: Article 12, General Conditions
- B. Inspection Services: Section 01420
- C. Protection of Work and Property: Section 01545
- D. Traffic Regulation: Section 01570

1.2 REMOVAL OF DEBRIS, CLEANING, ETC.

- A. The Contractor shall at all times keep the construction area clean and orderly and upon completion of the work shall leave all buildings broom clean and all parts of the work clean and free of rubbish or excess material of any kind.
- B. Windows, doors, hardware, woodwork, fixtures, equipment, walls and floors shall be left clean and free of stains, paint or roofing splashes or other mars or defects.
- C. Upon completion, the site of all work or equipment and material storage areas shall be restored to substantially their original condition.
- D. Miscellaneous debris, rocks, etc., resulting from the work shall be removed and disposed of in a manner satisfactory to the Owner.
- E. The site shall be left in a clean and neat condition.

1.3 TESTS

- A. Where the Specifications require work to be specifically tested or reviewed, it shall not be tested or covered up without timely notice to the Engineer of its readiness for inspection, unless the Engineer waives such notice.
- B. Should any such work be covered up without such notice, approval or consent, it must, if required by the Engineer, be uncovered for examination at the Contractor's expense.
- C. Where work is to be tested, all necessary equipment shall be set up and the work given a preliminary test so that any and all defects may be discovered and repaired prior to calling out the Engineer for the test.

1.4 OWNER MAY DETERMINE PRECEDENCE

- A. Whenever, in his opinion, it is necessary to do so, in order to insure proper completion of the Contract for construction and installation, the Owner shall determine the order of precedence and the time and season at which any portion or portions of the work shall be commenced and carried on.
- B. The Owner may schedule a sequence of the work when it is in locations where the Owner is doing other work by his own forces, or by other contract, or when other work may be affected by work under this Contract, in order that conflict may be avoided and the work under these Specifications be coordinated with that under other contracts or with other work being done in connection with or growing out of operations of the Owner.
- C. Nothing herein contained shall be taken to relieve the Contractor of any of his obligations or liabilities under this Contract.

1.5 COMMENCEMENT OF WORK ON PUBLIC AND PRIVATE RIGHT-OF-WAY

- A. Work shall not be started on any public or private right-of-way until clearance is given the Contractor by the Engineer.
- B. It will be the responsibility of the Contractor to comply with any special requirements of any permits or easements for the project acquired by the Owner.

* * * END OF SECTION * * *

SECTION 01045

CUTTING AND PATCHING

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Demolition: Section 02050
- B. Pavement Repair and Resurfacing: Section 02575

1.2 METHODS

- A. Execute cutting (including excavating), fitting or patching of work, required to:
 - 1. Make several parts fit properly.
 - 2. Remove and replace defective work.
 - 3. Remove and replace work not conforming to requirements of Contract Documents.
 - 4. Install specified work in existing construction.
- B. Do not endanger any work by cutting or altering work or any part of it.
- C. Do not cut or alter work of another contractor.

1.3 SUBMITTALS

- A. Submit written notice to Engineer requesting consent to proceed prior to cutting which affects structural safety of project, or work of another contractor.
- B. Submit notice to Engineer, designating time work will be uncovered, to provide for observation.

1.4 PAYMENT FOR COSTS

- A. Contractor shall pay for all costs caused by ill-timed, unnecessary or defective work or work not conforming to Contract Documents, including costs for additional services of Engineer.

2. PRODUCTS

2.1 MATERIALS

- A. For replacement of work removed: Contractor shall comply with Specifications for type of work to be done.

3. EXECUTION

3.1 INSPECTION

- A. Inspect existing conditions of work, including elements subject to movement or damage during construction.

3.2 PREPARATION (PRIOR TO CUTTING)

- A. Provide shoring, bracing and support as required to maintain structural integrity of all portions of the project.

3.3 PERFORMANCE

- A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances, and finishes.
- B. Execute excavating and backfilling as specified in Section 02222.
- C. Restore work which has been cut or removed.

* * * END OF SECTION * * *

SECTION 01050

FIELD ENGINEERING

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Surveys: Article 10 - General Conditions
- B. Job Site Administration: Section 01043.
- C. Construction Schedules: Section 01310.
- D. Inspection Services: Section 01420.

1.2 CONSTRUCTION STAKING BY ENGINEER

- A. Unless otherwise provided the Engineer/Town of La Conner will stake out all curb radiiuses and pavement centerline adjustments and give such lines and grades as are necessary, in his/their opinion, for the proper construction thereof.
- B. The Town will provide three or four points for each curb radius and curb elevations approximately every 100 feet.

1.3 GENERAL REQUIREMENTS

- A. The Contractor shall protect and preserve in their original position all stakes, points, or marks set for the work.
- B. If any stakes and markings are destroyed or defaced by the Contractor's operations before their use is ended, the full cost of replacing them will be at the Contractor's expense.
- C. The Contractor shall provide sufficient and safe facilities to enable the Engineer or Contractor's surveyor to set the control points, together with such tools and materials and render such competent assistance as may be reasonably and customarily required.
- D. Working operations shall be suspended at different points for such brief and reasonable time as may be required for giving of lines and grades, taking measurements and making inspections. Such delays shall be considered incidental to the Contract and no additional compensation will be allowed.
- E. Any claim by the Contractor for extra compensation by reason of alterations or reconstruction work allegedly due to error in the Engineer's line and grade, will not be allowed unless the original control points set by the Engineer still exist, or unless other satisfactory substantiating evidence to prove the error is furnished to the Engineer.
- F. The Contractor shall transfer lines and grades from the points given to his own work at his own expense.
- G. Detailed staking will usually be done after clearing of right of way has been completed.

1.4 REQUIREMENTS FOR PIPELINES

- A. Where line and grade is carried by stringline in the case of pipeline construction, not less than three (3) points shall be in use at one time.
- B. Grades shall be checked by the Contractor and if the points do not line up, the work shall be immediately stopped, and the cause remedied before proceeding with the work. The Contractor shall not receive any additional payment for "standby time" while surveys are being checked.
- C. Other methods of transferring line and grade may be used providing that such methods can be checked by the Engineer at not less than three points in each section of pipe between manholes before backfilling is started. Permission to use any specific method will not relieve the Contractor of his responsibility to meet any requirement of other sections of this Specification.
- D. Line and grade shall be checked for each piece of pipe laid.

1.5 REQUIREMENTS FOR STRUCTURES

- A. Horizontal base line and bench mark will be provided by the Engineer.
- B. Contractor shall lay out the work from these points.

1.6 CONTRACTOR PROVIDED STAKES

- A. Staking when performed by Contractor shall be done by qualified licensed surveyors.
- B. Prior to the Contractor conducting any survey work, the Contractor shall submit to the Owner evidence of the qualifications of the person(s) he will assign to do the survey work for the project. The Owner reserves the right to disallow the person(s) selected by the Contractor for surveying if, in the Owner's opinion, the person is not qualified to do the work. The Contractor shall select another surveyor and submit qualifications to the Owner until a qualified person is approved by the Owner.
- C. Control points shown on the drawings or outlined in the Special Provisions shall be utilized to stake out the project. The Engineer will provide the Contractor with a copy of survey field notes, when appropriate.
- D. Field notes shall be kept in standard bound notebooks in a clear, orderly manner consistent with standard engineering practice including titles, numbering and indexing.
- E. The Contractor shall provide the Owner with a copy of all field notes including references to monuments and property corners.
- F. The Contractor shall provide the Engineer with copy of grade sheets, prior to construction work on any specific portion of the project.

*** END OF SECTION ***

SECTION 01070

ABBREVIATIONS AND SYMBOLS

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Definitions: General Conditions

1.2 ABBREVIATIONS

A. Whenever the following abbreviations are used on the plans, specifications, proposals and contracts, they shall be construed to mean the words and terms as listed below.

B. Duplicate Definitions shall be interpreted in context of use.

A

AASHTO	American Association of State Highway and Transportation Officials
AC	Asbestos Cement or Asphaltic Concrete
ACI	American Concrete Institute
AFBMA	Anti Friction Bearing Manufacturers Assoc.
AFF	Above Finish Floor
AGA	American Gas Association
AGC	Associated General Contractors of America
AGMA	American Gear Manufacturer Association
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANPT	American National Taper Pipe (pipe thread).
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
AREA	American Railway Engineering Association
ASAE	American Society of Agriculture Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association

B

BTU	British thermal unit
BTUH	British thermal units per hour

C

C	Centigrade/Celsius
CB	Catch Basin
CBMA	Certified Ballast Manufacturers Association
CFM	Cubic feet per minute
CFS	Cubic feet per second
CL ²	Chlorine Solution
CMP	Corrugated Metal Pipe
CO	Clean Out

CPM	Critical path method
CRSI	Concrete Reinforcing Steel Institute
D	
D	Drain
dBA	Decibel Filter A
DFP	Douglas Fir Plywood Association
DFT	Dry Film Thickness
DI	Ductile Iron
DIPRA	Ductile Iron Pipe Research Association
E	
EA	Each
EEO	Equal Employment Opportunity
E/P	Edge of Pavement
EPA	Environmental Protection Agency (Federal)
F	
F	Fahrenheit
FCA	Flanged Coupling Adapter
FED SPEC	Federal Specification
FHWA	Federal Highway Administration
FL	Flanged
FPM	Feet per minute
FRP	Fiberglass Reinforced Panels
FT,FT2,FT3	Foot, square feet, cubic feet
G	
GA	Gage, gauge
GAL	Gallon
GALV	Galvanized
GCE	Grit Chamber Effluent
GPD	Gallons per day
GPH	Gallons per hour
GPM	Gallons per minute
H	
HB	Hose Bib
HDPE	High Density Polyethylene
HOA	Hand-off-auto
HP	Horsepower or High Point
HR	Hour
HT	Height
Hz	Hertz
I	
ID	Inside Diameter
IE	Invert Elevation
IEEE	Institute of Electrical and Electronics Engineers
IN,IN2,IN3	Inch, square inches, cubic inches
IPCEA	Insulated Power Cable Engineers Association
IPS	Iron Pipe Size
ISA	Instrument Society of America
J	
JIC	Joint Industry Conference of Hydraulic Manufacturers
K	
KV	Kilovolt

KVA	Kilovolt ampere
KVAR	Reactive kilovolt amperes
KW	Kilowatts
KWH	Kilowatt hours

L

L	Length
LB	Pounds
LF	Linear feet
LS	Lump Sum

M

M	Thousand
MA	Milliamperes
MBTUH	One thousand British thermal units per hour
MGD	Million gallons per day
mgl	Milligrams per liter
MIN	Minute
MJ	Mechanical Joint
ML	Mixed Liquor
MSDS	Material Safety Data Sheets
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry
MV	Millivolts
MVA	Megavolt amperes

N

NAA{I	North American Association of Pipeline Inspectors
NAMM	National Association of Metal Manufacturers
NBFU	National Bureau of Fire Underwriters
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NPC	National Plumbing Code
NPT	National pipe thread
NRS	Non-rising stem
NLMA	National Lumber Manufacturers Association

O

o.c.	On Center
OD	Outside diameter
OECI	Overhead Electric Crane Institute
OSHA	Occupational Safety and Health Act
OZ	Ounce

P

PACP	Pipe Assessment Certification Program
PCA	Portland Cement Association
PCF	Parts per Cubic Foot
PD	Pitch Diameter
ph	Hydrogen ion concentration
PH	Phase
PPM	Parts per million
PSF	Pounds per square foot
PSI	Pounds per square inch
PSIG	Pounds per square inch gauge

<u>P</u>	Pint
PVC	Polyvinyl chloride
<u>Q</u>	
<u>R</u>	
RAS	Return Activated Sludge
RCW	Revised Code of Washington
RPM	Revolutions per minute
RRFB	Rectangular Rapid Flashing Beacons
<u>S</u>	
S	Slip
SAE	Society of Automotive Engineers
SAMA	Scientific Apparatus Manufacturers Association
Sc	Scum
SCFM	Standard cubic feet per minute
SE	Secondary Effluent
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SP	Static Pressure
SPDT	Single Pole Double Throw
SQFT	Square foot
SQIN	Square inch
SQMI	Square mile
SSPC	Steel Structures Painting Council
SW	Service Water (Effluent)
<u>T</u>	
TEFC	Totally Enclosed, Fan Cooled
THD	Threaded
TOW	Top Of Wall
<u>U</u>	
UBC	Uniform Building Code
UHMW	Ultra-High Molecular Weight
UL	Underwriter's Laboratory
UPC	Uniform Plumbing Code
USEPA	United States Environmental Protection Agency
<u>V</u>	
V	Volt
VOC	Volatile Organic Compounds
<u>W</u>	
W	Plant Water
WAC	Washington Administrative Code
WAS	Waste Activated Sludge
WCLIB	West Coast Lumber Inspection Bureau
WOG	Water, Oil, Gas
WWF	Welded Wire Fabric
WWPA	Western Wood Products Association
<u>X</u>	
<u>Y</u>	
<u>Z</u>	

*** END OF SECTION ***

SECTION 01090

REFERENCE STANDARDS

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. All Divisions: As referenced

1.2 AUTHORITY

- A. Contractor is responsible to conform to all codes and regulations legally in effect at the location of the project.
- B. Contractor shall conform to all requirements and regulations of the authority administering such codes and regulations.

1.3 REFERENCE CODES

- A. Contractor shall conform to all codes and sections thereof as may be referred to in the specifications.
- B. Referenced codes are, by such reference, incorporated into this Contract as if set forth herein in full.

1.4 SPECIFICATIONS INCORPORATED BY REFERENCE

- A. Where Federal, AWWA, ASTM, or any other standard specifications are referred to, or included by reference, the latest issue and/or amendment thereto published at the date of issue of the Advertisement for Bids shall be incorporated in the Contract by said reference as if set forth herein in full.

* * * END OF SECTION * * *

SECTION 01210

PRECONSTRUCTION CONFERENCES

1. GENERAL

- 1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE
 - A. Summary of Work: Section 01010
 - B. Measurement and Payment: Section 01025
 - C. Project Coordination: Section 01041
 - D. Job Site Administration: Section 01043
 - E. Progress Meetings: Section 01220
 - F. Shop Drawings, Project Data and Samples: Section 01340
 - G. Schedule of Values: Section 01370
 - H. Traffic Regulation: Section 01570
 - I. Material and Equipment: Section 01600

1.2 SCHEDULE

- A. Not more than five days after notice to proceed but earlier if practicable, the Owner will schedule a preconstruction meeting.
- B. Present at the meeting to represent the Contractor shall be at least the official in charge of the project, the project superintendent, a representative with authority to speak for each of his principle subcontractors, and other representatives as he may deem expedient.
- C. The Owner and/or his representatives shall be present as required.
- D. Proceedings of meeting to be recorded and distributed to interested parties.

1.3 AGENDA

- A. Both Owner and Contractor shall be prepared to speak to the following:
 1. Name and field address of job superintendent.
 2. Emergency phone and/or operator.
 3. Date of Construction Start.
 4. Date of Notice to Proceed.
 5. Notification of utilities concerned, fire, police, schools, etc.
 6. Coordination with other contractors.
 7. Permits: county, city, state fisheries, government agencies as required.
 8. Inspector: name, authority.
 9. Field office (location).
 10. Shop Drawing Submittals.
 11. Responsibility for lines and grades.
 12. Minimum wage rates and posting of wage rate determination.
 13. Equal employment opportunities and posting of EEO poster. Use of local labor.
 14. Weekly payrolls when required.
 15. Schedule of Values.
 16. Periodic monthly payments including date for submittal.
 17. Construction progress schedule (bar graph or C.P.M.).
 18. Safety Requirements and special hazards.
 19. Insurance and Bonds.
 20. Traffic control.
 21. Construction signs.
 22. Drawings revised to conform to construction records.
 23. Beneficial occupancy.
 24. Retention of Contract records.
 25. Guarantees and warranties.
 26. Operation and Maintenance Manuals.

27. Nondiscrimination Notice.
28. Project signs.
29. Testing.
30. Progress meetings.
31. Complaint procedure.
32. Job photos.
33. Other matters concerning construction.

* * * END OF SECTION * * *

SECTION 01220 PROGRESS MEETINGS

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Summary of Work: Section 01010
- B. Project Coordination: Section 01041
- C. Construction Schedules: Section 01310
- D. Project Record Documents: Section 01720

1.2 MEETINGS

- A. Schedule regular meetings every two weeks at mutually agreed time.
- B. Hold called meetings as progress of work dictates.
- C. Location of meetings: As designated during preconstruction conference.
- D. Attendance:
 - 1. Engineer and/or his Consultants
 - 2. Owner (optional)
 - 3. Contractor
 - 4. Other contractors (if any)
 - 5. Subcontractors as pertinent to agenda
 - 6. Safety Representative (optional)
 - 7. Representatives of Governmental or other Regulatory Agencies

1.3 MINIMUM MEETING AGENDA:

- A. Review, approve minutes of previous meeting.
- B. Review work progress since last meeting.
- C. Note field observations, problems and decisions.
- D. Identify problems which impede planned progress.
- E. Review off-site fabrication problems.
- F. Develop corrective measures and procedures to regain planned schedule.
- G. Revise Construction Schedule as indicated.
- H. Plan progress during next work period.
- I. Coordinate projected progress with other contractors.
- J. Review submittal schedules, expedite as required to maintain schedule.
- K. Maintaining of quality and work standards.
- L. Review changes proposed by Owner for:
 - 1. Effect on Construction Schedule
 - 2. Effect on Completion Date
- M. Complete other current business.

*** END OF SECTION ***

SECTION 01310

CONSTRUCTION SCHEDULES

1. GENERAL

- 1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**
 - A. Summary of Work: Section 01010
 - B. Project Coordination: Section 01041
 - C. Field Engineering: Section 01050
 - D. Progress Meetings: Section 01220
 - E. Shop Drawings, Project Data and Samples: Section 01340
 - F. Schedule of Values: Section 01370
 - G. Material and Equipment: Section 01600

- 1.2 GRAPHIC SCHEDULE**

- A. The Contractor shall submit within fifteen (15) days after notice of award, a schedule in graphic form showing proposed schedule of anticipated progress to include all major operations and items and time of anticipated completion of major portions of the work.
 - B. The Contractor shall revise schedule on a bi-weekly basis and resubmit if there are any substantial deviations from previously submitted data.

- 1.3 CRITICAL PATH (CPM) (ALTERNATE)**

- A. The Contractor may utilize a critical path (CPM) schedule instead of the graphic schedule specified herein providing it meets all applicable requirements specified herein.

- 1.4 CONTRACTOR TO SCHEDULE WORK**

- A. The Contractor shall keep the Engineer informed sufficiently in advance of the time and places at which he intends to work in order that the necessary measurements for record and payment may be made with the minimum of inconvenience and delay to both the Engineer and the Contractor.
 - B. If the schedule of work be such as to handicap the setting of necessary engineering control or verification of structure placement, the Contractor shall suspend his operations at the particular place in sufficient time for the Engineer to complete his work during normal working hours. Any additional expense to the Contractor arising from temporary suspension of work shall be considered as incidental to the construction and be included in various bid items of the Contract

- 1.5 FORM OF SCHEDULE (GRAPHIC SCHEDULE)**

- A. Prepare in form of horizontal bar chart.
 - B. Provide separate horizontal bar column for each trade or work activity.
 - C. Order: Chronological order of beginning of each item of work.
 - D. Identify each column by distinct graphic delineation.
 - E. Horizontal time scale: Identify first work day of each half month.
 - F. Scale and Spacing: To allow space for updating.

- 1.6 SHEET SIZE**

- A. Suitable for size and complexity of project.
 - B. Preferably multipage 8-1/2" x 11", 8-1/2" x 14" or 11" x 17".

- 1.7 CONTENTS OF SCHEDULES**

- A. Provide complete sequence of construction by activity.
 - B. Shop Drawings, Project Data and Samples
 - C. Product procurement and delivery dates
 - D. Dates for beginning, and completion of each element of construction.
 - E. Identify work in phases, or other logically grouped activities.
 - F. Provide subschedules to define critical portions of entire schedule.

- G. Provide subschedules for all subcontractors.
- H. Show projected percentage of completion for each item of work as of first day of each month.

1.8 UPDATING AND CHANGES

- A. Show all changes occurring since previous submission of updated schedule.
- B. Indicate progress of each activity, show completion dates.
- C. Include:
 - 1. Major changes in scope
 - 2. Activities modified since previous updating
 - 3. Revised projects due to changes
 - 4. Other identifiable changes
- D. Provide narrative report, including:
 - 1. Discussion of problem areas, including current and anticipated delay factors, and their impact.
 - 2. Corrective action taken, or proposed, and its effect.
 - 3. Effect of change in schedules of other contractors.
 - 4. Description of revisions:
 - a. Effect on schedule due to change of scope
 - b. Revisions in duration of activities
 - c. Other changes that may affect schedule

1.9 SUBMITTALS BY CONTRACTOR

- A. Submit initial schedules per Paragraph 1.2 of this Section.
 - 1. Engineer will review schedules and return review copy within 10 days after receipt.
 - 2. If required by the Engineer re-submit within 7 days after return of review copy.
- B. Submit periodically updated schedules accurately depicting progress to first day of each month.
- C. Submit the number of copies required by Contractor, plus 4 copies to be retained by Engineer.

1.10 DISTRIBUTION BY CONTRACTOR

- A. Distribute copies of reviewed schedules to:
 - 1. Job site file
 - 2. Other contractors
 - 3. Subcontractors
 - 4. Other concerned parties
- B. Instruct recipients to report any inability to comply, and provide detailed explanation, with suggested remedies

*** END OF SECTION ***

SECTION 01340

SHOP DRAWINGS, PROJECT DATA AND SAMPLES

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Project Coordination: Section 01041
- B. Job Site Administration: Section 01043
- C. Construction Schedules: Section 01310
- D. Testing Laboratory Services: Section 01410
- E. Project Record Documents: Section 01720

1.2 SCHEDULE

- A. Prepare and submit with Construction Schedule a separate schedule listing dates for submission and dates that reviewed shop drawings, project data and samples will be needed.
- B. Fabrication of an item or construction work shall not start before the Engineer has taken action on the shop drawing submittal. Any work shall be entirely at the Contractor's risk.
- C. The Engineer will not accept for payment work performed by the Contractor which may be affected by materials, equipment, or methods of work not submitted in a timely manner so that final review can be accomplished before the affected work is complete.
- D. Incomplete shop drawings or submittal rejected by the Engineer shall not be basis for claim for delay.

1.3 SUBMITTALS

- A. Shop Drawings, data and samples shall be submitted attached to a form furnished by the Engineer entitled "Shop Drawing Transmittal". Location by drawing number and paragraph of specification shall be shown on the form for the product or material being submitted. Each transmittal shall be assigned a unique number in sequential order.
- B. Shop drawings shall be submitted and reviewed in the following manner:
 1. The Contractor shall review, stamp with his approval and submit postpaid with such promptness as to cause no delay in his work or in that of any other contractor, the required number of copies of all shop drawings, schedules, data, and samples required for the work of the various trades determined necessary by the Engineer, required in the General Conditions and/or described elsewhere in the Project Manual.
 2. Shop drawings shall establish the actual detail of all manufactured or fabricated items. All shall be drawn to scale and be completely dimensioned.
 3. Sheet sizes of shop drawings shall be in multiples of 8-1/2 by 11 inches and not exceeding 22 by 34 inches unless there is a special requirement for larger size sheets.
 4. Provide on each drawing a clear space for the Engineer's and/or Owner's review and approval stamps and comments.
 5. Four (4) copies of shop drawings, manufacturer's literature, brochures, catalog cuts, and other pertinent printed matter or data shall be submitted in addition to the number of copies the Contractor wishes returned to him.
 6. Shop drawings may be submitted to the Engineer in the form of a reproducible transparency, along with one blackline or blueline print.
 7. The Engineer shall review the shop drawings with reasonable promptness and will affix the Shop Drawing Review Stamp with notations thereon indicating "No Exceptions Taken", "Make Corrections Noted", "Revise and Resubmit", or

"Rejected -- See Remarks". He will then obtain the prints he requires from the transparency and forward it along with one marked up copy and the reviewed copies of the other material in excess of four to the Contractor.

8. When shop drawings and/or other submittals are required to be revised or corrected and resubmitted, the Contractor shall make such revisions and/or corrections and resubmit the drawings or other material in the same manner as specified above.
9. Contractor shall obtain and provide such number of prints or copies of drawings as is required for his field distribution.
10. It shall be the Contractor's responsibility to clearly note on the shop drawings, and in writing specifically call to the Engineer's attention, any changes that vary from the Contract Drawings and Specifications. No review of the shop drawings by the Engineer shall relieve the Contractor of full responsibility and at his own cost and expense to comply with the Contract Documents unless the changes are clearly noted and in writing called to the Engineer's attention as above provided, in which event subsequent acceptance by the Engineer in writing shall be authority for the change or changes proposed in the shop drawings.
11. If corrections are required, the Contractor shall make the corrections required by the Engineer and file with him the same number of corrected copies as indicated above. The Contractor shall direct specific attention in writing or, on resubmitted Shop Drawings to revisions other than the corrections requested on previous submissions. The Engineer will return to the Contractor copies of drawings in the same manner and number as before.
12. Shop Drawings shall give complete information necessary for the fabrication and installation of all component parts of the equipment, structure, facility, etc. In the case of structural drawings, they shall include the location, type, size and extent of all welds, if any are necessary. Manufacturer's standard details, catalogues, advertising literature, etc., shall not necessarily constitute all of the shop drawings required for any unit or facility. Additional shop details designed for the particular project shall be furnished when required by the Engineer. Shop drawings of electrical equipment shall include complete diagrams of electrical circuitry.
13. The Engineer's review of and placement of shop drawing review stamp on any shop drawing is understood to be an acceptance of the character of the details and not a check of any dimension or quantity and will not relieve the Contractor from responsibility for errors of any sort in shop drawings data or schedules, whether or not such errors are found by the Engineer in his review of such details.
14. The Engineer's review of and placement of Shop Drawing Review Stamp on any shop drawing will not relieve the Contractor of responsibility for consequences due to deviations from the Contract Documents unless the Contractor has called attention to such deviations in writing by a letter accompanying the drawings at the time of submission and the Engineer accepts such deviations in writing.
15. No changes will be made in any drawing after it has been reviewed except by the consent or direction of the Engineer in writing.

C. Samples shall be submitted in the same manner as shop drawings.

1. Samples to be physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.
 - a. Office samples of sufficient size and quantity to clearly illustrate:
 - i. Functional characteristics of product or material, with integrally related parts and attachment devices.
 - ii. Full range of color samples.

- iii. After review the Engineer will retain two samples and return the remainder to the Contractor.
- b. Field samples and mockups
 - i. Erect at project site location acceptable to Engineer
 - ii. Construct each required sample or mock-up complete, including work of all trades required in finished work.
 - iii. Coordinate sampling of natural materials with Field Engineer.
- 2. If any test sample fails to meet the specification requirements, all previous approvals will be withdrawn and such materials or equipment, which fail the testing, shall be subject to removal and replacement by the Contractor with materials or equipment meeting the specification requirements.
- 3. Affected finish work shall not be commenced until the Engineer has given written approval for the field samples.

1.4 CONTRACTOR RESPONSIBILITY

- A. Contractor shall review and approve shop drawings before submittal. Submittal directly from supplier or subcontractor will not be accepted.
- B. By approving and submitting Shop Drawings and Samples, the Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data, or will do so, and that he has checked and coordinated each Shop Drawing with the requirements of the Work and of the Contract Documents and that there is no conflict with other submittals that may affect the work of another contractor or the Owner.
- C. A copy of each approved shop drawing and each approved sample shall be kept in good order by the Contractor at the job site and shall be available to the Engineer.

1.5 LIMITATION

- A. Two submittals of each item requiring samples and/or shop drawings will be reviewed by the Engineer in the regular course of the Contract. However, all subsequent reviews of the same item over two will be reviewed at the expense of the Contractor unless the right to an additional review without charge was previously approved in writing by the Engineer. Contractor will be billed by the Owner at the Engineer's current established rates.

* * * END OF SECTION * * *

SECTION 01370

SCHEDULE OF VALUES

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Measurement and Payment: Section 01025
- B. Project Coordination: Section 01041
- C. Job Site Administration: Section 01043
- D. Progress Meetings: Section 01220
- E. Construction Schedules: Section 01310

1.2 TIMING

- A. Submit to the Engineer a Schedule of Values, at least 15 days prior to submitting first Application for Payment.

1.3 SUPPORT

- A. Upon request by Engineer, support values given with data that will substantiate their accuracy.

1.4 DETAILED BREAKDOWN OF CONTRACT PRICE

- A. Except in cases where unit prices form the basis for payment under the Contract, the Contractor shall within 15 days of receipt of Notice to Proceed, submit a complete breakdown of the contract price showing the value assigned to each part of the work including an allowance for profit and overhead.
- B. Each breakdown shall include separate items for Field Tests and Adjustments; Maintenance Manuals, and Cleaning Up which shall total at least five percent of each breakdown's total price.
- C. Breakdown shall include detailed breakdown of each major unit of equipment, controls, concrete, fencing, piping, paving, drainage, earthwork, reinforcing steel, excavation, carpentry items, structural steel, painting, electrical, and dewatering as well as field tests, operation and maintenance instructions, startup and commissioning, and cleanup.
- D. The form of the breakdown shall separate labor from materials to arrive at a total for each unit. Breakdown shall be so organized as to facilitate assessment of work and payment of subcontractors.
- E. Breakdown shall be balanced so that progress payments will not create a condition where sufficient funds are not available to complete the work. Contractor shall provide documentation substantiating the cost allocation if the Engineer believes that the costs are unbalanced.
- F. Upon acceptance of the breakdown of the contract price by the Engineer, it shall be used as a basis for all requests for payment.
- G. Where Maintenance Manuals are required no more than 50% of the contract price shall be paid prior to receipt of a rough draft of the Maintenance Manual and no more than 90% of the final payment shall be made before receipt of the Maintenance Manual complete.

* * * END OF SECTION * * *

SECTION 01380

CONSTRUCTION PHOTOGRAPHS

1. GENERAL

1.1 REQUIREMENTS

- A. Unless otherwise specifically excluded, pre-construction, construction and post construction photographs will be required on the following projects.
 - 1. All pipelines on easements.
 - 2. All sewer projects.
 - 3. All projects other than pipelines with a contract price in excess of \$250,000.
- B. Photographs shall be:
 - 1. Submitted in digital format.
 - 2. Labeled with date and identification (property address).
 - 3. Labeled to indicate Owner, Project and whether pre-or post-construction.
- C. All photographs shall be taken by an acceptable photographer. The Contractor shall coordinate his schedule with the Engineer.
- D. Each photograph shall be marked with date and identification.
- E. Each photograph must show flagged positions of route of pipeline and easement number.
- F. The preconstruction photographs shall be delivered to and approved by the Engineer, prior to beginning of construction.

1.2 PROJECTS OTHER THAN PIPELINES

- A. Contractor shall furnish a set of construction color photographs each month to show the general progress of construction.
- B. The first set of photographs shall be taken before the Contractor moves on the site and the last shall be taken after completion.
- C. Within three (3) days before or after the first day of the month, photographs shall be taken as follows:
 - 1. One panoramic view of the whole project.
 - 2. Enough shots of each structure to indicate the state of progress to date.
- D. A digital copy of the pictures shall be delivered to the Engineer by the 15th of the month they were taken.

1.3 PIPELINES

- A. A minimum of one preconstruction and one post construction color photograph shall be taken of each lot or parcel of private property upon which sewer construction takes place.
- B. Post-construction photographs shall be taken as nearly as possible from the same locations as the preconstruction photographs.
- C. At least one photograph on each sewer run from manhole to manhole.
- D. At least one photograph every 300 feet on pipelines other than sewer.
- E. On large lots or lots with extensive improvements several photographs shall be taken.
- F. One digital file of all photographs shall be delivered to the Engineer and one (1) to the Owner.

* * * END OF SECTION * * *

SECTION 01410

TESTING LABORATORY SERVICES

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Project Coordination: Section 01041
- B. Inspection Services: Section 01420
- C. Testing Requirements: Various Sections

1.2 BIOLOGICAL TESTING

- A. Biological tests required for disinfection of domestic water systems shall be by a laboratory approved by the Health Department or other authority having jurisdiction.

1.3 CONTRACTOR WILL PAY FOR SERVICES OF AN INDEPENDENT TESTING LABORATORY FOR:

- A. Soils gradation, moisture density standards determination, and in place density tests per Division 2.
- B. Concrete: Mix design, consistency, air content, yield, compressive test cylinder casting and compression testing per Section 03300.
- C. Other materials and/or workmanship specified in Divisions 2 through 3.

1.4 LIMITATION

- A. Employment of a testing laboratory shall in no way relieve the Contractor of his obligation to perform work in accordance with the Contract.

1.5 QUALIFICATION OF LABORATORY

- A. Meet basic requirements of ASTM E329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction".
- B. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during most recent tour of inspection; with memorandum of remedies of any deficiencies reported by inspection.
- C. Testing Equipment:
 - 1. Calibrated at maximum 12 month intervals by devices of accuracy traceable to National Bureau of Standards.
 - 2. Submit copy of certificate of calibration, made by accredited calibration agency.

1.6 LABORATORY DUTIES, AUTHORITY AND LIMITATION

- A. Cooperate with Engineer and Contractor.
- B. Provide qualified personnel promptly on notice.
- C. Perform specified inspections, sampling and testing of materials and methods of construction:
 - 1. Comply with specified standards; ASTM, other recognized authorities, and as specified.
 - 2. Ascertain compliance with requirements of Contract Documents.
- D. Promptly notify Engineer, and Contractor, of irregularities or deficiencies of work which are observed during performance of services.
- E. Promptly submit 2 copies of report of inspections and tests to Engineer, in addition to those required by the Contractor including:
 - 1. Date issued
 - 2. Project title and number
 - 3. Testing Laboratory name and address
 - 4. Name and signature of Inspector
 - 5. Date of inspection of sampling
 - 6. cord of temperature and weather
 - 7. Date of test
 - 8. Identification of product and specification section

9. Location in project
10. Type of inspection or test
11. Results of test
12. Observations regarding compliance with Contract Documents

- F. Perform additional services as required.
- G. Laboratory is not authorized to:
 1. Release, revoke, alter, or enlarge on, requirements of Contract Documents.
 2. Approve or accept any portion of work.

1.7 RESPONSIBILITIES OF CONTRACTOR

- A. Cooperate with laboratory personnel and provide access to work.
- B. Provide to laboratory, preliminary representative samples of materials to be tested in required quantities.
- C. Furnish copies of mill test reports.
- D. Furnish casual labor and facilities:
 1. To provide access to work to be tested.
 2. To assist laboratory personnel to obtain and handle samples at the site.
 3. To facilitate inspections and tests.
 4. For laboratory's exclusive use for storage and curing of test samples.
- E. Notify laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.
- F. Laboratory Tests: Where such inspection and testing are to be conducted by an independent laboratory or agency, the sample or samples of materials to be tested shall be selected by such laboratory or agency, or the Engineer, and shipped to the laboratory by the Contractor at his expense.

* * * END OF SECTION * * *

SECTION 01420

INSPECTION SERVICES

GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Status of Engineer: Article 7 General Conditions
- B. Overtime and Holiday Work: Article 15 General Conditions
- C. Rejected Work/Re-inspection: Article 16 General Conditions
- D. Re-inspection: Article 16 General Conditions
- E. Utilization of Defective Work: Article 16 General Conditions
- F. Job Site Administration: Section 01043
- G. Testing Laboratory Services: Section 01410

1.2 AUTHORITY AND DUTIES OF INSPECTORS

- A. Inspectors are placed on the work to keep the Project Engineer informed as to the progress of the work and the manner in which it is being done; to keep records; act as liaison between the Contractor and the Project Engineer; also to call the attention of the Contractor to any deviations from the Contract Documents, but failure of the Inspector to call to the attention of the Contractor to faulty work or deviations from the Contract Documents shall not constitute acceptance of said work.
- B. The Inspector may reject or accept materials and equipment to be incorporated in the work and such specific items as he is authorized by the Engineer to accept.
- C. When any material has been accepted by the Inspector, it passes from his control to the control of the Contractor and remains there until the job, as a whole, is complete. Since the Inspector cannot control how the material is used, the responsibility for its safety and proper use will be the Contractor's. Until the job is finally completed, the Contractor might do work that changes or modifies work previously done and even though at any given time a piece of work might be well done and acceptable in quality, the responsibility for keeping it in that condition until the job is completed is the sole responsibility of the Contractor. For this reason, it is impossible to accept, finally, any portion of a project until the project as a whole is acceptable and control of said project is withdrawn from the Contractor by final official written acceptance by the Owner.
- D. Since one of the Inspector's primary interests is to see that work on the project progresses expediently and in a workmanlike manner, he may at various times offer suggestions to the Contractor which the Contractor may or may not follow, at his discretion. Such suggestions are never to be considered as anything but suggestions and involve no assumption of responsibility, financial or otherwise, by either the Inspector himself, the Engineer, or the Owner.
- E. Any personal assistance which an Inspector may give the Contractor will not be construed as the basis of any assumption of responsibility in any manner, financial or otherwise, by the Inspector, the Engineer, or the Owner.
- F. The Engineer is not and does not purport to be a Safety Engineer and is not engaged in that capacity by the Owner and shall have neither authority nor responsibility to enforce construction safety laws, rules, regulations, procedures or the safety of persons on and about the construction site.
- G. The presence or absence of an Inspector on any job will be at the sole discretion of the Engineer, and such presence, or absence, of an Inspector will not relieve the Contractor of his responsibility to obtain the construction results specified in the Contract Documents.
- H. The Inspector will not be authorized to approve or accept any portion of the work, to make changes in the work, or to issue instructions contrary to the Contract Docu

ments, such approvals, acceptances, or instructions, when given, must be in writing and signed by the Project Engineer. The Inspector will have authority to reject defective material; however, the failure of the Inspector to reject defective material or any other work involving deviations from the Contract Documents will not constitute acceptance of such work.

- I. Nothing in this subsection shall in any way be so construed as to require or to place responsibility for, the method, manner or supervision of the performance of the work under this Contract upon the Inspector, the Engineer, or the Owner. Such responsibility rests solely with the Contractor.

1.3 EXAMINATION OF MATERIALS

- A. The neglect or failure on the part of the Engineer to condemn or reject substandard material or work shall not imply an acceptance of the materials or work. The Contractor shall furnish, at his own expense, such labor as may be required to enable the Engineer to make a thorough inspection and culling of the materials, and the Contractor shall bear the costs of all laboratory or other testing called for in these Specifications.
- B. Where required by the Specifications, the Engineer will examine certain materials such as masonry materials, concrete, aggregates, etc., at the manufacturer's plant prior to their delivery to the job site. The Contractor shall bear the cost of such material inspection including the Inspector's time, travel time and transportation expense and any other costs incurred, or chargeable to, or by, such material inspection. These inspection costs shall be billed to the Contractor at the Engineer's current billing rate. Transportation expense shall be billed at current rate. All such material inspection charges will be billed directly to the Contractor by the Owner and said costs shall be a lien against the Contractor's work. If the Contractor fails to pay said bill, or bills, by the 30th day of the month billed, such payment may be withheld from monies due the Contractor.

*** END OF SECTION ***

SECTION 01545

PROTECTION OF WORK AND PROPERTY

GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Protection of Work, Property and Persons: Article 11 General Conditions
- B. Property Restoration: Article 24 General Conditions
- C. Lands and Right-of-Way: Article 28 General Conditions
- D. Access and Haul Roads: Section 01550
- E. Temporary Controls: Section 01560
- F. Pavement Repair and Resurfacing: Section 02575
- G. Existing Utilities/Facilities - Underground and Overhead: Section 02760

1.2 PUBLIC AND PRIVATE PROPERTY

- A. The Contractor shall protect and maintain all underground or aboveground utilities and structures affected by the work and all lawns, shrubs, trees, fences, rockeries, etc., and parking strips or private property crossed by or adjacent to his operation, and any damage shall be repaired and restored by the Contractor to the satisfaction of the Owner.
- B. The Contractor will be responsible for all damage to roads, highways, ditches, bulkheads, walls, bridges, culverts, utilities, barricades, lights, or other property, caused by the work, whether such damage be at the site of the work or caused by transporting or hauling to or from the work; and he shall repair or replace, or arrange for the repair or replacement of all such damage to the satisfaction of the Owner. Any material damaged by the Contractor's operations shall be replaced with new material.
- C. Whenever construction work under this Contract is undertaken on easement, right-of-way, or franchise, all work shall be confined to the limits of such easement, right-of-way, or franchise, and accomplished so as to cause the least amount of disturbance and a minimum amount of damage.
- D. Completion of work across private property shall be carried out in one continuous operation of construction of the facilities with the immediate restoration and cleanup of the construction area. If the Contractor fails to perform such construction and restoration continuously as herein provided, the Owner may give the Contractor a written notice to so perform, and in event of failure by the Contractor to complete such construction and restoration within 72 hours of such notice, the Owner may complete the installation and restoration on such private property to the extent the Owner deems advisable and the cost of all work, labor, materials, and expenses incurred by the Owner in so doing shall be paid by the Contractor and may be deducted from any monies due or to become due, the Contractor.
- E. Particular care shall be exercised to see that the topsoil from the trench is preserved and replaced in its original location. It shall be the Contractor's responsibility to strip such topsoil from the trench, or construction area, and stockpile it in such a manner that it may be replaced, by him, upon completion of construction.
- F. Wherever it may be necessary for the Contractor to trench through any lawn areas, the sod shall be carefully cut and rolled and replaced after ditches have properly compacted. All work shall be done in a manner calculated to leave the lawn area clean of earth and debris and in a condition as near as possible to that which existed before work was started.
- G. The Contractor shall not remove, even temporarily, any trees or shrubs which exist on easements across private property or in parking strips, without first having notified the property owners or authorities maintaining same.

- H. Ornamental trees and shrubbery shall be carefully removed with the earth surrounding their roots, wrapped in burlap and replanted in their original positions within 48 hours. Ornamental trees or shrubbery destroyed, or damaged, by the Contractor, whether on public or private property shall be replaced by the Contractor with material of equal quality, and no additional compensation will be allowed for such replacement.
- I. It is expressly understood that the Contractor shall in particular restore all such easements and right-of-way to a condition equal to its original condition and in a condition satisfactory to the property owners and the Owner. It is also understood that any private improvements made in public right-of-way are included in the above category.

1.3 TREES

- A. All existing trees and shrubs which are to be protected and are damaged during construction shall be trimmed or replaced by the Contractor or a certified tree company under permit from the jurisdictional agency or owner and to the satisfaction of said agency and/or owner.
- B. The Contractor shall immediately notify the Engineer and/or owner if any tree which is to be protected is damaged by his operations. If, in the opinion of said agency or the owner, the damage is such that replacement is necessary, the Contractor shall replace the tree at his own expense.
- C. Replacement trees shall be of a like size and variety as the tree damaged, or, if of a smaller size, the Contractor shall pay to the owner of said tree a compensatory payment acceptable to the tree owner not to exceed the cost of replacing the tree as determined from quotes obtained by the tree owner from a minimum of two local nurseries. The size of the replacement trees shall be not less than 1-inch diameter nor less than 6 feet in height.
- D. When trimming is permitted, symmetry of the tree shall be preserved. No stubs or splits or torn branches shall be left. Clean cuts shall be made close to trunk or large branch. Spikes shall not be used for climbing live trees. All cuts over 1-1/2 inches in diameter shall be coated with an asphaltic emulsion material.

1.4 EASEMENTS

- A. Reference numbers of easements are shown on drawings.
- B. The Contractor shall meet and fulfill all covenants and stipulations of each easement obtained by the Owner for this project.
- C. Copies of all easements and special covenants are on file in the office of the Owner, which is incorporated in this Contract by this reference, as if set forth herein in full.

1.5 ACQUISITION OF EASEMENTS

- A. The Owner has obtained or is in the process of obtaining the easements required for this project.
- B. If at the time of Bids on this Contract, the Owner has not obtained all of the easements, it is anticipated that there may be additional stipulations and covenants on the remaining easements. It is also anticipated that the Owner may purchase certain items on easements, such as large trees within the permanent easement, thereby relieving the Contractor from the responsibility of restoring or protecting same. All bidders shall base their bids upon full restoration of all property within the easements unless otherwise specifically stated.

1.6 COVENANTS ON EASEMENTS NOT LISTED

- A. Upon completion of obtaining the remaining easements, if any, the Owner and the successful Bidder will negotiate a Change Order to the Contract for any additional stipulations not payable under a unit bid price under this Contract.
- B. Work shall not be started on any private right-of-way or easement until clearance is given the Contractor by the Engineer.

1.7 EASEMENT RELEASE

A. Where work is done on easements the Contractor shall obtain a written statement (see following form) of satisfactory restoration from each property owner involved, and furnish a copy of said statement to the Engineer. The statement will be required before the work will be accepted by the Owner, provided, however, that where the Contractor contends that the property owner is making unreasonable demands, he shall submit a list of such demands to the Owner in writing. If in the opinion of the Owner, such demands are unreasonable, the Contractor may be excused from the necessity of obtaining a written statement of satisfactory restoration from the property owner making such unreasonable demand.

EASEMENT NO. _____

CONTRACT NO. _____

PROPERTY OWNER'S APPROVAL OF EASEMENT RESTORATION

We, the undersigned owner(s) of property identified as

(Address or Property Description)

do hereby approve and accept the restoration work done by

the Contractor on the construction of pipelines on easements over and across my (our) property.

SIGNED _____

DATE _____

1.8 CARE OF EXISTING FACILITIES

A. The Contractor shall take adequate precautions to protect existing sidewalks, curbs, pavements, utilities, adjoining property, and structures, and to avoid damage thereto, and he shall at his own expense completely repair any damage thereto caused by his operation.

B. Access for firefighting equipment shall be maintained at all times.

1.9 SHORING, BRACING, ETC.

A. The Contractor shall shore up, brace, under-pin, and protect as may be necessary, all foundations and other parts of all existing structures adjoining the site of the Project, which are in any way affected by the excavation or other operations connected with the completion of the work under this Contract.

B. Whenever any notice is required to be given by the Owner or the Contractor to any adjoining or adjacent land owner or other party before commencement of any work under this Contract, such notice shall be given by the Contractor.

C. The Contractor shall indemnify the Owner and save it harmless from any damages on account of settlements or the loss of lateral or subjacent support of adjoining property and from all loss or expense and all damages for which the Owner may

become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

1.10 EMERGENCIES

- A. Whenever the Contractor's work endangers the safety of life or property including adjoining property or property in the immediate proximity of the Project, the Contractor shall take all reasonable precautions to prevent threatened loss or injury therefrom.

1.11 EXISTING UTILITIES/FACILITIES - UNDERGROUND AND OVERHEAD

- A. The Contractor shall protect existing utilities/facilities, both overhead and underground as provided in Section 02760.

1.12 TEMPORARY FENCE

- A. The Contractor shall be responsible for the erection of temporary fence as required to protect his own work area.
- B. The Contractor shall be responsible for erection and maintenance of temporary fencing or other facilities as required retaining livestock and/or periodic security of existing fenced areas.
- C. Temporary fencing on facilities shall remain in place until the permanent fencing, as originally installed, is replaced under the restoration requirements of the Contract or as shown on the Contract Drawings.

* * * END OF SECTION * * *

SECTION 01550

ACCESS AND HAUL ROADS

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Lands and Right-of-Way: Article 28 General Conditions
- B. Traffic Regulation: Section 01570

1.2 PRIVATE ACCESS

- A. Where required by the Contract or choice of the Contractor access may be over private land.
- B. Access will be maintained by and at the expense of the Contractor.
- C. Comply with local regulations and permits.
- D. Comply with all legal requirements to include as a minimum written permission of private owners.
- E. Control dust, noise and traffic, in compliance with local laws and regulations.
- F. Leave private property in condition satisfactory to the Owner and indicated by written release.

1.3 PUBLIC ACCESS AND HAUL ROADS

- A. Comply with all laws and regulations.
- B. All streets in the construction area used by Contractor's trucks or any other equipment hauling material to and from the area whether within the Contract limits or adjacent thereto shall be kept clean and shall be serviced by continuous use of sprinkling trucks to allay dust.
- C. Dust control shall continue until streets are accepted by the public agency responsible for maintenance or the Contractor is relieved of responsibility by such agency.
- D. Any damage to roadway surfaces from the direct or indirect result of the Contractor's operation shall be repaired by the Contractor to the satisfaction of the responsible agency.

* * * END OF SECTION * * *

SECTION 01560

TEMPORARY CONTROLS

1. GENERAL

- 1.1 RELATED WORK SPECIFIED ELSEWHERE**
 - A. Water Courses: Article 28 General Conditions
 - B. Summary of Work: Section 01010
 - C. Project Coordination: Section 01041
 - D. Job Site Administration: Section 01043
 - E. Protection of Work and Property: Section 01545
 - F. Access and Haul Roads: Section 01550
 - G. Traffic Regulation: Section 01570

- 1.2 LAWS**
 - A. Requirements of federal, state and local statutes and regulations dealing with temporary controls described in this section shall be strictly adhered to by the Contractor.

- 1.3 CONSTRUCTION CLEANING**
 - A. The Contractor shall keep the site of the work and other areas used by him in a neat and clean condition, and free from any accumulation of rubbish.
 - B. The Contractor shall dispose of all rubbish and waste materials of any nature occurring at the work site, and shall establish regular intervals of collection and disposal of such materials and waste.
 - C. The Contractor shall keep his haul roads free from dirt, rubbish, and unnecessary obstructions resulting from his operations.
 - D. Equipment and material storage shall be confined to areas approved by the Engineer.
 - E. Disposal of all rubbish and surplus materials shall be off the site of construction, at the Contractor's expense, all in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws.

- 1.4 AIR POLLUTION CONTROL**
 - A. The Contractor shall not discharge smoke, dust or other contaminants into the atmosphere that violate the regulations of any legally constituted authority.
 - B. The Contractor shall furnish all labor, equipment, and means required and shall carry out effective measures wherever and as often as necessary to prevent his operation from producing dust in amounts damaging to property, cultivated vegetation, or domestic animals, or causing a nuisance to persons living in or occupying buildings in the vicinity.
 - C. The Contractor shall comply with specific requirements of air quality control laws.
 - D. The Contractor shall be responsible for any damage resulting from any dust originating from his operations.
 - E. The dust abatement measures shall be continued until the Contractor is relieved of further responsibility by the Owner.

- 1.5 POLLUTION CONTROL**
 - A. All pollutants, including waste materials and demolition debris, that occur onsite shall be handled and disposed of in a manner that does not cause contamination of stormwater and is in accordance with the requirements of regulatory agencies. Good housekeeping and preventive measures shall be taken to ensure that the site will be kept clean, well organized, and free of debris.

- B. All vehicles, equipment, and petroleum product storage/dispensing areas will be inspected regularly to detect any leaks or spills, and to identify maintenance needs to prevent leaks or spills.
 - 1. On-site fueling tanks and petroleum product storage containers shall include secondary containment.
 - 2. Spill prevention measures, such as drip pans, will be used when conducting maintenance and repair of vehicles or equipment.
 - 3. In order to perform emergency repairs on site, temporary plastic will be placed beneath and, if raining, over the vehicle.
 - 4. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident.
- C. Chemical storage and use:
 - 1. All chemicals stored on the construction site shall have cover, containment, and protection.
 - 2. Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Manufacturers' recommendations for application procedures and rates shall be followed.
- D. Process water and slurry resulting from concrete work, grouting, sawcutting and surfacing operations shall be prevented from entering any stormwater system. It shall be disposed of in a manner that does not violate groundwater or surface water quality standards.

1.6 EROSION CONTROL

- A. Contractor shall provide temporary erosion control work shown in the plans, required by state or local agencies during the life of the contract. This work is intended to provide prevention, control, and abatement of water pollution/erosion within the limits of the project, and to minimize damage to the work, adjacent property, streams, and other bodies of water.
- B. The Contractor shall coordinate this temporary water pollution/erosion control work with the permanent drainage and erosion control work that may be specified in the Contract to the extent practicable to ensure that effective and continuous water pollution/erosion control is maintained during the construction of the Project.
- C. Clearing and grubbing operations shall be so scheduled and performed that grading operations and permanent erosion control features can follow immediately. If the project conditions do not permit this scheduling, temporary water pollution/erosion control measures will be required between successive construction stages.
- D. The area of excavation, borrow, and embankment operations in progress will be limited commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other permanent erosion control measures current according to the accepted schedule.
- E. If the Engineer determines that water pollution and/or erosion could occur due to seasonal limitations, the nature of the material, or the Contractor's progress, temporary water pollution/erosion control measures shall be taken immediately.
- F. The Engineer may require the Contractor's operations to be scheduled so that permanent erosion control features will be installed concurrently with or immediately following grading operations.
- G. Compliance with the requirements of this section shall not relieve the Contractor from his responsibility to comply with other provisions of the contract.

1.7 NOISE CONTROL

- A. Comply with state and local requirements as to allowable noise levels during construction.

- B. Equip all internal combustion engines in vehicles and construction equipment with effective mufflers.
- C. Prevent noise disturbance to adjoining property owners and the public.
- D. Construction operations shall be restricted to between the hours of 7:00 AM and 10:00 PM Monday through Friday without specific approval by the Owner except in emergencies.

1.8 SANITARY PROVISIONS

- A. The Contractor shall provide and maintain sanitary facilities for the use of his employees and the Engineer. The Contractor shall comply with the requirements and regulations of the agencies or organizations having jurisdiction over sanitary and health conditions and of other bodies or offices having jurisdiction thereover. He will permit no public nuisances.
- B. The Contractor shall establish a regular collection of all sanitary and organic wastes.
- C. All wastes and refuse from sanitary facilities provided by the Contractor or organic material wastes from any other source related to the Contractor's operations shall be disposed of away from the site in a manner satisfactory to the Owner and in accordance with all laws and regulations pertaining thereto.

1.9 CHEMICALS

- A. All chemicals used during project construction or furnished for project operation, whether defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, reactant or of other classification, shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture.
- B. Use of all such chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer.

1.10 PROVISION FOR WATER COURSES

- A. The Contractor shall provide for the flow of all water courses, sewers or drains, intercepted or disturbed by the Contractor during the progress of the work, and shall replace the same in as good condition as he found them or shall make such final provisions for them as necessary.
- B. The Contractor shall not obstruct the gutter of any street, but shall use all proper measures to provide for the free passage of surface water.
- C. The Contractor shall make provisions to take care of all surplus water, mud, silt, or other runoff pumped from excavations or resulting from sluicing or other operations, and shall be responsible for any damage, of whatever nature, resulting from his failure so to provide.
- D. No direct payment shall be allowed for the above work. Payment for the cost thereof shall be included in the prices bid for the various items which comprise the improvement.
- E. All work adjacent to or in the vicinity of marine waters or fresh water courses shall be accomplished in accordance with the requirements of the Departments having jurisdiction.

1.11 FISHERIES PERMIT

- A. All construction work in the vicinity of existing creeks, rivers and lakes shall be subject to the provisions of state regulations.
- B. A copy of any applicable permit is available at the office of the Owner for examination by bidders.
- C. The Contractor shall conform to the requirements of the permits issued for this project.

- D. Each Contractor shall secure separate approval from the Department of Fish and Wildlife concerning his proposed construction methods, operation and scheduling which will affect the waterways or lakes, and shall conform to the requirements of these departments to preserve the aquatic resources. The authorized representatives of the Department of Fisheries shall be the sole judges as to the effect of the Contractor's operations on the aquatic life in the streams and waterways.
- E. In the event said Department waives jurisdiction or does not approve the Contractor's method of operations, the Contractor shall secure written notice to that effect prior to construction.
- F. The Contractor may be held liable for any damage to fish life or habitat which results from failure to comply with the provisions of this section.

1.12 ARCHAEOLOGICAL OR CULTURAL RESOURCES

- A. The Contractor is advised that construction work within this Contract is subject to the provisions of state and federal laws and regulations pertaining to the preservation of archaeological and cultural resources.
- B. In the event that any archaeological or cultural resources are uncovered during the course of construction, all work shall cease until an inspection and evaluation of the site has been made by an archaeologist to insure that archaeological data are properly preserved. The Contractor shall notify the Owner who will in turn notify the proper authorities.
- C. The Contractor should anticipate reasonable delays while the archaeological investigations are being made and should make allowance for these delays under the appropriate bid items. No additional compensation will be allowed.

* * * END OF SECTION * * *

SECTION 01570 TRAFFIC REGULATION

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Safety and Health Regulations: Article 11.1 General Conditions
- B. Land and Right-of-Way: Article 28 General Conditions
- C. Access and Haul Roads: Section 01550

1.2 MATERIALS AND CONTRACT

- A. Signs, warnings, light signals, bypass layouts, scheduling and routes shall conform to the requirements of U.S. Department of Transportation Federal Highway Administration "Manual on Uniform Traffic Control Devices", latest edition, as amended by local or state agency.

1.3 MAINTENANCE OF TRAFFIC

- A. The Contractor shall conduct his work so as to interfere as little as possible with public travel, and shall at his own expense provide and maintain suitable bridges, detours, or other temporary facilities for the accommodation of public or private travel including mail delivery, and shall give reasonable notice to the owners of private drives before interfering with them; provided, however, that such maintenance of traffic will not be required where the Contractor has obtained permission from the owners or tenants of private property, or the proper public authority, or both, to obstruct traffic within the said limits and time agreed upon.
- B. Access for firefighting equipment, police and ambulance services shall be provided at all times and the Contractor shall keep the local authorities informed at all times of the location of construction operations and fire lanes.
- C. The Contractor shall also notify the authorities in charge of any municipal, private, or school transportation systems at least 48 hours in advance, of road closures that will force a change in the regular routing of the transportation system. The Contractor shall also provide maintain suitable detour routes for the system.
- D. Highway and arterial crossings shall be made in such a way that no more than half of the roadway is closed to traffic at any time, except where suitable detours or other arrangements are agreed to by the agency having jurisdiction.

1.4 COMPLIANCE WITH LOCAL REQUIREMENTS

- A. The Contractor shall comply with all applicable state and local requirements for closure of streets.
- B. The Contractor shall provide barriers, guards, lights, signs, temporary bridges, flagmen and watchmen, advising the public of detours and construction hazards.
- C. The Contractor shall also be responsible for compliance with additional public safety requirements which may arise during construction.
- D. The Contractor shall furnish and install, and upon completion of the work, promptly remove all temporary signs and warning devices.

1.5 TRAFFIC CONTROL PLAN

- A. Not less than ten days before beginning construction, the Contractor shall prepare and submit a general construction traffic control plan for the entire project, showing how detour routes will be signed and controlled.
- B. The traffic control plan shall include and make provision for at least the following items:
 1. Maintain at least one lane of traffic during construction in all streets and roads wherever possible.
 2. Employ flag persons to direct traffic as required assuring safe vehicular traffic.
 3. Provide for the protection of pedestrians at all times.

4. Provide, install, and maintain all signs, barricades, posts, guards, and notices whenever a street must be completely closed.
5. Provide for passage of local vehicles to businesses and homes.
6. Provide for passage and access of emergency vehicles, police, fire, and disaster units at all times. Assume liability for any damages resulting from failure to provide said access.
7. Revise and update specific traffic control plan to reflect changes in the project schedule as required by the Owner.

1.6 STORAGE OF MATERIALS AND EQUIPMENT

- A. Materials or equipment shall not be stored where it will interfere with the free and safe passage of public traffic.
- B. The Contractor shall remove all equipment and other obstructions from that portion of the roadway to be opened for use by public traffic at the end of each day's work and at other times when construction operations are suspended for any reason.
- C. Materials or other obstructions shall not be placed within 20 feet of fire hydrants, which shall at all times be readily accessible to the fire department, nor within ten feet of United States mailboxes.

1.7 MAINTENANCE OF POSTAL SERVICE

- A. The Contractor shall be responsible for determining and complying with the United States Postal Department's requirements for maintaining postal service within the project area and along related detour routes.
- B. Where required by street closures or excessive interferences, the Contractor shall move mailboxes to temporary locations designated by the postal service and, when such closures are terminated, shall return the mailboxes to locations and conditions satisfactory to the owners and the postal service.
- C. Other mailboxes removed or damaged by the Contractor shall be placed to the satisfaction of the owners and the postal service within 24 hours of their removal or damage.

* * * END OF SECTION * * *

SECTION 01600

MATERIAL AND EQUIPMENT

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Royalties and Patents: Article 9 General Conditions
- B. Project Coordination: Section 01041
- C. Shop Drawings, Project Data, Samples: Section 01340
- D. Schedule of Values: Section 01370

1.2 PRODUCTS LIST

- A. As soon as possible but not more than thirty (30) days after date of Notice to Proceed, submit to Engineer five (5) copies of complete list of all products which are proposed for installation as substitutions or product options.
- B. Tabulate list by each specification section.

1.3 CONTRACTOR'S OPTIONS

- A. Unless otherwise specifically provided, all workmanship, equipment, materials and articles incorporated in the work covered by the Contract are to be new and of the best available grade of their respective kinds.
- B. For products specified only by reference standards, select any product meeting standards, by any manufacturer.
- C. For products specified by naming one or more products, but indicating the option of selecting equivalent products by stating "or equivalent" after specified product, Contractor must submit request, as required for substitution, for any product not specifically named.
- D. For products specified by naming only one product and manufacturer, there is no option, and no substitution will be allowed.

1.4 SUBSTITUTIONS

- A. Within thirty (30) days after Notice to Proceed, Engineer will consider formal requests from Contractor for substitution of products in place of those specified.
- B. Submit request for substitution in accordance with requirements for submittal of shop drawings (Section 01340) and the following additional requirements.
 - 1. For construction methods:
 - a. Detailed description of proposed method
 - b. Drawings illustrating methods
 - 2. Itemized comparison of proposed substitution with product or method specification.
 - 3. Data relating to changes in construction schedule.
 - 4. Accurate cost data on proposed substitution in comparison with product or method specified.
- C. In making request for substitution, Contractor represents:
 - 1. He has personally investigated proposed product or method, and determined that it is equivalent or superior in all respects to that specified.
 - 2. He will provide the same guarantee for substitution as for product or method specified.
 - 3. He will coordinate installation of accepted substitution into work, making such changes as may be required for work to be complete in all respects.
 - 4. He waives all claims for additional costs related to substitution which consequently becomes apparent.
 - 5. Cost data is complete and includes all related costs under his Contract, but excludes costs under separate contracts and Engineer's redesign costs.

Contractor agrees to pay for all costs under separate contracts and Engineer's redesign costs.

- D. Substitutions will not be considered if:
 - 1. They are indicated or implied on shop drawings or project data submittals without formal request submitted in accord with Section 01340.
 - 2. Acceptance will require substantial revision of Contract Documents.
- E. The above shall not be construed to mean that any substitution for materials and equipment will be allowed. The Engineer reserves the right to reject and disapprove any request he deems irregular or not in the interest of the Owner.

1.5 MATERIAL CERTIFICATION

- A. Upon request of the Engineer, the Contractor's material suppliers may be required to furnish a certification from a recognized testing laboratory, certifying that the material supplied is in full conformance with the Contract Documents.

1.6 ADDITIONAL ENGINEERING COSTS

- A. Additional engineering costs accruing as a result of checking and/or redesign of substitutions will be charged to the Contractor and billed by the Owner at the Engineer's current established rates.

1.7 INSTALLATION

- A. All materials, appliances, fixtures, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with such instructions as are commonly furnished by the manufacturers, unless herein specified to the contrary.
- B. The Contractor shall use experienced millwrights, acceptable to the Engineer, in the installation and aligning of the equipment.
- C. At least one copy of the installation instructions shall be furnished to the Engineer no later than four days after the equipment arrives on site.
- D. Manufacturers' instructions for handling, protecting, installation, lubrication and alignments of the equipment, shall be followed to the letter and these installation instructions shall be considered a part of this Contract, with attendant penalties for insufficient performance.
- E. No piping or valves shall be supported by means of its connection to any mechanical equipment. Pipe connections to equipment must be disconnected upon request to permit inspection and determination that the piping is not transmitting stresses to the equipment.
- F. All motor flexible couplings shall be disconnected and checked with an indicator for misalignment after all other installation work has been completed unless the equipment installation instructions specifically prohibit this.
- G. The Contractor must allow a representative of the Owner to observe the indicator readings and approve or disapprove prior to re-coupling.

1.8 PUMPS AND PIPING

- A. All pump and piping installations shall fully meet the standards of the Hydraulic Institute.

*** END OF SECTION ***

SECTION 01700

CONTRACT CLOSEOUT

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Liquidated Damages: Section 00300 Bid Form
- B. Payments: Article 19 General Conditions
- C. Certification and Final Payment: Article 20 General Conditions
- D. Project Coordination: Section 01041
- E. Protection of Work and Property: Section 01545
- F. Cleaning: Section 01710
- G. Project Record Documents: Section 01720

1.2 SUBSTANTIAL COMPLETION

A. Contractor:

- 1. After testing and startup, submit written certification to Engineer that Project or designated portion of Project is substantially complete.
- 2. Submit list of items to be completed or corrected.

B. Engineer will make an inspection after receipt of Contractor's certification, together with Owner's representative.

C. If it appears to the Engineer that work is substantially complete:

- 1. The Engineer may request of and the Contractor shall prepare and submit to Engineer, a list of items to be completed or corrected as determined by the inspection.
- 2. If the Engineer then considers the work to be substantially complete, the Engineer may, with the Owner's approval, issue a Certificate of Substantial Completion, with appropriate conditions, accompanied by a list of the items to be completed and corrected, as verified and amended by Engineer. Omission of any item from the list shall not relieve the Contractor from responsibility to complete all the work in accordance with the Contract.
- 3. Owner occupancy of Project or designated portion of Project:
 - a. Contractor shall perform final cleaning in accordance with Section 01710.
 - b. Owner may use all or part of the work within the time designated in the Certificate of Substantial Completion, upon notice to the insurance company or companies as provided in Article 21 of the General Conditions.
- 4. Contractor shall complete all the work within the time designated in the Certificate, or if not so designated within a reasonable time.

D. Should the Engineer consider that work is not substantially complete:

- 1. He shall notify the Contractor, in writing stating reasons.
- 2. Contractor shall complete work and send second written notice to Engineer certifying that Project or designated portion of Project is substantially complete.

E. Warranties: Under Article 29.1 of the General Conditions guarantee and warranty periods begin with the date of final acceptance. However, in connection with any specific equipment certified by the Engineer as completed and its use or operation thereof for its intended purpose is assumed by the Owner, the warranty period for such equipment shall begin with the beginning date of such use or operation.

1.3 FINAL INSPECTION

A. The Contractor shall submit written certification that:

- 1. Contract Documents have been reviewed.
- 2. Work has been completed in accordance with Contract Documents.
- 3. Equipment and systems have been tested in presence of Owner's representative and are operational.

4. Project is completed, and ready for final inspection.
- B. Engineer will make final inspection within a reasonable time after receipt of certification.
- C. Should Engineer consider that work is complete in accordance with requirements of Contract Documents, he shall request Contractor to make project closeout submittals.
- D. Should Engineer consider that work is not complete:
 1. He shall notify Contractor, in writing, stating reasons.
 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Engineer certifying that work is complete.
 3. Engineer will re-inspect work.

1.4 RE-INSPECTION COSTS

- A. In addition to any overtime inspection due under Article 15 of the General Conditions, should Engineer be required to perform second inspections because of failure of work to comply with original certifications of Contractor, Owner will compensate Engineer for additional services as stated in said article and charge the Contractor for such fees at the Engineer's currently established billing rate.

1.5 CLOSEOUT SUBMITTALS

- A. Project Record Documents: To requirements of Section 01720
- B. Guarantees, bonds and certifications required by these specifications: See Articles 20, 22 and 29 of General Conditions and specific equipment or material specifications.
- C. At the close of the Contract the Contractor shall:
 1. Pay all utility bills if applicable
 2. Remove all electrical, sanitary, gas, telephone, water, offices and any other temporary service equipment that may remain.
 3. Arrange for transfer of electrical, and water accounts to the Owner's name.
- D. Deliver evidence of compliance with requirements of governing authorities:
 1. Certificates of Inspection:
 - a. Mechanical:
 - b. As required by codes.
 - c. Electrical:
 - i. State or city as required.
 - ii. Megger by Electrical Subcontractor.

1.6 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit final statement of accounting to Engineer.
- B. Statement shall reflect all uncompleted adjustments:
 1. Additions and deductions resulting from:
 - a. Previous Change Orders
 - b. Cash Allowances
 - c. Unit Prices
 - d. Other Adjustments
 - e. Deductions for Uncorrected Work
 - f. Penalties and Bonuses
 - g. Deductions for Liquidated Damages
 2. Unadjusted sum remaining due.

1.7 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit final application in accordance with requirements of General Conditions.

1.8 FINAL CERTIFICATE FOR PAYMENT

- A. Engineer will issue Final Certificate in accordance with provisions of General Conditions.
- B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a Final Certificate for Payment, in accordance with provisions of General Conditions and existing laws.

1.9 POST-CONSTRUCTION INSPECTION

- A. Prior to expiration one year from Date of Substantial Completion or Final Acceptance, Engineer may make visual inspection of Project in company with Owner and Contractor to determine whether correction of work is required, in accordance with provisions of General Conditions.
- B. For guarantees beyond one year, Engineer will make inspections at request of Owner, after notification to Contractor.
- C. Owner will promptly notify Contractor, in writing, of any observed deficiencies.

*** END OF SECTION ***

SECTION 01710

CLEANING

1. GENERAL

1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Cutting and Patching: Section 01045
- B. Temporary Controls: Section 01560
- C. Contract Closeout: Section 01700

1.2 GENERAL REQUIREMENTS

- A. Maintain premises and public properties free from accumulations of waste, debris, and rubbish caused by operations.
- B. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.

1.3 SAFETY REQUIREMENTS

- A. Standards: Maintain project in accord with the applicable federal, state and local safety standards.
- B. Hazards Control:
 - 1. Store volatile wastes in covered metal containers, and remove from premises daily.
 - 2. Prevent accumulation of wastes which create hazardous conditions.
 - 3. Provide adequate ventilation during use of volatile or noxious substances.
- C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws:
 - 1. Do not burn or bury rubbish and waste materials on project site unless approved by local fire and air pollution authorities.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.

2. PRODUCTS

2.1 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

3. EXECUTION

3.1 DURING CONSTRUCTION

- A. Execute cleaning to insure that grounds and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to prevent blowing dust
- C. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.
- D. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.
- E. The Contractor shall clean the right-of-way, material sites and all ground the Contractor occupied to do the work periodically throughout the duration of the project. All rubbish, surplus materials, discarded materials and debris shall be removed from the site and disposed of properly. At the minimum, the Contractor shall conduct such periodic cleaning for each 1,000 feet of pipeline installed, prior to proceeding with installation of additional pipeline. Such cleaning shall also occur

immediately prior to weekends, holidays, extended work stoppages or at the direction of the Owner, or other regulatory agencies having jurisdiction.

3.2 FINAL CLEANING OF STRUCTURES

- A. Employ experienced workmen, or professional cleaners, for final cleaning.
- B. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.
- C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials, from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.
- D. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.
- E. Broom clean paved surfaces; rake clean other surfaces of grounds.
- F. Clean windows.
- G. Replace air conditioning filters if units were operated during construction.
- H. Clean ducts, blowers and coils, if air conditioning units were operated without filters during construction.
- I. Maintain cleaning until project is occupied by Owner.

3.3 FINAL CLEANUP OF PIPELINES

- A. Final cleanup work shall be completed as closely behind the construction work as it is physically possible to do.
- B. Unless otherwise specifically provided in writing only those portions of the completed work will be included in the partial pay estimates where, in the Engineer's opinion, the cleanup work has been satisfactorily completed.
- C. Refer to specific sections for detail requirements for cleanup of pipelines.

3.4 GENERAL CLEANUP

- A. Before final acceptance, the Contractor shall remove and obliterate, insofar as feasible, all objects or disturbances of the ground which mar the landscape and were caused by his operations, whether or not part of the improvement.
- B. Rubbish, excess materials, temporary structures, and discarded equipment shall be removed and disposed of.
- C. Temporary haul roads shall be scarified and bladed to blend with surroundings.
- D. Remove snags, down trees, brush, and stumps.
- E. Fill holes and grade to smooth land contours. Shape ends of cuts and fills to fit adjacent terrain.
- F. Hand rake disturbed areas to remove loose objects including rock and clods in excess of two inches in any dimension.
- G. Sweep pavement, curb and gutter, sidewalks and driveways.

*** END OF SECTION ***

SECTION 01720

PROJECT RECORD DOCUMENTS

1. GENERAL

- 1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE
 - A. Documents: Article 6, General Conditions
 - B. Project Coordination: Section 01041
 - C. Shop Drawings, Project Data and Samples: Section 01340
 - D. Construction Photographs: Section 01380

1.2 MAINTENANCE OF DOCUMENTS

- A. Maintain at job site, one copy of:
 1. Contract Drawings
 2. Project Manual
 3. Addenda
 4. Reviewed Shop Drawings
 5. Change Orders
 6. Other Modifications to Contract
 7. Field Test Records
 8. Maintenance Data Delivered with Equipment
- B. Store documents in field office, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
- D. Maintain documents in clean, dry, legible condition.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by Engineer and Owner.

1.3 RECORDING

- A. Do not permanently conceal any work until required information has been recorded.
- B. Keep documents current.
- C. Contract Drawings: Legibly mark to record actual construction:
 1. Depths of various elements of foundation in relation to variances from plan.
 2. Horizontal and vertical location of underground utilities and appurtenances and references to permanent surface improvements.
 3. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 4. Field changes of dimension and detail.
 5. Changes made by Change Order or Field Order.
 6. Details not on original Contract Drawings.
 7. Side sewer locations including stubs and tees.
- D. Specifications and Addenda: Legibly mark up each Section to record:
 1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 2. Changes made by Change Order or Field Order.
 3. Other matters not originally specified.
- E. Shop Drawings: Maintain as record documents; legibly annotate drawings to record changes made after review.

1.4 SUBMITTAL

- A. At completion of project, deliver record documents to Engineer.
- B. Accompany submittal with transmittal letter, in duplicate, signed by the Contractor, or his authorized representative.

*** END OF SECTION ***

DIVISION 2

SITWORK

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SECTION 02010

SUBSURFACE INVESTIGATION

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- A. Job Site Administration: Section 01043
- B. Inspection Services: Section 01420
- C. Dewatering: Section 02140
- D. Shoring: Section 02150

1.2 SOILS REPORTS

- A. Any data on soil and/or subsurface conditions shown in the Plans or Specifications is not to be taken as a representation, but is based on limited information and is at best only an opinion; consequently, such data cannot be considered precise or complete and there is no guarantee as to its completeness, accuracy, or precision.
- B. Additional Investigation:
 - 1. Contractor should visit the site and acquaint himself with site conditions before submitting a bid and the submission of a bid will be *prima facie* evidence that he has done so.
 - 2. Prior to bidding, Contractor may make his own subsurface investigations to satisfy himself with site and subsurface conditions.

1.3 QUALITY ASSURANCE

- A. The Contractor shall readjust work performed that does not meet technical or design requirements.
- B. The Contractor shall make no deviations from the Contract Documents without specific and written approval of the Owner.
- C. The Contractor shall be responsible for obtaining approval from responsible agency or property owner before performing any exploratory excavations.

* * * END OF SECTION * * *

SECTION 02050 DEMOLITION

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Grading: Section 02210
- B. Excavating, Backfilling and Compacting for Utilities: Section 02222
- C. Pavement Repair and Resurfacing: Section 02575

1.2 PROTECTION

- A. Streets, roads, adjacent property and other work to remain shall be protected throughout the work.
- B. Pavement may be cut only where authorized and only to the extent specified.
- C. Any material damaged by Contractor's operations shall be replaced with new material by the Contractor.

1.3 CUTTING PAVEMENT, CURBS AND WALKS

- A. Unless specified otherwise by the authority having control over the pavement, curbs and walks, cutting and replacement shall be as specified in Section 02575.

1.4 PRIVATE DRIVEWAYS, CULVERTS AND MISCELLANEOUS

- A. Pipe laying operations in certain areas may necessitate temporary removal of mail boxes, private driveways, drains, service lines, conduits, etc. to facilitate construction. In the event that the Contractor finds it necessary to remove the above mentioned items, it is to be understood that it will be his responsibility to restore these items in a manner equal to their original condition. The Contractor shall maintain adequate temporary provisions for domestic deliveries and utilities service and access to firefighting equipment.
- B. The preceding requirement will be the same for any temporary removal of road culverts, whether under state, county or private jurisdiction.
- C. The cost of the above described work shall be included in the price bid for pipe and no additional compensation shall be made to the Contractor.
- D. The Contractor shall make every effort to prevent blocking private driveways for more than a reasonable time and shall make such driveways immediately accessible on order of the Owner.

1.5 ASBESTOS REMOVAL

- A. The Contractor shall conduct all work related to existing asbestos materials in accordance with WISHA safety regulations and provisions of WAC 296-62-077, WAC 295-65 and the requirements of the regional air pollution control authority. Advance notice of work on asbestos materials may be required.
- B. Work crews shall be provided with proper protective clothing and equipment.
- C. Waste and abandoned asbestos materials and materials, clothing, etc. used in asbestos handling and removal shall be disposed of in a manner consistent with the regulations and provisions cited above.
- D. All costs associated with the demolition and abandonment of asbestos material shall be considered incidental to the work; no additional compensation will be made to the Contractor.
- E. The Contractor (person or organization removing asbestos with certified asbestos workers) shall assume ALL risk and all liability for the removal and disposal of the asbestos and the Contractor shall comply with all federal, state and local laws, statutes and regulatory agency regulations and requirements including but not limited to the requirements relating to environmental pollutants and the requirements relating to the removal and disposal of asbestos. The Contractor shall insure that the asbestos removal is pursuant to all state and federal laws and regulations. The

Contractor shall be responsible for any and all fines or penalties which may be levied due to the Contractor's violation of any of the aforementioned laws and regulations.

* * * END OF SECTION * * *

SECTION 02140

DEWATERING

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Temporary Controls: Section 01560
- B. Subsurface Investigations: Section 02010
- C. Excavating, Backfilling and Compaction for Utilities: Section 02222
- D. Sedimentation Control: Section 02275

1.2 QUALITY CONTROL

- A. It shall be the sole responsibility of the Contractor to control the rate and effect of the dewatering in such a manner as to avoid all objectionable settlement and subsidence.
- B. The Contractor shall employ an independent qualified Professional Engineer with experience in similar dewatering problems to review and approve the Contractor's proposed method of dewatering and to at least weekly, inspect the Contractor's operations and provide a report to the Engineer.
- C. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the Contractor.
- D. Where critical structures or facilities exist immediately adjacent to areas of proposed dewatering, reference points should be established and observed at frequent intervals to detect any settlement which may develop. Should significant settlement be observed, recharge wells could be placed between the structure and the trench and water pumped under pressure back into the soil.
- E. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely with the Contractor. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the Contractor.

2. PRODUCTS

2.1 EQUIPMENT

- A. Before operations begin, the Contractor shall have available on the site of work sufficient pumping equipment and/or other machinery to assure that the operation of the dewatering system can be maintained.

3. EXECUTION

3.1 METHODS

- A. Dewatering shall be done by such method as the Contractor may elect.
- B. Dewatering, sufficient to maintain the groundwater level at or below the surface of trench bottom or base of the foundation gravel shall be accomplished prior to excavation and placing of pipeline or concrete. The dewatering operation, however accomplished, shall be carried out so that it does not destroy or weaken the strength of the soil under or alongside the excavation.
- C. The normal water table shall be restored to its natural level in such a manner as to not disturb the pipe, its foundation and structures.
- D. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sand packed and/or other means used to prevent pumping of fine sands or silts from the subsurface. A continual check by the Contractor shall be maintained to ensure that the subsurface soil is not being removed by the dewatering operation.
- E. Dewatering of the excavations shall be considered as incidental to the construction and all costs thereof shall be included in various unit contract prices in the Bid Form.

- F. Dispose of water so as not to cause injury to public or private property or to cause a nuisance or menace to the public and in accordance with the requirements of regulatory agencies.
- G. Construction of temporary facilities to dispose of water shall be incidental to the construction.
- H. Permanent piping systems shall not be incorporated in the dewatering system.

*** END OF SECTION ***

SECTION 02150

SHORING

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Excavating, Backfilling and Compacting for Utilities: Section 02222

1.2 QUALITY ASSURANCE

- A. Where the depth of excavation exceeds 20 (twenty) feet the Contractor's shoring systems shall be designed and inspected by a registered professional engineer with experience in the work, all in accordance with federal, state and local safety requirements (the most stringent requirement prevailing).
- B. Where the depth of excavation is less than 20 (twenty) feet, the Contractor shall provide, place and maintain responsibility for shoring, sheeting, bracing, sloping or otherwise support the sides of trenches and excavations, including embankments by a means of sufficient strength to protect employees. Such shoring and associated responsibilities shall be in accordance with federal, state and local safety requirements (the most stringent requirement prevailing).

1.3 SUBMITTAL

- A. For shoring systems to be used for depth of excavation greater than 20 (twenty) feet, submit material indicating compliance with federal, state and local safety requirements for shoring systems. Specifically, the material shall indicate that such systems have been designed by a registered professional engineer with experience in the work.

1.4 COMPETENT PERSON

- A. The Contractor shall be exclusively responsible for providing the services of the Competent Person as referenced in Section 296-155-650 Washington Administrative Code (WAC), relating to excavation, trenching and shoring.
- B. The Contractor shall be exclusively responsible for providing the services of a registered professional engineer for the design of the trench protective system as required in WAC Section 296-155-657.
- C. Representatives of the Owner and Engineer shall not be required to perform the roles of Competent Person or registered professional engineer as defined in WAC 296-155.

2. PRODUCTS

2.1 SHORING SYSTEMS

- A. Materials used shall be at the Contractor's option.

3. EXECUTION

3.1 SAFETY REQUIREMENTS

- A. Shoring shall be placed in accordance with federal, state and local safety requirements (the most stringent requirement prevailing)

3.2 SHORING SYSTEMS

- A. Unless otherwise provided, the Contractor shall provide all shoring systems needed to protect the work, adjacent property and improvements, utilities, pavement, etc., and to provide safe working conditions in the trench.
- B. Removal of any or all shoring systems from the trench shall be accomplished in such a manner as to fulfill all of the above requirements and shall also be accomplished in such a manner as to prevent any damage to the work.
- C. Damages resulting from improper shoring or from failure to shore shall be the sole responsibility of the Contractor.

- D. Whether shoring systems shall be left in place or removed shall be at the option of the Contractor, provided that removal of any and all shoring used in trench or structure excavation shall be accomplished in the manner as to prevent the settlement of the pipes or other work and to prevent increased backfill loading which might overload the pipe or walls of the structure.
- E. Shoring shall be removed to a minimum of 5 feet below the final grade.
- F. Should the Owner order that any shoring be left in place, the Contractor shall not remove the same but will receive payment for the materials left in place at the market value thereof.

3.3 SPECIAL REQUIREMENT FOR FLEXIBLE PIPE

- A. Shoring to be removed, or moveable trench shields or boxes, shall be located at least 2 pipe diameters away from the pipe if the bottom of the shoring, shield or box extends below the top of flexible pipe, unless a satisfactory means of reconsolidating the bedding or side support material disturbed by shoring removal can be demonstrated.
- B. Damages resulting from improper shoring or failure to shore shall be the sole responsibility of the Contractor.

* * * END OF SECTION * * *

SECTION 02210

GRADING

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Subsurface Investigation: Section 02010
- B. Demolition: Section 02050
- C. Excavating, Backfilling, and Compacting for Utilities: Section 02222

1.2 QUALITY CONTROL ASSURANCE

- A. Soils and Backfill: Moisture density standard ASTM D1557 or AASHTO T-180 method unless otherwise specifically approved.
- B. In place Density Determination: Sandcone method ASTM D1556 or Nuclear method ASTM D2922.
- C. Classification of Soils ASTM D2487.
- D. Quality control monitoring of subgrade backfill and embankment materials and construction by certified independent laboratory approved by Engineer, secured and paid for by the Contractor.

1.3 SUBMITTALS

- A. Import backfill gradation and moisture density compaction curve test reports.
- B. Embankment and native backfill materials gradations and moisture density standards curve test reports.
- C. Certification of gradation and compliance with referenced standards, and moisture density standards test reports.
- D. Density test results in approved format.

2. PRODUCTS

2.1 NATIVE MATERIAL FOR EMBANKMENT

- A. Selected soil free from roots or other organic material, debris, or frozen material.
- B. Maximum size to 6 inches with no stone larger than 4 inches in upper 6 inches of fill.
- C. Free of excess moisture.
- D. Processed to uniform moisture and texture necessary to obtain specified density.

2.2 IMPORT MATERIAL FOR EMBANKMENT

- A. Conform to Section 02222 for Backfill Gravel.

2.3 TOP SOIL

- A. Conform to Section 02990.

2.4 WASTE MATERIAL

- A. Foreign materials, buried rubble, abandoned pipes and native soil materials that cannot be processed to uniform moisture and texture necessary to achieve specified densities shall be disposed of by the Contractor at the appropriate waste site.
- B. Waste site shall be provided by the Contractor.

2.5 CRUSHED ROCK SURFACING

- A. Crushed surfacing shall be manufactured from ledge rock, talus, or gravel. The materials shall be uniform in quality and substantially free from wood, roots, bark, and other extraneous material and shall meet the following quality test requirements:

Los Angeles Wear, 500 Rev.	35% max
Degradation Factor – Top Course	25 min.
Degradation Factor – Base Course	15 min.

- B. Crushed surfacing shall meet the following requirements for grading and quality:

Percent Passing by Weight

Sieve Size	Base Course	Top Course and Keystone
1 1/4"	100	
1"	80-100	

$\frac{3}{4}$ "		100
$\frac{5}{8}$ "	50-80	
$\frac{1}{2}$ "		80-100
No. 4	25-45	46-66
No. 40	3-18	8-24
No. 200	7.5 max.	10.0 max.
% Fracture	75 min.	75 min.
Sand Equivalent	40 min.	40 min.

- C. The fracture requirement shall be at least one fractured face and will apply to the combined aggregate retained on the No. 4 sieve in accordance with field operating procedures for AASHTO TP 61.
- D. The portion of crushed surfacing retained on a No. 4 sieve shall not contain more than 0.15 percent wood waste.

3. EXECUTION

3.1 WORK SEQUENCE

- A. Notify Engineer of any discrepancies between contractual requirements and site conditions prior to start of work.
- B. Maintain backfill embankment and subgrade zones or lifts open until approval of testing is secured from the Engineer. Any work covered up prior to approval shall be excavated and reconstructed at Contractor's expense.
- C. Prior to pipe installation construct embankments a minimum of 12 inches above pipe crowns and trench for all pipelines. Mounding over pipelines will not be permitted.
- D. Work in inclement wet weather at Contractor's risk.
- E. Any materials which become unstable as the result of improper selection of techniques, equipment, or operations during inclement wet weather shall be replaced at Contractor's expense with imported material for embankment.
- F. Excavations and embankment shall be accomplished in such a manner that drainage is maintained at all times.

3.2 STOCKPILING NATIVE MATERIALS FOR REUSE

- A. Material suitable for topsoil shall be deposited in protected, maintained piles separate from other materials and readily available.
- B. Upon completion, all material storage areas shall be restored to substantially their original condition.

3.3 EXCAVATION

- A. Remove all materials required regardless of type or character.
- B. Excavate to lines and grades shown on the drawing.
- C. Transport all materials to embankment areas or to waste as required.

3.4 PREPARATION OF GROUND SURFACE FOR FILL

- A. All vegetation, such as roots, brush, heavy sods, heavy growth of grass, and all decayed vegetable matter, rubbish, and other unsuitable materials within the area upon which fill is to be placed, shall be stripped or otherwise removed before the fill is started.
- B. Sloped ground surfaces steeper than one vertical to four horizontal on which fill is to be placed, shall be plowed, stepped (benched), or broken up in such manner that the fill material will bond with the existing surface.
- C. The original ground surface shall be plowed or scarified to a depth of at least six (6) inches and compacted as specified herein.
- D. Soft, wet soils shall be excavated and replaced or allowed to dry before placing fill.

3.5 EMBANKMENT

- A. Construct of materials specified, conditioned to proper moisture and texture necessary to assure specified densities.
- B. Loose thickness lifts not to exceed 8 inches.

- C. Maintain drainage at all times.
- D. Construct to grades shown on the Drawings.

3.6 COMPACTION

- A. Compact each lift to 90% of maximum density at optimum moisture content.
- B. Compact top six (6) inches under areas to receive crushed surfacing to 95% of maximum density.

3.7 FINISH ELEVATIONS

- A. Contours illustrated are intended as a general guide to achieve proper aesthetics and drainage control.
- B. Control grid and spot elevations to be established by Contractor.
- C. Vary control grid spacing to accurately define slope, rounding of mounds and depressions.
- D. Field staking of certain intermediate grid points at locations where slopes are uniform may, at Engineer's discretion, be eliminated.
- E. Finished surface shall be smooth, compacted and free from irregular surface change so as to drain readily.
- F. The degree of finish shall be that ordinarily obtainable from blade grader operations, except as otherwise specified. The finished surfaces not to be paved shall be not more than 0.15 feet above or below the established grade or approved cross section. All areas to be paved shall be finished as required for pavement subgrade.

3.8 DENSITY TEST RECORD DOCUMENTATION

- A. Location of horizontal and vertical grid and datum.
- B. Density and percent of referenced standard computation.
- C. Material description and appropriate compaction control standard.

3.9 DENSITY TEST FREQUENCY

- A. Foundation embankment under structures and pipelines, top two feet of road subgrade, and 10 foot wide backfill zone around structures for each one foot of vertical embankment or backfill height, conduct one test for every 300 square feet.
- B. Other embankment under structures and pipelines, top two feet of road subgrade, and 10 foot wide backfill zone around structures for each one foot of vertical embankment or backfill height, conduct one test for every 600 square feet, except as required by Section 02222.
- C. Additional tests as required by the Engineer, if tests indicate compaction deficiency.

* * * END OF SECTION * * *

SECTION 02221

EXCAVATING, BACKFILLING, AND COMPACTING FOR STRUCTURES

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Subsurface Investigation: Section 02010
- B. Demolition: Section 02050
- C. Dewatering: Section 02140
- D. Shoring: Section 02150
- E. Rock Excavation: Section 02202
- F. Grading: Section 02210
- G. Excavation, Backfilling, and Compacting for Utilities: Section 02222
- H. Sedimentation Control: Section 02275

1.2 GENERAL REQUIREMENTS

- A. The Contractor shall provide, complete, all excavation, removal, stockpiling, disposal and backfilling of whatsoever nature necessary for construction of all structures.
- B. The Contractor shall provide all construction, and subsequent removal of all shoring, cribs and cofferdams that may be necessary for protection of existing structures; excavation; removal or construction of structures; and placement and compaction of backfill.
- C. Excavation for manholes, catch basins, and other similar utility structures specified in Section 02222.

1.3 CLASSIFICATION

- A. All excavation is unclassified unless separate bid item is included in bid form.
- B. The terms earthwork or excavation include all materials excavated or removed regardless of material characteristics.
- C. The Contractor shall make his own estimate of the kind and extent of materials which will be encountered in the excavation.

1.4 QUALITY CONTROL ASSURANCE

- A. Soils and Backfill: Moisture density standard ASTM D1557 or AASHTO T-180 method unless otherwise specifically approved.
- B. In place Density Determination: Sandcone method ASTM D1556 or Nuclear method ASTM D2922.
- C. Classification of Soils: ASTM D2487.
- D. Quality control monitoring of subgrade backfill and embankment materials and construction by certified independent laboratory approved by Engineer and, secured and paid for by the Contractor.

1.5 SUBMITTALS

- A. Import backfill gradation and moisture density compaction curve test reports.
- B. Embankment and native backfill materials gradations and moisture density standards curve test reports.
- C. Certification of gradation and compliance with referenced standards, and moisture density standards test reports.
- D. Density test results in approved format.
- E. At any time the Contractor shall change the source and/or stockpile from which materials are obtained, certificates of gradation for these new sources will also be required. The Contractor shall include expenses incurred in having this certification in his bid price. No additional compensation will be allowed.
- F. During construction, the Owner may elect to have further gradation testing completed on the materials being furnished by the Contractor. This testing will be at the expense of the Owner, however, the Contractor shall provide material samples

as may be necessary to complete this testing and these material samples will be furnished from material available on the job site or from the Contractor's source and/or supplier.

2. PRODUCTS

2.1 COMPACTED BACKFILL

- A. Compacted backfill shall be native material unless backfill gravel is directed by the Engineer.

2.2 NATIVE MATERIAL

- A. Native material removed from excavation that is suitable for backfill may be stockpiled on site.
- B. Stockpiled material shall be protected with plastic sheeting or by some other method from contamination and weather damage.
- C. Material that becomes too wet or contaminated in the stockpile shall be hauled to a disposal site and replaced with suitable imported material at the Contractor's expense.
- D. Material to be reused shall be such gradations and moisture content that it can be handled and compacted to meet the requirements as specified herein.
- E. Maximum size 6 inches with no stone larger than 4 inches in upper 6 inches of backfill.

2.3 BACKFILL GRAVEL

- A. All backfill gravel to be furnished under this Contract shall consist of naturally occurring screened or crushed gravel.
- B. Gravel shall be essentially free from wood waste or other extraneous or objectionable materials.
- C. Gravel shall have such characteristics of size and shape that it will compact readily and shall meet the following test requirements:
 1. Stabilometer "R" value: 72 min.
 2. Swell pressure: 0.3 psi max.
 3. The maximum particle size shall not exceed $\frac{2}{3}$ of the depth of the layer being placed.
- D. Gravel shall meet the following requirements for grading and quality:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
2"	75-100
No. 4	22-100
No. 200	0-10
Dust Ratio	$\frac{2}{3}$ max.
Sand Equivalent	30 min.

- E. Gravel material retained on a No. 4 sieve shall contain not more than 0.2 percent by weight of wood waste.
- F. The Contractor shall provide the Engineer with a certificate of gradation or sieve analysis from a qualified testing laboratory for backfill gravel furnished under this contract.

2.4 FOUNDATION GRAVEL

- A. Foundation gravel shall meet one of the following gradations:
 1. Crushed surfacing base course as specified in Section 02210.
 2. Backfill gravel as described in the previous paragraph except that the requirements for stabilometer "R" value and swell pressure do not apply.
 3. Crushed, partially crushed, or naturally occurring granular material shall meet the following requirements for grading and quality:
 - a. Los Angeles Wear, 500 Rev.: 40% max
 - b. Degradation Factor: 15 min.
 - c. Gradation:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
2½"	100
2"	65-100
1"	50-85
No. 4	26-44
No. 40	16 max.
No. 200	9.0 max.
Dust Ratio	⅔ max.
Sand Equivalent	35 min.

d. The portion of granular material retained on a No. 4 sieve shall not contain more than 0.2 percent wood waste.

2.5 DRAIN ROCK

A. Gravel backfill for footing/foundation drains shall conform to the following gradation:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
1"	100
¾"	80-100
⅜"	0-40
No. 4	0-4
No. 200	0-2

B. For filter rock, see Section 02222.

2.6 COMPOSITE DRAINAGE MEMBRANE

A. Composite drainage membrane shall consist of a three dimensional high impact resistant polymeric sheet covered by a filter fabric which is bonded to the dimples of the molded sheet to maintain a rigid surface.

B. Composite Drainage Membrane shall conform to the following:

1. Polymeric Sheet Core:

Compressive Strength	15,000 psi per ASTM D1621
Weight	2.9 oz/ft ² per ASTM D3776
Thickness	0.38 in per ASTM D777
Flow	13 gpm/ft width ASTM D4716

2. Filter Fabric:

Equivalent Opening Size	100 per COE CW02215
Grab Strength	100 lb per ASTM D1682
Weight	4.0 oz/yd ² per ASTM D3776

2.7 FILTER FABRIC

A. Filter fabric wrap around drain line shall be similar to the filter fabric used on the composite drainage membrane.

3. EXECUTION

3.1 GENERAL EXCAVATION REQUIREMENTS

A. The Contractor shall exercise care and caution in performing the work so as not to cause any slide or slip beyond the limits of the structure excavation.

B. He shall be responsible for damages to abutting improvements and properties resulting from any slide or slip, whatever the cause.

C. He shall also at his own expense, remove the loose material and backfill or repair the slide or slip area with granular material, lean concrete, or by other method or means with the approval of the Owner.

D. All excavated material unsuitable or surplus for backfill and embankment shall be removed from the project site to a dump site by the Contractor.

E. Excavated material suitable for Backfill and Embankment shall be stockpiled.

F. The excavation shall be dewatered as described in Section 02140 during excavation, construction of structures and placement and compaction of backfill.

- G. Excavation, sloped back sufficiently to prevent sliding or shoring, shall be provided. Design of shoring is responsibility of the Contractor.
- H. Excavations shall extend a sufficient distance from walls and footings to allow for placing and removal of forms, installation of services, and for inspection, except where concrete is specified to be placed directly against excavated surfaces.
- I. Ground shall not be dug by machinery nearer than 3 inches from any finished subgrade. The last 3 inches shall be removed without disturbing the subgrade.

3.2 FOUNDATION PREPARATION

- A. Should the excavation be carried below the lines and grades specified on the drawings or should the bottom of the excavation be disturbed because of the Contractor's operations and require over excavation and backfill, the Contractor shall refill such excavated space to the proper elevation with foundation gravel.
- B. Foundation shall be dug to final grade so that subgrade is not disturbed.
- C. The foundation and slab subgrade bearing areas shall be protected from disturbance with a 12 inch minimum layer of foundation gravel compacted to a minimum density of 95% modified Proctor.

3.3 INSPECTION

- A. During the course of excavation, the Engineer may stop the work for additional bearing tests or test borings, and the Contractor shall give any assistance the Engineer may need in making such tests and shall receive no extra compensation for such stoppages. Materials and labor furnished by the Contractor for such tests will be considered as incidental to the work.
- B. When the foundation excavation is completed, the Contractor shall notify the Engineer who will make an inspection and approve the work before any additional work or structure is placed thereon.
- C. Contractor shall additionally notify the Engineer on completion of placement of foundation gravel. The Engineer will then make an inspection, review the compaction test reports, and approve the work before any additional work or structure is placed thereon.

3.4 BACKFILLING

- A. The Contractor shall provide and place all backfill necessary to bring the site to the grades shown on the plans.
- B. Structure backfill shall not be placed until the subgrade portions of the structure have been inspected by the Engineer.
- C. No backfill material shall be deposited against concrete structures until the concrete has developed a strength of not less than 3000 pounds per square inch in compression, or until the concrete has been in place for 28 days, whichever occurs first.
- D. Backfill material shall be placed in uniform layers and shall be brought up uniformly on all sides of the structure.
- E. Backfill material shall be compacted to 90% of the modified Proctor Maximum Dry Density test procedure (AASHTO T-180).
- F. Mechanical or power tampers may be used in compacting the backfill material; however, no equipment or tamper may be used which by its weight or movement will damage, move or tilt out of alignment any part of the structure above or below the ground surface.
- G. Contractor shall be responsible for any such damages and shall make necessary corrections and repairs at his own expense.
- H. Unless otherwise specified, backfill around and above pipelines within the excavation line of any structure shall be the same as that specified for structures.

3.5 DENSITY TEST RECORD DOCUMENTATION

- A. Location of horizontal and vertical grid and datum.

- B. Density and percent of referenced standard computation.
- C. Material description and appropriate compaction control standard.

3.6 DENSITY TEST FREQUENCY

- A. Foundation and backfill zone under/around structures for each one foot of vertical embankment or backfill height; conduct one test for every 300 square feet.
- B. Additional tests as required by the Engineer, if tests indicate compaction deficiency.

* * * END OF SECTION * * *

SECTION 02222

EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Subsurface Conditions: Section 02010
- B. Demolition: Section 02050
- C. Rock Excavation: Section 02202
- D. Shoring: Section 02150
- E. Grading: Section 02210
- F. Sedimentation Control: Section 02275
- G. Water Lines: Section 02660
- H. Existing Utilities/Facilities Underground and Overhead: Section 02760

1.2 CLASSIFICATION

- A. All excavation is unclassified unless separate bid item is included in bid form.
- B. The terms earthwork or excavation include all materials excavated or removed regardless of material characteristics.
- C. The Contractor shall make his own estimate of the kind and extent of materials which will be encountered in the excavation.

1.3 QUALITY CONTROL ASSURANCE

- A. Soils and Backfill: Moisture density standard ASTM D1557 or AASHTO T-180 method unless otherwise specifically approved.
- B. In place Density Determination: Sandcone method ASTM D1556 or Nuclear method ASTM D2922.
- C. Classification of Soils: ASTM D2487.
- D. Quality control monitoring of subgrade backfill and embankment materials and construction by certified independent laboratory approved by Engineer and secured and paid for by the Contractor.

1.4 SUBMITTALS

- A. Import backfill gradation and moisture density compaction curve test reports.
- B. Embankment and native backfill materials gradations and moisture density standards curve test reports.
- C. Certification of gradation and compliance with referenced standards and moisture density standards test reports.
- D. Density test results in approved format.
- E. At any time the Contractor shall change the source and/or stockpile from which materials are obtained, certificates of gradation for these new sources will also be required. The Contractor shall make allowances in his unit prices bid for these items to cover expenses incurred in having this certification made and no additional compensation will be allowed.
- F. During construction, the Owner may elect to have further gradation testing completed on the materials being furnished by the Contractor. This testing will be at the expense of the Owner, however, the Contractor shall provide material samples as may be necessary to complete this testing and these material samples will be furnished from material available on the job site or from the Contractor's source and/or supplier.
- G. Controlled Density Fill (CDF): Furnish a certificate with each truckload of CDF product delivered to the site, indicating the composition and quality of the mix. Include size and weight of each aggregate, amount of cement, amount of water and amount and kind of any additives.

2. PRODUCTS

2.1 GRAVEL BEDDING MATERIAL

A. Pipe bedding material shall consist of crushed, processed, or naturally occurring material that is granular and well-graded. It shall be free from various types of wood waste or other extraneous or objectionable materials. It shall have such characteristics of size and shape that it will compact and shall meet the following quality and gradation, when tested in accordance with ASTM D422:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
1½"	100
1"	75-100
5/8"	50-100
No. 4	20-80
No. 40	3-24
No. 200	10.0 max.
Sand Equivalent	35 min.

2.2 BACKFILL GRAVEL

A. Backfill gravel shall be as specified in Section 02222.

B. The Contractor shall provide the Engineer with a certificate of gradation or sieve analysis from a qualified testing laboratory for backfill gravel furnished under this Contract.

C. Tallying for pay quantities shall be as established by the Contractor and Engineer prior to construction.

2.3 NATIVE MATERIAL

A. Material shall be selected soil free from roots or other organic material, debris, or frozen material.

B. The maximum size of the material shall be 6 inches with no stone larger than 4 inches in the upper 6 inches of fill.

C. Native material shall be free of excess moisture.

D. The material shall be processed to the uniform measure and texture necessary to obtain the specified density.

2.4 TRENCH FOUNDATION GRAVEL

A. At least two basic trench bottom conditions commonly cause problems: (1) where silty soils or fine sandy soils are encountered, they will usually flow in the presence of a stream of water, and (2) where clays, peats, or other soft materials are encountered, they may become saturated with water, but do not usually break down into fine particles and flow as do the silts or sands mentioned above.

B. Trench foundation gravel shall be used when overexcavation, as described in the Pipe Foundations paragraph under Execution in this section, is required.

C. Condition (1) material: Where Condition (1) is encountered, the following trench foundation gravel has been found by experience usually to be adequate: clean bank run sand and gravel, free from dirt, roots, topsoil, and debris and containing not less than 35% retained on a No. 4 sieve and with all stones larger than 2 inches removed. Such gravel shall only be used in a dry trench bottom, free from quicksand or running sand.

D. Condition (2) material: Where Condition (2) is encountered, Class A or Class B trench foundation gravel has been found by experience usually to be adequate. Other material may, however, be found more desirable by the Contractor:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>	
	<u>Class A</u>	<u>Class B</u>
2½"	98-100	95-100
2"	92-100	75-100
1½"	72-87	30-60

$\frac{3}{4}$ "	27-47	0-5
$\frac{3}{8}$ "	3-14	—
No. 4	0-5	—

E. Trench foundation gravel shall contain no pieces larger than 5 inches, measured along the line of greatest dimension.

2.5 CRUSHED ROCK SURFACING

A. See Section 02575.2.1.

2.6 CONTROLLED DENSITY FILL (CDF)

A. CDF shall be a mixture of Portland cement, fly ash, aggregates, water, and admixtures proportioned to provide a non-segregating, self-consolidating and free-flowing material which will result in a hardened, dense, non-settling and excavatable fill.

B. CDF shall be used as fill above utilities wherever non-settling backfill is required or as a hydraulic barrier between coarse and fine grained soil.

C. CDF shall be a mixture of Portland cement, fly ash, aggregates, water, and admixtures which have been batched and mixed in accordance with Section 6-02.3 of the WSDOT/APWA Specifications. Materials are as follows:

1. Portland Cement	AASHTO M 85 OR WSDOT/APWA 9-01
2. Fly Ash	Class F
3. Aggregates	WSDOT/APWA 9-03.1(2)B
4. Water	WSDOT/APWA 9-25
5. Admixtures	WSDOT/APWA 9-23.6

D. CDF shall be used in the following proportions for one cubic yard. Batch weights may vary depending on specific weights of aggregates.

E. Maximum gallons of mixing water per cubic yard: 50.

F. Lbs. of cement per cubic yard: 50.

G. Lbs. of fly ash per cubic yard: 250.

H. Lbs. of dry aggregate per cubic yard, Class 1 or 2 sand as per WSDOT/APWA 9-03.1(2)B: 3200.

I. CDF shall be batched to provide a flowing, non-segregating mix with a slump between 6" to 8".

3. EXECUTION

3.1 TRENCHING

A. Material shall be excavated from trenches and piled adjacent to the trench and maintained so that the toe of the slope of the spoil material is at least 2 feet from the edge of the trench.

B. Material shall be piled in such a manner that will cause a minimum of inconvenience to public travel.

C. Free access shall be provided to all fire hydrants, water valves and meters, and clearance shall be left to enable the free flow of storm water in all gutters, conduits, and natural watercourses.

D. Ledge rock, boulders, or stones shall be removed to provide a minimum clearance of 6 inches under and around the pipe.

E. Contractor shall keep excavations free of water in accordance with Section 02140.

F. Contractor is responsible for shoring in accordance with Section 02150.

3.2 TRENCHING FOR WATER LINES

A. Trenching shall be dug to true and smooth bottom grades in accordance with the lines given by the Engineer.

B. Trench widths shall not exceed 30 inches maximum or 1.5 times outside diameter of the pipe plus 18 inches whichever is greater.

- C. Standard excavation equipment shall be adjusted so as to excavate the narrowest ditch possible.
- D. Depth of trenching for water mains shall be such as to give a minimum cover of 36 inches over the top of the pipe unless otherwise specified.
- E. Deeper excavation may be required due to localized breaks in grade, or to install the new main under existing culverts or other utilities where necessary.
- F. Where profile of pipeline and ground surface is shown on the Plans, pipeline shall be laid to elevation shown, regardless of depth.
- G. Excavation shall be to such depth that the minimum cover over the valve nuts shall be one foot.
- H. The length of trench excavated in advance of pipe laying shall be kept to a minimum and in no case shall length of open trench exceed 400 feet unless specifically authorized by the Engineer.
- I. Trenches shall be over excavated below the specified grade to provide for bedding material specified.

3.3 TRENCHING FOR DRAINS

- A. Trenches must be of sufficient width to permit proper jointing of the pipe and back-filling of material along the sides of the pipe.
- B. Trench width at the surface of the ground shall be kept to the minimum amount necessary to install the pipe in a safe manner.
- C. Trenches wider than the maximum specified may result in a greater load of overburden than the pipe is designed for, and consequently, if the maximum trench width is exceeded by the Contractor, the Contractor shall at his own expense, provide pipe of higher strength classification, or provide a higher class of bedding where necessary to assure that the pipe will not be overloaded.
- D. The normal maximum permissible trench width, at the bottom of the trench and up to a point at the crown of the pipe, shall be 1.5 times the inside diameter plus 18 inches or 40 inches, whichever is greater.
- E. Excavation for manholes and other structures shall be sufficient to provide a minimum of 12 inches between their outside surfaces and the sides of the excavation.
- F. The length of trench excavated in advance of the pipe laying shall be kept to a minimum, and in no case shall it exceed 150 feet unless specifically authorized by the Engineer.
- G. Trenches shall be excavated below the barrel of the pipe a sufficient distance to provide for bedding material specified.

3.4 TRENCHING FOR FORCE MAINS

- A. Trenches shall be dug to true and smooth bottom grade and in accordance with the lines given by the Engineer.
- B. Trench widths shall not exceed 30 inches maximum or 1.5 times outside diameter of the pipe plus 18 inches whichever is greater.
- C. Standard excavation equipment shall be adjusted so as to excavate the narrowest ditch possible.
- D. The depth of trenching shall be such as to give a minimum cover of 48 inches over the top of the pipe unless otherwise specified.
- E. Where profile of pipeline and ground surface is shown on the Plans, pipeline shall be laid to elevation shown regardless of depth.
- F. No additional compensation will be allowed for small amount of deeper excavation which may be required, due to localized breaks in grade, or installing the force main under existing culverts or other utilities or where necessary for adjustment in grade required providing cover over air release valves.
- G. Trench shall be graded so that there is an upward slope at all times from low point to high point.

- H. The length of trench excavated in advance of the pipe laying shall be kept to a minimum and in no case shall length of open trench exceed 400 feet unless otherwise specifically authorized by the Engineer.
- I. Trenches shall be over excavated below the specified grade to provide for bedding material specified.

3.5 PIPE FOUNDATIONS

- A. Where the trench bottom is in a material which is unsuitable for foundation or which will make it difficult to obtain uniform bearing for the pipe, such material shall be removed and a stable foundation provided in accordance with Standard Detail entitled "Foundation Gravel and Backfill".
- B. Proper preparation of foundation and placement of foundation material, where required, shall precede the installation of all pipe.
- C. Proper preparation includes bringing the native trench bottom and/or the top of the foundation material to a uniform grade so that the entire length of pipe rests firmly on suitable, properly compacted material.
- D. Gravel to be used for foundation purposes shall be of a type and gradation to provide solid compact bedding in the trench. Because trench conditions vary, foundation gravel requirements will change.
- E. Neither approval nor disapproval of the foundation material proposed by the Contractor shall relieve him of his responsibility to provide adequate pipe foundation and to guarantee his work as elsewhere required by the Contract.
- F. Unsuitable material for foundation purposes below the depth required for the specified bedding shall be removed and replaced with suitable foundation gravel.
- G. Excavated materials shall be disposed of at an approved waste site and all costs involved in the excavating and wasting of this material shall be considered as incidental to the foundation item, except that excavation more than 2 feet below the pipe invert shall be classified as extra excavation and paid for at the Extra Excavation unit bid price.

3.6 PIPE BEDDING

- A. Placement of bedding material in the pipe zone shall be as specified in the section regarding the pipeline being constructed.

3.7 BACKFILLING

- A. Pipe bedding and backfill to 6 inches over the top of the pipe shall be completed before backfilling operations are started.
- B. The Contractor shall take all necessary precautions to protect the pipe from any damage, movement or shifting. In general, backfilling shall be performed by pushing the material from the end of the trench into, along and directly over the pipe so that the material will be applied in the form of a rolling slope rather than by side filling which may damage the pipe. Backfilling from the sides of the trench will be permitted after sufficient material has first been carefully placed over the pipe to such a depth as to protect the pipe.
- C. Compaction equipment used above the pipe zone shall be of a type that does not injure the pipe.
- D. Provide for the proper maintenance of traffic flow and accessibility as may be necessary.
- E. Make adequate provisions for the safety of property and persons.
- F. Temporary shoring shall be removed unless specifically authorized in writing.
- G. Dewatering shall be continued until the trench is completely backfilled.
- H. Brush, stumps, logs, planking, disconnected drains, boulders, etc., shall be removed from the material to be used for backfilling the trench.
- I. Where original excavated material is unsuitable for trench backfill, backfill gravel shall be placed.

- J. The unsuitable material shall be removed to a disposal area. Backfill gravel shall be used for backfill only where original material is unsuitable and upon approval by the Engineer.
- K. Where it is required that a blanket of select material or bank run gravel be placed on top of the native backfill, the backfill shall be placed to the elevations shown on the Plans, or to the elevation the Engineer may direct, and shall be leveled to provide for a uniform thickness of the selected material. Compaction of the native material shall be as required by the Owner and shall be performed prior to placing the select material except where the backfill is settled by the jetting method. In this case, the bank run material shall be placed before jetting. The top layer of material shall be then loosened by scarifying or other method and re-compacted. Surface material shall be loosened to whatever depth is required to prevent bridging of the top layer, but shall in no case be less than 18 inches.
- L. Backfill Gravel: Wherever a trench is excavated in a paved roadway, sidewalk or other area where minor settlements would be detrimental and where the native excavated material is not suitable for compaction as backfill, the trench shall be backfilled to such depth as the Engineer may direct with Backfill Gravel.
- M. Controlled Density Fill: Controlled density fill shall be placed as shown on the drawings or wherever mechanical compaction cannot be achieved due to physical space and/or clearance limitations (not allowing access for mechanical compaction equipment) and where additional excavation to provide the required space and/or clearance is not practical or possible. CDF shall be used as fill above utilities wherever non-settling backfill is required.

3.8 GENERAL COMPACTION REQUIREMENTS

- A. Requirements of this section shall apply unless more stringent requirements are established by the local agency involved.
- B. When working in an existing traveled roadway, restoration and compaction must be achieved as the trench is backfilled so as to maintain traffic.
- C. Trench backfill under roadway shall be mechanically compacted to 95% of maximum density except for trenches over 8 feet in depth.
- D. In the case of trenches over 8 feet deep, backfill at depths over 4 feet may be compacted by either water settling or mechanical compaction. The top four feet of the trench line shall then be mechanically compacted to 95%.
- E. In any trench in which 95% density cannot be achieved with existing backfill, the top 4 feet shall be replaced with backfill gravel mechanically compacted to 95%.
- F. When working in areas outside of proposed traveled roadway or on easements, backfill compaction may be achieved throughout the entire depth of the trench either by mechanical compaction or by water settling. In any case where the fill cannot be brought to a visibly dry, firm, stabilized condition by water settling, all affected backfill shall be removed and replaced by backfill gravel mechanically compacted to 95% density.

3.9 MECHANICAL COMPACTION

- A. Method of compaction shall be at Contractor's option.
- B. The Contractor shall be responsible to provide the proper size and type of compaction equipment and select the proper method of utilizing said equipment to attain the required compaction density.
- C. In place compaction tests may be made. Contractor shall remove and re-compact material that does not meet specified requirements.

3.10 CONTROLLED DENSITY FILL (CDF)

- A. Haul excavated material immediately to waste, install and bed pipe per Section 02660 and other applicable sections.

- B. Mix and deliver CDF in commercial concrete ready mix trucks. CDF shall be discharged from the mixer by any reasonable means (which does not segregate the material) into the area to be filled.
- C. Contain CDF at either end of the excavation by bulkhead or earth fill.
- D. Place CDF using suitable equipment to avoid injury to or displacement of installed utility lines, manholes, and other structures. CDF shall not be placed on frozen ground.
- E. Vibrate fill with concrete vibrators during placement for complete consolidation, 95% minimum.
- F. Provide steel plates to span utility trench and prevent traffic contact with the CDF for at least 12 hours, but not more than 24 hours or until fill has set sufficient to prevent rutting.
- G. Placement of CDF shall be scheduled during favorable weather conditions. At the time of placement, CDF must have a temperature of at least 40° F. Mixing and placing shall stop when the temperature is 38° F or less and falling. Each filling stage shall be as continuous an operation as practical.

*** END OF SECTION ***

SECTION 02275

SEDIMENTATION CONTROL

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Grading: Section 02210
- B. Excavating, Backfilling and Compacting for Utilities: Section 02222

1.2 QUALITY CONTROL

- A. Conform to regulatory requirements.
- B. Sedimentation control systems depicted on drawings are intended to be minimum requirements to meet anticipated site conditions.

1.3 SCHEDULE

- A. Required sedimentation control facilities must be constructed and in operation prior to land clearing and/or other construction to ensure that sediment laden water does not enter the natural drainage system.
- B. Sediment facilities shall be maintained in a satisfactory condition until such time that clearing and/or construction is completed and potential for on-site erosion has passed.
- C. The implementation, maintenance, replacement and additions to erosion/sedimentation control systems shall be the responsibility of the Contractor.

2. PRODUCTS

2.1 PLANTING MATERIALS

- A. Refer to Section 02990

2.2 STRAW

- A. Be in an air dried condition free of noxious weeds, weed seeds, and other materials detrimental to plant life.
- B. Be seasoned before baling or loading and shall be acceptable to the Engineer.

2.3 JUTE MATTING

- A. Be of a uniform open plain weave of unbleached, single jute yarn treated with a fire retardant chemical.
- B. The yarn shall be of a loosely twisted construction and shall not vary in thickness by more than 1/2 of its normal diameter.
- C. Furnished in rolled strips 48 inches wide by approximately 50 yards long.
- D. Average weight of 0.92 pounds per square yard with an allowable tolerance of plus or minus 1 inch in width and 5% in weight.

2.4 FILTER FABRIC

- A. Filter fabric for the erosion protection barriers shall be Mirafi 140, or equivalent.

2.5 WIRE

- A. Wire for the erosion protection barriers shall be 2 x 2 mesh, 14 gauge galvanized wire.

2.6 SUPPORT POSTS

- A. Support posts for the erosion protection barriers shall be 2 inch by 4 inch, Doug-FR No. 1 or better wood posts or 1-1/2 inch by 4/8 inch medium weight steel fence posts.

2.7 CLEAR PLASTIC COVERING

- A. Clear plastic covering for protection of slopes and cuts shall meet the requirements of the NBS Voluntary Product Standard, PS 17 for Polyethylene sheeting having a minimum thickness of 6 mil.

2.8 SEDIMENT RETENTION WATTLE

- A. Wattles shall be a straw-filled tube of flexible netting material exhibiting the following properties. It shall be a machine-produced tube of compacted rice straw that is

Certified Weed Free Forage, by a manufacturer whose principle business is wattle manufacturing. The netting shall consist of seamless, high-density polyethylene and ethyl vinyl acetate and contain ultra violet inhibitors

3. EXECUTION

3.1 EROSION CONTROL

- A. Erosion control provisions shall meet or exceed the requirements of the local agency having jurisdiction.
- B. When provisions are specified and shown on the Drawings, they are the minimum requirements.
- C. Contractor shall not permit sediment laden waters to enter drainage facilities.
- D. As construction progresses and seasonal conditions dictate, more siltation control facilities may be required. It shall be the responsibility of the Contractor to address new conditions that may be created and to provide additional facilities over and above minimum requirements as may be required.

3.2 SILTATION/SEDIMENTATION PONDS

- A. Siltation/sedimentation ponds shall be installed on site to de-silt all stormwater or water pumped from excavations.
- B. If additional siltation control is required, check dams or silt fences may be placed in ditches receiving stormwater from areas disturbed by construction.
- C. Siltation/sedimentation ponds shall be constructed in accordance with the requirements of the agencies having jurisdiction over the project area and/or the facilities that will receive discharge from siltation/sedimentation ponds.

3.3 FILTER FABRIC FENCES

- A. Filter fabric fence shall consist of filter fabric fastened to wire fabric with staples or wire rings.
- B. Wire shall be fastened to posts set at 4-foot centers.
- C. Fabric shall be buried into ground approximately 8 inches to prevent silt from washing under fabric.
- D. Fence shall be located to catch silt and prevent discharge to drainage courses.

3.4 STRAW BALE FILTER

- A. Installed in drainage way to catch silt.
- B. Dig bales into ground approximately 6 inches and stake in place with 2 wooden stakes in each bale.
- C. Bales to extend above anticipated surface of stream.

3.5 SEDIMENT RETENTION WATTLE

- A. Install Wattles in the trench, insuring that no gaps exist between the soil and the bottom of the Wattle. The ends of adjacent Wattles should be tightly abutted so that no opening exists for water or sediment to pass through. Alternately, Wattles may be lapped, 6" minimum to prevent sediment passing through the field joint.
- B. Wooden stakes should be used to fasten the Wattles to the soil. When conditions warrant, a straight metal bar can be used to drive a pilot hole through the Wattle and into the soil.

3.6 PLACING JUTE MATTING

- A. Seed and fertilizer shall be placed prior to placing of matting.
- B. Jute matting shall be unrolled parallel to the flow of water. Where more than 1 strip of jute matting is required to cover the given area, it shall overlap the adjacent mat a minimum of 4 inches. The ends of matting shall overlap at least 6 inches with the upgrade section on top.
- C. The up-slope 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 (1 stake at each overlap) shall be driven below the finish ground line prior to backfilling of the trench.

- D. 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.
- E. Check slots 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 one check slot or one end occurs within each 50 feet of slope.
- F. 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.
- G. 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.

3.7 PLACING CLEAR PLASTIC COVERING

- A. Clear plastic covering shall be installed on erodible embankment slopes as shown in the plans or as designated by the Engineer.
- B. The clear plastic covering shall be installed immediately after completion of the application of roadside seeding.
- C. The Contractor shall maintain the cover tightly in place by using sandbags or tires on ropes with a minimum 10-foot grid spacing in all directions. All seams shall be taped or weighted down full length. There shall be at least a 12 inch overlap of all seams.
- D. The Contractor shall be responsible to immediately repair all damaged areas.

3.8 EXISTING DRAINAGE FACILITIES

- A. Should a storm sewer or culvert become blocked or have its capacity restricted due to discharge siltation from Contractor's operations, the Contractor shall make arrangements with the jurisdictional agency for the cleaning of the facility at no additional expense to the Owner.

3.9 DRAINAGE DIVERSION

- A. Contractor shall divert the surface runoff water around the site as may be required.
- B. Drainage shall be restored to condition existing prior to construction unless otherwise shown on the Drawings.

*** END OF SECTION ***

SECTION 02575

PAVEMENT REPAIR AND RESURFACING

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Traffic Regulation: Section 01570
- B. Demolition: Section 02050
- C. Excavation, Backfilling, and Compacting for Utilities: Section 02222

1.2 QUALITY ASSURANCE

- A. Qualifications of Asphalt Concrete Producer: Use only materials which are furnished by a bulk asphalt concrete producer regularly engaged in production of hot mix, hot laid asphalt concrete.

1.3 PAVING QUALITY REQUIREMENTS

- A. General: In addition to other specified conditions, comply with following minimum requirements:
 1. Comply with requirements of Road Agency having jurisdiction.
 2. Provide final surfaces of uniform texture, conforming to required grades and cross-sections.
 3. Patches shall match existing grade and cross-section unless otherwise directed by the Road Agency.
- B. Surface Smoothness:
 1. Test finished surface of each asphalt concrete course for smoothness, using a 10 foot straight edge applied parallel to and at right angles to centerline of paved areas.
 2. Surfaces will not be acceptable if exceeding 0.25 inch in 10 feet unless more rigid requirements are established by the Road Agency.

1.4 SUBMITTALS

- A. Certify that materials comply with specification requirements.
- B. Certificate to be signed by asphalt concrete producer and Contractor.

1.5 JOB CONDITIONS

- A. Weather Limitations:
 1. Construct only when temperatures are above minimum specified in State Highway Standard Specifications unless waived by Road Agency having jurisdiction.
 2. Do not construct pavement or base when the base surface is wet or contains an excess of moisture which would prevent uniform distribution and the required penetration.
- B. Grade Control: Establish and maintain the required lines and grades, including crown and cross-slope, for each course during construction operations.
- C. Traffic Control:
 1. Maintain vehicular and pedestrian traffic during paving operations, as required for other construction activities.
 2. Provide flagmen, barricades, warning signs, and warning lights for movement of traffic and safety and to cause the least interruption of work.
 3. See Section 01570 for additional requirements.

1.6 ROAD AND STREET RESTORATION REQUIREMENTS

- A. The Contractor's responsibility as to road restoration shall include, but not be limited to, proper backfill and compaction of excavation, shaping and general restoration of the roadway, restoration of public and private improvements when damaged by construction, restoration of drainage facilities, scarification of existing surfacing, if required, removal of debris and surplus material and all other requirements of these

Specifications. In addition, upon completion of the above restoration, backfill gravel and crushed gravel or crushed rock surfacing shall be placed where required, in the opinion of the Engineer.

- B. Unless otherwise specifically authorized by the authority responsible for the roadway, the final grade and cross-section shall conform to applicable Road Agency standard cross sections. In case of existing private roads, they shall conform to the roadway that existed prior to construction. The removal and disposal of existing materials necessary to fulfill the above requirements shall be considered incidental to the construction and the costs thereof shall be included in the items for which payment is provided.
- C. Manhole rings, valve boxes and monument cases shall be adjusted as necessary to be flush with the restored surface.
- D. The Contractor shall comply with all requirements of all permits for installation of pipelines in authorized right-of-way.
- E. The Contractor will place and maintain sufficient and proper lights and barricades at all locations on roads not accepted by the Road Agency involved.
- F. After completion of pipeline installation the Contractor shall clean up drainage ditches and restore all existing drainage structures that he may have damaged during the course of construction. He shall also comply with all drainage requirements of the agency involved upon which the agency's acceptance of the roads is conditioned.
- G. The Contractor shall restore any private improvement on road right-of-way including, but not limited to, culverts, driveways, curbs, sidewalks, parking strips, parking areas, or other permanent improvements, whether or not a permit for such improvements has been obtained.
- H. On streets where the pipeline is located on the shoulder alongside existing bituminous or concrete surfacing, no payment shall be made for cost of restoring street surfacing which may be damaged by the Contractor's operations. If the Engineer requires crushed surfacing spread on the shoulder it shall be paid under the crushed surfacing bid item.
- I. All streets in the construction area as well as any unpaved streets used by Contractor's trucks or any other equipment hauling material to and from the area, whether within the construction area or adjacent thereto, and any unpaved streets used as detours during the construction shall be serviced with a continuous use of sprinkler trucks to allay the dust, and the cost thereof shall be included in the various items for the improvements. The sprinkling of the dust on roads or streets will continue until accepted by the Road Agency or the roads or streets have been graveled or resurfaced. All streets, when required shall be sprinkled at least twice daily.
- J. It is specifically understood and agreed that the Contractor is responsible for complying with all requirements of the Road Agency necessary to obtain written acceptance of the roads by the agency concerned, and for such work the Contractor will be paid only for the items included in this Contract.
- K. Until accepted in writing by the Road Agency, the Contractor will maintain all roads in a condition satisfactory to the agency concerned. This shall include periodic grading of all streets on which traffic is allowed wherever in the opinion of the Engineer, such grading is required. A suitable motor grader shall be available for this work.
- L. Any settlement which occurs during the first year after final contract acceptance shall be repaired by the Contractor at his expense.

2. PRODUCTS

2.1 CRUSHED ROCK SURFACING

- A. Crushed rock surfacing shall be as specified in Section 02210.

2.2 ASPHALT CONCRETE PAVEMENT

- A. Asphalt concrete pavement shall conform to the Technical Requirements of the state highway department in which the project is located for plant mix asphalt concrete unless otherwise set forth in the Special Provisions.

2.3 PAVEMENT MARKINGS

- A. Striping shall be high VOC solvent based paint per WSDOT Standard Specification 9-34.
- B. Crosswalks and stop bars shall be Type B – Preformed Fused Thermoplastic per WSDOT Standard Specification 9-34.

2.4 CONCRETE

- A. Refer to Section 03300.

3. EXECUTION

3.1 GENERAL PAVEMENT REPAIR REQUIREMENTS

- A. Pavement patching shall be scheduled to accommodate the demands of traffic and shall be performed as rapidly as possible to provide maximum safety and convenience to public travel.
- B. The placing and compaction of the trench backfill, and the preparation and compaction of the subgrade shall be in accordance with the requirements of Section 02222 of these Specifications.
- C. Prior to trench excavation in pavement surfaces, straight vertical trim lines shall be cut in order to minimize breakage and cracking of the remaining surfacing.
- D. Before the patch is constructed all pavement cuts shall be trued so that the marginal lines of the patch will form a rectangle with straight edges and vertical faces. The use of a concrete saw will not be required for asphalt pavement.
- E. After completion of the patches, the entire roadway surface shall be cleaned by brooming, flushing, or such other methods as may be required. The early completion of this phase of the restoration is required, not only to facilitate public relations, control dust and traffic problems, but also to prevent the further break-up and cracking of the existing asphalt mat. If, in the opinion of the Engineer, the Contractor is not diligently pursuing the work in such a manner as to place the patch as soon as reasonably possible, the Contractor may be required to re-trim and remove any and all cracked areas in such a manner to produce a straight uniform edge.
- F. Finished grade and cross section of patch shall match grade and cross-section of existing pavement.
- G. All incidental work required to complete the patching of street surfaces as specified, including joints where required, shall be considered as incidental to the patching and the costs thereof shall be included in the items for which payment is provided.

3.2 ASPHALT CONCRETE TRENCH PATCH

A. Preparation:

1. As soon after compacting the trench backfill and placing and compacting backfill gravel, where required, the Contractor shall place and compact crushed surfacing in the trench area to a minimum depth of four (4) inches or depth to match the original cross-section, whichever is greater.
2. A tack coat of asphalt applied at the rate of 0.02 to 0.08 gallon per square yard of retained asphalt shall be applied through the use of mechanical equipment to all surfaces on which any course of asphalt concrete is to be placed or abutted. The spreading equipment shall be capable of uniformly distributing asphalt materials over any area in controlled amounts and shall be equipped with hand operated spray equipment for use only on inaccessible and irregularly shaped areas.

3. The tack coat shall be a heated cutback asphalt, or emulsified asphalt, mixing grade. The emulsified asphalt may be mixed with water at the rate of 1 to 2 parts water to 1 part of emulsified asphalt.
- B. Two Lift Patch:
 1. Immediately after completion of placing the base the Contractor shall place a two inch minimum compacted thickness of asphalt concrete surfacing. The final surface of this lift shall be not lower than 1/2 inch below the existing surface.
 2. If the existing pavement is more than two inches, the first lift of asphalt concrete shall be of the same depth as the existing pavement.
 3. The Contractor may substitute an equal amount of asphalt treated base for crushed surfacing and first lift of asphalt concrete.
 4. When ordered by the Owner or when required in the Special Provisions, the Contractor shall begin the placement of the second lift. A tack coat shall be placed over the patch area. Asphalt concrete modified so that maximum size aggregate is 1/2 inch shall be placed over the tack coat. Prior to rolling, the aggregate in the asphalt concrete shall be hand raked back from the edges and rolled in such a manner to produce a uniform "feather" edge over the existing surface. The minimum compacted thickness of the second lift over the trench area shall be one inch.
 5. Where excess settlement of the first patch occurs, a leveling course shall be used to prevent the thickness of the second lift from exceeding two inches.
 6. The edge of the patch shall be sealed by painting with a cutback asphalt or SS-1 emulsion and immediately covered with sand and heated.
- C. Single Lift Patch:
 1. Immediately after completion of placing the base the Contractor shall place a two-inch minimum thickness of asphalt concrete surfacing.
 2. If the existing pavement is more than two inches the asphalt concrete shall be of the same depth as the existing pavement.
 3. The edge shall be hand raked to produce a smooth edge where the patch abuts the existing pavement.
 4. The thickness shall be adjusted so that a smooth uniform grade exists after rolling.
 5. The edge of the patch shall be sealed by painting with a cutback asphalt or SS-1 emulsion and immediately covered with sand and heated.

3.3 ASPHALT CONCRETE PAVEMENT

- A. Full width asphalt concrete pavement shall conform to the Technical Requirements of the standard specifications of the State Highway Department in which the project is located.
- B. After the subgrade has been properly prepared and compacted, a minimum of two inches of asphalt concrete pavement Class B shall be placed and compacted.
- C. If the existing pavement is more than two inches thick, asphalt concrete shall be of the same depth as existing pavement prior to construction.
- D. The edges of the existing asphalt pavements and castings shall be painted with hot asphalt cement or asphalt emulsion immediately before placing the asphalt patching material.
- E. The asphalt concrete pavement shall then be placed, leveled, and compacted to conform to established cross-section and grade and to match adjacent paved surface.
- F. The edge of the new pavement shall be sealed by painting with a cutback asphalt or SS-1 emulsion and immediately covered with sand and heated.

3.4 ASPHALT CONCRETE OVERLAY

- A. Before construction of an asphalt concrete pavement overlay on an existing surface, all fatty asphalt patches, grease drippings, and other objectionable matter shall be removed from the existing pavement. Excess asphalt joint filler shall be removed and pre-molded joint filler shall be removed to at least $\frac{1}{2}$ inch below the surface of the existing pavement. Existing pavement or bituminous surfaces shall be thoroughly cleaned by sweeping to remove dust and other foreign matter.
- B. Prior to placing asphalt concrete, a tack coat shall be applied using heated cut back asphalt or emulsified asphalt at the rate of 0.02 to 0.05 gallons per square yard.
- C. When the surface of the existing pavement or old base is irregular, it shall be brought to uniform grade and cross section as required by the Road Agency involved. Pre-leveling of uneven or broken surfaces over which asphalt concrete is to be placed is required and may be accomplished by the use of asphalt concrete placed with a motor patrol grader, a paving machine, by hand raking, or by a combination of these methods. After placement, the asphalt concrete used for pre-leveling shall be compacted with rollers.
- D. When asphalt concrete pavement is to be constructed over an existing paved or oiled surface, in addition to the preparation as outlined hereinbefore, all holes and small depressions shall be filled with an appropriate class of asphalt concrete mix. The surface of the patched area shall be leveled and compacted thoroughly. All previous patches that have settled shall be pre-leveled so that depth of overlay does not exceed two inches in thickness.
- E. After preparation of the base a one inch minimum compacted full width layer of asphalt concrete shall be placed on top of an existing paving surface. Surfacing shall be placed in such a manner as to prevent disturbing existing drainage. Surfacing shall be feathered out as required to meet existing driveways, catch basins, traffic control pads, street intersections, etc., and shall include thickened edge paving where it is now existing.
- F. The edges of the overlay shall be sealed by painting with a cutback asphalt or SS-1 emulsion and immediately covered with dry sand and heated.

3.5 CRUSHED SURFACING

- A. Existing crushed surfacing shall be replaced with new material.
- B. Thickness of course shall be as directed by the Owner.
- C. When the utility line is along the shoulder of a roadway, the Contractor may be directed to place a course of crushed surfacing along shoulder of the roadway. Thickness shall be as required by the Road Agency.
- D. During dry periods, the Engineer may require water sprinkling prior to and during the placement of crushed surfacing. The cost of such sprinkling shall be included in the unit bid for crushed surfacing.

3.6 TEMPORARY TRENCH PATCH

- A. The Contractor may be required to furnish and install a temporary trench patch only when specifically directed by the Owner or as provided on the Plans.
- B. Area to be patched shall be cleaned out and graded to the bottom of the base course. Any loose asphalt shall be removed.
- C. Place a patch consisting of 2-inch minimum course of crushed surfacing base and a 2-inch minimum course of cold asphalt plant mix placed over the trench area.
- D. Both the base and surface course shall be placed and compacted so that the finished surface will match the grade and cross-section of the existing pavement.
- E. Surface of pavement shall be cleaned of all dirt and debris before opening to traffic.
- F. The Contractor shall maintain temporary patch until the permanent patch is installed.

3.7 CEMENT CONCRETE CURBS AND GUTTERS

- A. Constructed with air entrained concrete.
- B. Side forms shall rest throughout their length on firm ground and shall be full depth of the curb. They shall be either metal or suitable gauge for the work or surfaced "construction" grade lumber not less than two (2) inches (commercial) in thickness. Forms shall be cleaned and well oiled prior to use. Forms used more than one time shall be cleaned thoroughly and any forms which have become worn, splintered, or warped shall not be used again. Forms shall be adequately supported to prevent deflection or movement.
- C. The foundation shall be watered thoroughly before the concrete is placed.
- D. Concrete shall be well tamped and spaded or vibrated in the forms.
- E. Exposed surfaces shall be finished full width with a trowel and edger. Remove forms of all roadway face of curbs within 24 hours or placement of concrete and treat with a float finish. The top and face of the curb shall receive a light brush finish and the top of the gutter shall receive a broom finish.
- F. Joints shall be spaced to match joints in the abutting pavement. If the abutting pavement is not jointed or the curb or gutter is not abutting pavement, joints in the curb and gutter shall be spaced at 15 foot intervals. These joints shall be 1/8 inch minimum thickness and constructed to a minimum depth of 1 inch by sawing or scoring with a tool which leaves the corners rounded and destroys aggregate interlock to a depth specified. Expansion joints, filled to full cross-section with filler 1/4 inch thick shall be placed in the curb and gutter to match joints in the abutting pavement, at structures, curb returns and where shown in the plans.
- G. Cure for 72 hours by one of the methods specified in Section 03300.
- H. Curb and gutter may be constructed by the use of slip form equipment provided the completed curb or gutter retains its shape, grade, and line. Finishing, joints, and curing shall be as provided above.
- I. Top of the form shall not depart from grade more than 1/8 inch when checked with a 10 foot straight edge. Alignment shall not vary more than 1/4 inch in 10 feet.

3.8 CEMENT CONCRETE SIDEWALKS

- A. The concrete in the sidewalks shall be air entrained concrete in accordance with the requirements of Section 03300.
- B. Forms shall be of wood or metal and shall extend for the full depth of the concrete. All forms shall be straight, free from warp and of sufficient strength to resist the pressure of the concrete without springing. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal.
- C. The foundation shall be brought to the grade required and well wetted before placing the concrete.
- D. Place concrete in the forms and strike off with a heavy iron shod straight edge, trowel surface smooth with a steel trowel as soon as surface can be worked. After troweling and before jointing or edging, the surface of the walk shall be lightly brushed in a transverse direction with a soft brush. On grades of over 4%, the surface shall be finished with a stipple brush.
- E. Joints shall be constructed at the locations and of the sizes as indicated in the plan.
- F. Cured for at least 72 hours by means of moist burlap or quilted blankets. Exclude all traffic, both pedestrian and vehicular, during curing period.

3.9 PAVEMENT MARKINGS

- A. The Contractor shall restore any and all pavement striping and traffic buttons damaged during construction under this Contract.
- B. Restoration shall be in accordance with the current standards of the Road Agency involved.

- C. Cost of restoration of pavement striping and traffic buttons shall be incidental to pavement restoration.

3.10 DUST OIL

- A. Dust oil shall be PS-300 Fuel Oil or equivalent.
- B. Dust oil shall be applied by means of a bituminous distributor, so that uniform distribution is obtained over all points of the surface to be treated.
- C. The entire width of the roadway shall be treated.
- D. Dust oiling will not be permitted at temperatures below 50°F.
- E. Oiling shall not be started unless trenches have been compacted, streets cleaned and reshaped and base course of crushed rock or gravel applied.
- F. The allaying of dust prior to and subsequent to this application of dust oil shall be solely the Contractor's obligation in accordance with other provisions of these Specifications.

3.11 ADJUSTING MANHOLES TO GRADE

- A. The Contractor shall adjust manhole castings to final grade by adding brick and/or mortar under the casting and patching with asphalt concrete. Paving adjusting rings will not be allowed.
- B. The Contractor shall exercise extreme care in preventing foreign material from entering the manhole.
- C. All manholes shall be adjusted to grade after the asphalt concrete surfacing has been placed. Disturbed area around cover shall be patched and sealed to the satisfaction of the Road Agency having jurisdiction.
- D. The Contractor shall take care not to extend the manholes above finished grade.

3.12 ADJUSTING MONUMENT CASES AND VALVE BOXES TO GRADE

- A. Monument cases and/or valve boxes shall be adjusted to final grade and patched with asphalt concrete.
- B. Adjustment shall be made after the resurfacing.
- C. Patching around monument cases and/or valve boxes shall be done to the satisfaction of the Road Agency having jurisdiction.
- D. Valve boxes shall be adjusted to the satisfaction of the utility having jurisdiction.
- E. The Contractor shall take care not to extend the monument cases and/or valve boxes above the finished grade.

*** END OF SECTION ***

SECTION 02720

STORM DRAINAGE

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Field Engineering: Section 01050
- B. Inspection Services: Section 01420
- C. Subsurface Investigation: Section 02010
- D. Dewatering: Section 02140
- E. Shoring: Section 02150
- F. Excavating, Backfilling and Compacting for Utilities: Section 02222
- G. Pipe and Fittings: Section 02610
- H. Existing Utilities/Facilities - Underground and Overhead: Section 02760

1.2 QUALITY ASSURANCE

- A. Testing before Acceptance: The Engineer may require that the first section of pipe, not less than 300 feet in length, installed by each of the Contractor's crews be tested in order to qualify the crew and/or the material. Pipe laying shall not be continued more than an additional 300 feet until the first section shall have been tested successfully.
- B. Final Acceptance: Prior to final inspection all pipelines shall be flushed and cleaned and all debris removed. Before sewer lines are accepted, all lines shall be tested for leakage as specified herein and inspected for line and grade by checking each section between manholes for alignment. A full circle of light shall be seen by looking through the pipe at a light held in the manhole at the opposite end of the section of sewer line being inspected. Any corrections required in line and grade shall be made at the expense of the Contractor.

2. PRODUCTS

2.1 BEDDING MATERIALS

- A. Refer to Section 02222

2.2 GENERAL REQUIREMENTS FOR PIPE MATERIAL

- A. Pipe used for storm drainage construction shall be corrugated polyethylene (CPP) as specified in Section 02610 unless otherwise provided.

2.3 CATCH BASINS AND INLETS

- A. Catch basins and inlets may be constructed of precast units, concrete masonry units, or of concrete or clay brick, or cast-in-place concrete, all in accordance with the drawings.
- B. Precast units shall conform to the applicable requirements of ASTM C478.

2.4 FRAME AND GRATE FOR CATCH BASINS AND INLETS

- A. Conform to Standard Drawing.
- B. Casting for metal frame shall be cast steel, cast iron or ductile iron.
- C. Casting for grates shall be cast steel or ductile iron.
- D. Steel castings shall conform to the requirements of ASTM A27, Mild to Medium Strength Carbon Steel Castings for General Application, Grade 70-36.
- E. Cast iron castings shall conform to the requirements of ASTM A48, Class 30.
- F. Ductile iron castings shall conform to the requirements of ASTM A536, Grade 80-55-06.
- G. Repair of defects by welding not permitted.
- H. Dimensions to have $\pm 1/16$ inch tolerance.
- I. Machine or grind supporting pads for solid non-rocking bearing in any of four possible positions in frame.

- J. Foundry name shall be embossed on top of grate. Lettering is to be recessed 1/16 inch.
- K. Material used for grate shall be designated by embossing "DI" (Duct Iron) or "CS" (Cast Steel) near Manufacturer's name.

3. EXECUTION

3.1 INSTALLATION

- A. Conform to applicable requirements except as modified herein.

3.2 BEDDING FOR CORRUGATED PLASTIC PIPE

- A. Material for side fill around and to the crown elevation of corrugated plastic pipe shall be selected and shall not contain stones larger than 3 inches in greatest dimension, frozen lumps, roots, or moisture in excess of that permitting through compaction.
- B. Material placed within the pipe compaction zone shall be brought up simultaneously on each side of the pipe to the top of the pipe and compacted to 90% density as defined by Section 02222.

3.3 CATCH BASINS AND INLETS

- A. Construction details for catch basins and inlets shall follow all applicable provisions for construction of manholes.
- B. Backfill around catch basins shall be placed around the catch basins and compacted in successive layers six (6) inches in thickness and up to six (6) inches over the crown of the highest pipe connected to the catch basin.
- C. The inlet frame may be either cast into a concrete collar or set flange down on concrete adjustment blocks and mortared.
- D. Inlet frame shall not be grouted to final grade until the final elevation of the pavement, gutter, ditch or sidewalk in which it is to be placed has been established.
- E. Location of catch basins will be staked by the Engineer.
- F. All openings in the walls of catch basins constructed with precast sections for the insertion of pipe connections and outlet trap castings shall, after pipe or castings have been placed to their final position, be grouted tightly in place to present an inside and outside surface conforming to the Standard Details.
- G. The spigot end of the pipe shall be cut square with the last point of contact with the inside wall surface.

* * * END OF SECTION * * *

SECTION 02760
EXISTING UTILITIES/FACILITIES
UNDERGROUND AND OVERHEAD

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Extra Payment: Article 13 General Conditions
- B. Inspection Services: Section 01420
- C. Grading: Section 02210
- D. Excavating, Backfilling and Compacting for Utilities: Section 02222

1.2 LEGAL REQUIREMENTS UNDERGROUND FACILITIES

- A. The Contractor shall, before commencing excavation in any area, comply with the provisions of any applicable laws relating to or governing the identification, location, marking, and responsibility for protecting and repairing of underground facilities.
- B. Whenever there may be a conflict between the provisions of any law and the provisions of these specifications, the provisions of law shall control.

1.3 DEFINITIONS

- A. Utility means any facility or item placed above or below ground for use in connection with the storage or conveyance of water, sewage, electronic, telephonic or telegraphic communication, cablevision, electric energy, petroleum products, gas, gaseous vapors, hazardous liquids, or other substances and including, but not limited to pipes, sewers, conduits, cables, valves, lines, wires, manholes, and attachments.
- B. Pipe zone is defined as extending from the bottom of the required excavation to six (6) inches over the top of the pipe.

1.4 IDENTIFICATION

- A. All underground utilities known by the Owner to be in the proposed area of excavation are identified on the project plan.
- B. The underground utilities identified on the plans have not and cannot be precisely located by the Owner or its agents or engineers and location is approximate only because such information is within the control of the owners of the underground utilities. The Owner, under this Contract, does not warrant the location of underground utilities.
- C. NOTICE: Overhead electrical service lines are generally not shown on the drawings. Electrical transmission lines shown on the drawings are located by point to point, power pole to power pole connections. The transmission cables or wires may be located on either side of the drawing location depending upon the configuration of the crossarms on the power poles or towers. Line voltage is not shown.
- D. Other overhead utility lines are generally not shown on the drawings.

1.5 NOTIFICATION

- A. It is the responsibility of the Contractor to give notice to the Owner or owners of any utilities known or suspected to be within the area of any proposed excavation or construction activities.
- B. The Contractor is responsible to have the locations of underground utilities marked by the utility owners prior to beginning excavation.
- C. The Contractor is responsible for determining the extent of any hazard created by electrical power in all areas and shall follow procedures during construction as required by law and regulation. Prior to construction, the Contractor shall meet with utility owners and determine the extent of hazards and remedial measures and shall take whatever precautions may be required.

- D. The Contractor's attention is directed to federal, state, and local safety codes relative to limitations of work in proximity to overhead power lines.

1.6 QUALITY ASSURANCE

- A. The Contractor will be required to have available a pipe finder and a person capable in its use and to utilize same to satisfy himself as to the exact location of such underground facilities in the interest of avoiding unnecessary damage, maintenance costs, and to insure continuity of customer service.
- B. Contractors shall cooperate with utility owners to aid in locations and maintenance of existing utilities.

1.7 ELECTRICAL TRANSMISSION AND SERVICE LINES

- A. Since neither the Engineer nor the Owner can anticipate the construction methods or techniques and equipment to be used by the Contractor in performing the work, the extent of the possibility of the Contractor's equipment and personnel coming in contact with electrical transmission lines cannot be fully anticipated, and there is no representation that all electrical transmission lines are shown on the plans.
- B. The Contractor is charged with the responsibility of observing and investigating the presence of any electrical transmission lines which might impinge on his work whether overhead or underground and shall consult with and utilize the information given by utility owners and operators to determine the extent of any hazards and remedial measures required, and follow appropriate safety procedures.

1.8 ABOVE GROUND UTILITIES

- A. Existing above ground utilities, 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.

1.9 UTILITY SERVICE LATERALS

- A. Minor underground utility service lines, including but not limited to sanitary sewer services, gas services, water services, house or yard drains, and electricity or telephone services and driveway culverts shall be maintained, relocated, rerouted, removed and restored by the Contractor with the least possible interference with such services.
- B. Even though the presence of minor underground utility service lines may be deemed changed or differing conditions, in no case shall the interference of such service lines be the basis for extra compensation except in the case of a conflict, not shown on the plans, with sanitary sewer service occurring at an elevation between the top and bottom of the proposed pipeline or structure together with the pipe zone, the Contractor will be reimbursed for costs thereof in accordance with Article 13 of the General Conditions.

1.10 RESTORATION BY UTILITY OWNER

- A. 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 adjustments caused by the Contractor's operations.
- B. The Contractor shall save the Owner harmless of any costs so incurred in restoration of a utility damaged by the Contractor except in special cases outlined above, and subject to the provisions of any law.

1.11 RESTORATION OF DRAINAGE FACILITIES

- A. Where it is necessary for drainage facilities to be removed and replaced, existing pipe and catch basins may be reinstalled when approved by the agency having jurisdiction.
- B. The materials shall be cleaned.
- C. When it is necessary to replace existing pipe or catch basins, the new materials shall be of equal strength and similar design to existing materials.

- D. Installation shall be in accordance with the applicable provisions of these specifications.
- E. All costs, whether new or existing facilities are installed, shall be considered to be included in the unit prices bid for the various items and no additional payment shall be allowed.

* * * END OF SECTION * * *

SECTION 02990

LANDSCAPE RESTORATION

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Protection of Work and Property: Section 01545
- B. Site Clearing: Section 02110
- C. Grading: Section 02210

1.2 SUBMITTALS

- A. Duplicate copies of a statement signed by the vendor certifying that each lot of seed has been tested by a recognized seed testing laboratory within 6 months before the date of delivery on the project.
- B. Duplicate copies of certification from grower certifying the grass species and locations of field from which sod was cut.

1.3 JOB CONDITIONS

- A. Areas landscaped and/or seeded prior to construction shall be restored to their original condition.
- B. Unless otherwise specified, the Contractor shall have the option of reseeding or resodding lawn areas that are disturbed during construction.
- C. A cover crop shall be sown in all areas other than landscaped areas that are excavated or disturbed during construction. Cover crop seeding shall follow backfilling operations by not more than three weeks. Weekly seeding shall be required for projects in which all backfilling cannot be completed in three weeks.
- D. All plants or shrubs within landscaped areas that are damaged during construction shall be replaced with plants equal to that existing prior to construction. Any covenants to stipulations in easements shall be adhered to.
- E. All areas shown on the Plans to be planted, seeded or sodded shall be accomplished in accordance with this section.

2. PRODUCTS

2.1 TOPSOIL

- A. Topsoil that is required to be furnished by the Contractor from a source other than the area upon which it will be placed shall consist of fertile, friable soil, preferably of a loamy character, typical of the topsoil common to the locality and it shall contain a normal amount of organic matter.
- B. It shall be obtained from arable land and shall be free from subsoil, refuse and other deleterious substances. It shall be reasonably free from brush, roots, heavy clay, sticks and other litter and shall contain no stones or gravel larger than 1/2 inch in diameter.
- C. It shall be free of toxic amounts of either acid or alkaline elements and be capable of sustaining healthy plant life.
- D. It shall be approved by the Engineer before placement.

2.2 SEED

- A. Grasses and legumes for cover crop seed shall conform to the standards of State Department of Agriculture. Seed shall be furnished in standard containers on which shall be shown the following information:
 1. Common name of seed
 2. Lot number
 3. Net weight
 4. Percentage of purity
 5. Percentage of germination (in case of legumes percentage of germination to include hard seed).

6. Percentage of weed seed content and inert material clearly marked for each kind of seed in accordance with applicable state and federal laws.

2.3 FERTILIZER

A. General:

1. Fertilizer shall be a standard commercial grade of slow-release organic or inorganic fertilizer of the kind and quality specified herein.
2. All fertilizers shall be furnished in standard unopened containers with weight, name of plant nutrients, and manufacturer's guaranteed statement of analysis clearly marked, all in accordance with state and federal laws.
3. Fertilizer shall be ground to a fineness as required for the method of application.

B. Fertilizer Ratio:

Nitrogen	10
Phosphorus	4
Potassium	6

2.4 MULCH

A. Wood Cellulose Fiber:

1. Wood cellulose fiber mulch shall be specially processed wood fiber containing no growth or germination inhibiting factors and shall be dyed a suitable color to facilitate inspection of the placement of the material.
2. It shall be manufactured in such a manner that after addition and agitation in slurry tanks with water, the fibers in the material will become uniformly suspended to form a homogeneous slurry.
3. Each package shall be marked by the manufacturer to show the air dry weight content.

B. Peat:

1. Peat shall be a natural domestic product of either sphagnum moss, reed or sedge peat, taken from a freshwater site, free from lumps, roots and stones.

C. Straw:

1. All straw mulch material shall be in an air dried condition free of noxious weeds, weed seeds, and other materials detrimental to plant life.
2. Straw shall be seasoned before baling or loading.
3. Straw mulch shall be suitable for spreading with mulch blower equipment.

2.5 SOD

A. Imported Sod:

1. Sod shall be of first quality turf grass sod composed of acceptable grass mixtures, relatively weed free.
2. Sod shall be machine cut to a uniform soil thickness not less than 3/4 inch or more than 1 inch. Individual sod pieces shall be cut to a standard width and to an acceptable length which provides for efficient and proper installation.
3. Sod shall be harvested, delivered and installed within a 48 hour period.
4. The Contractor, upon request, shall submit one standard piece of sod for the Engineer's approval.

B. Native Sod:

1. Native sod shall be replaced in the lawn of original removal.
2. The area of sod to be removed shall be laid out in squares or strips of such size as to provide easy handling and matching. The sod shall then be carefully cut along these lines taking care to keep all cuts straight and strips of the same width. After the sod has been cut vertically, it shall be removed to a uniform depth with an approved type of sod cutter. This operation shall be performed in such manner as to ensure uniform thickness of sod throughout the operation.
3. As the sod scalping proceeds, the sod strips shall be placed in neat piles at convenient locations and from then on they shall be maintained in a damp

condition continuously until the sod strips are replaced on the lawn. In no case shall the sod remain in piles longer than 10 days before replacement on the lawn.

2.6 PLANT MATERIALS

- A. Plants shall be healthy, in vigorous growing condition, and be guaranteed true to size, name and variety. Nomenclature shall be listed in Standardized Plant Names, Second Edition, 1942.
- B. Size and quality shall be equal to existing plants or as shown on the Plans. Plants shall be No. 1, nursery grown, freshly dug, of normal growth and habit, free from diseases and insects.

3. EXECUTION

3.1 LAWN SEEDING

- A. All areas to be put into lawn shall have a minimum depth of 8 inches of topsoil.
- B. Immediately prior to placing topsoil, the surface area upon which it is to be placed shall be cleaned of objectionable matter and the area shall be smoothed and compacted.
- C. The finish grade of all areas to be put into lawn shall be smooth, without visible depressions or mounds and shall be flush with the top of adjoining curbs, walks and drives.
- D. After establishing the finish grade, all areas shall be hand raked, rolled and again hand raked, removing all rocks, weeds and debris.
- E. Commercial fertilizer shall be applied at the rate of 2 pounds per 1,000 square feet.
- F. Lawn seed shall be seeded over all areas to be put into lawn at the rate of 3 pounds per 1,000 square feet.
- G. After seeding, ground horticultural peat moss shall be spread 1/4 inch deep with an approved spreader over all seeded areas.
- H. The exact time for seeding will be determined by actual weather conditions. The normal satisfactory periods for seeding shall be considered as being between March 1 and May 1 and between September 15 and October 20.
- I. When delays in operations carry the work beyond the most favorable planting season, or when weather conditions are such that satisfactory results are not likely to be obtained for any stage of the seeding operations, the Contractor will stop the work and it shall be resumed only when the desired results are likely to be obtained or when approved alternates or corrective measures and procedures are adopted.
- J. Maintenance shall commence immediately on planting and the lawn area shall be kept damp for 10 days to 2 weeks. Protect all seeded areas by watering, mowing and replanting as necessary for at least 30 days and as long as necessary to establish a uniform stand of grass, and a minimum of 2 cuttings.

3.2 SOD

- A. Prior to placing the strips of sod, the scalped area shall be carefully shaped to proper grade and be thoroughly compacted. Wherever the construction operations have resulted in the placement of unsuitable or poorer soils in the area to be resodded, the surface shall be left low and covered with topsoil.
- B. The finished grade, after shaping and compacting the topsoil, shall be thoroughly dampened prior to and immediately before replacing the sod.
- C. The sod shall be replaced to the required grade, taking care to butt each piece tightly against the adjacent one.
- D. Upon completion, the sod shall be dampened and rolled with a lawn roller.
- E. All sod shall be kept moist during the first week after sodding. Water shall be provided for each of the next three weeks to provide a minimum of 2 inches of moisture per week.

3.3 COVER CROP SEEDING

- A. Seeding shall not be done during windy weather or when the ground is frozen, excessively wet or otherwise unfillable.
- B. Seed may be sown by one of the following methods:
 - 1. Hydro-seeded which utilizes water as the carrying agent, and maintains continuous agitation through paddle blades. It shall have an operating capacity sufficient to agitate, suspend and mix into a homogeneous slurry of the specified amount of seed and water or other material. Distribution and discharge lines shall be large enough to prevent stoppage and shall be equipped with a set of hydraulic discharge spray nozzles which will provide a uniform distribution of the slurry.
 - 2. Blower equipment with an adjustable disseminating device capable of maintaining a constant, measured rate of material discharge that will ensure an even distribution of seed at the rates specified.
- C. Grass seed shall be seeded at the rate of 130 pounds per acre.
- D. Fertilizer shall be applied at the rate of 90 pounds per acre.
- E. Wood cellulose fiber shall be applied at the rate of 1 ton per acre.
- F. The exact time for seeding will be determined by actual weather conditions. The normal satisfactory period for seeding shall be considered between March 1 to June 1 and September 1 to November 1 unless otherwise authorized by the Owner except that the Contractor may perform seeding operations from June 1 to September 1 provided that he waters the new grass to the satisfaction of the Owner.
- G. When delays in operations carry the work beyond the most favorable planting season, or when weather conditions are such that satisfactory results are not likely to be obtained for any stage of the seeding operations, the Contractor will stop the work and it shall be resumed only when the desired results are likely to be obtained or when approved alternates or corrective measures and procedures are adopted.
- H. The Contractor shall protect all seeded areas from erosion until final inspection and acceptance has been made. Areas damaged by erosion shall be repaired by the Contractor at his own expense.

3.4 PLANTING PITS

- A. Trees: Vertical sides, flat bottom, circular or square 6-inch minimum planting soil below ball and/or roots, diameter or side dimension 2 feet greater than root system or ball diameter.
- B. Shrubs conform to A above except diameter or side dimension 1 foot greater than ball diameter or root.
- C. Bulbs, bedding plants and ground cover 12 inches below finished grade.

3.5 PLANTING TREES, SHRUBS, GROUND COVER, BULBS AND BEDDING PLANTS

- A. Use planting soil beneath and around cavity between plant ball or roots and pit sides. Tamp base firmly, place plant or tree, tamp soil in layers, thoroughly water each layer, loosen and fold burlap away from top of ball into pit. Fill balance of cavity with planting soil. Soak and continuously maintain adequate moisture.
- B. Use approved root transplanting compounds and herbicides for bulbs and plants to prevent disease and assure best plant growth.
- C. Leave watering "saucers" around each plant.
- D. Support trees immediately after planting by staking and/or guying to maintain trees in plumb position.
- E. Apply mulch where shown or noted on the Drawings. Mulch depth shall be 3 inches unless otherwise noted.
- F. Fertilize all trees, shrubs and ground covers at time of planting.

3.6 FINAL INSPECTION

- A. Final inspection for seeded areas will not be made until thirty (30) days following completion of all seeding, fertilizing, and mulching as specified. Damage caused by

the Contractor to areas which have been seeded or sodded shall be repaired and/or replaced by the Contractor at his own expense.

3.7 GUARANTEE

- A. Guarantee of planting and seeding shall continue for one year from date of final project acceptance. Contractor shall replace all plants or sod dead or dying within the guarantee period, or reseed lawns and cover crop where required. Guarantee shall include both materials and labor. Replacements shall be the same as originally planted.

* * * END OF SECTION * * *

DIVISION 3

CONCRETE

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DIVISION 3 CONCRETE

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SECTION 03100

CONCRETE FORMWORK

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Concrete Reinforcement: Section 03200
- B. Cast-in-Place Concrete: Section 03300

1.2 QUALITY ASSURANCE

A. Standards:

- 1. "Environmental Engineering Concrete Structures" ACI 350 R-01.
- 2. "Recommended Practice for Concrete Formwork", ACI 347.
- 3. International Building Code, 2001.
- 4. U.S. Product Standard PS 1 and PS 2 for Plywood.
- 5. Standard Grading and Dressing Rules No. 16 of the West Coast Lumber Inspection Bureau.

1.3 SUBMITTALS

- A. A description of the forming system with complete details. Specify panel width (chord lengths) for circular structures. Illustrate the proposed location of all construction joints, method of securing embedded items and block out procedures (if proposed).

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. On delivery to job site, place materials in area protected from weather.
- B. Store materials above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation or ventilation.
- C. Handle materials to prevent damage.

2. PRODUCTS

2.1 MATERIALS

- A. Plywood: New or in new condition "B-B Plyform Class 1 Exterior" grade plywood, 5/8 inch minimum thickness.
- B. Steel Panels: Flat steel sheet or plate of sufficient thickness, or braced sufficiently, to prevent noticeable deflection from pressure of concrete. Steel forms galvanized and/or coated to prevent rust and staining.
- C. Framing, Studding, and Bracing: "Standard" or "Construction" grade West Coast species lumber.
- D. Form Ties: Prefabricated rod of the cone-type snap-tie configuration; or approved threaded internal disconnecting type to resist all imposed loads of freshly placed concrete, and permit tightening and spreading of forms. Plastic cone snap ties shall break back 1 to 1-1/2 inches.
- E. Form Coating:
 - 1. Form coating shall be in accordance with Section 4.4 of ACI 347.
 - 2. Lacquer, plastic or epoxy coating, or non-staining form oil that will not impair the bonding quality for final finish of the painting or protective coating.
 - 3. Coatings containing mineral oils or other non-drying ingredients will not be permitted.
- F. Shores and Falsework: Standard patented, manufactured shores, or sound commercial construction lumber.
- G. Chamfer Strips: Chamfer strips (for all exposed edges) 3/4 inch, 45° bevel wood strips or reusable plastic triangular strips.

3. EXECUTION

3.1 DESIGN OF FORMWORK

- A. Design formwork to safely support vertical and lateral loads which might be applied until such loads can be supported by the concrete structure. Carry vertical and lateral loads by formwork system to ground or to in place construction which has attained adequate strength for that purpose.
- B. Design forms and falsework to include assumed values of live load, dead load, weight of moving equipment operated on formwork, concrete mix, and height of concrete drop, vibrator frequency, ambient temperature, foundation pressures, stresses, lateral stability, and other factors pertinent to safety of structure during construction.
- C. Provide shores and struts with positive means of adjustment capable of taking up formwork settlement during concrete placing operations, using wedges or jacks or a combination thereof. Provide trussed supports when adequate foundations for shores and struts cannot be secured.
- D. Form facing materials shall be supported by structural members spaced to prevent deflection. Design camber in formwork as required for anticipated deflections.
- E. Design formwork to be readily removable without impact, shock, or damage to cast-in-place concrete surfaces and adjacent material.
- F. Keep oil or other agents from getting on reinforcing steel, embedded items, or other surfaces requiring bond with concrete.
- G. Form ties construction shall be in accordance with Section 4.4 of ACI 350 R-01.

3.2 LAYOUT OF FORMWORK

- A. Locate and stake out all forms and establish all lines and levels and elevations.

3.3 CONSTRUCTION OF FORMS

- A. Formwork - General:
 - 1. Before concrete is placed in any form, verify horizontal and vertical form position and correct all inaccuracies. Complete all wedging and bracing in advance of placing of concrete.
 - 2. When setting form ties, no metal shall be within one inch of any surface. Ties shall fit tightly to prevent mortar leakage at holes in forms. Ties shall be protected from rusting at all times. No wire ties or wood spreaders will be permitted. Cutting ties back from concrete face will not be permitted.
 - 3. At each construction joint, stabilize forms by using an adequate number of form ties for each new pour. Formwork and/or ties shall not be continuous across the joint. All construction joints shall be horizontal or vertical..
 - 4. For exposed concrete, forms shall be of new plywood, metal panel, or approved panel materials, smooth, and continuous.
 - 5. For unexposed concrete, forms shall be plywood, metal, boards, or approved material. Boards: nominal one inch minimum thickness, sound and tight, commercial construction lumber, shiplap or tongue-and-grooved, dressed on at least one side and both edges for tight fit; plywood, metal, or approved material equal to or better than board surface.
- B. Camber: Forms for girders and slabs cambered unless otherwise noted.
- C. Chamfered Corners: All corners chamfered 3/4 inch, unless shown otherwise on drawings. Provide 45-degree triangular moldings in forms for all chamfering required.
- D. Inspection and Cleanout Openings: Provide inspection and cleanout openings at the bottom of all forms for columns, pilasters, walls over 8 feet in height, and for forms for irregularly shaped placement where cleaning and inspection from the top would be impractical.
- E. Coordination: Coordinate the installation of all items to be inserted or embedded in concrete. Support all items to maintain accurate alignment and prevent distortion during concrete placement.

F. Cleaning: All dirt, chips, sawdust, mud, water and other foreign matter shall be removed from within the forms, or within the excavated areas before any concrete is deposited therein.

3.4 DEFECTIVE WORK

A. Any form movement or deflection during construction or finished surface variations in excess of the tolerances specified will be basis for rejection of cast-in-place product and requirement for replacement of same.

3.5 REMOVAL OF FORMS

A. Do not remove forms and supports until concrete has attained sufficient strength to support anticipated loads.

B. The listing below serves only as a guide in determining the minimum length of time required before removal of forms and is based on the use of Type I Portland Cement. When high early strength Portland cement is used, the length of time listed below may be reduced to not less than one third time listed, but not less than 1 day.

1. Walls in mass work--24 hours
2. Thin walls (12 inches or less) and sides of beams and girders--48 hours
3. Columns--7 days
4. Bottom forms and supports of beams, girders and slabs--14 days

C. Use methods of form removal which will not cause overstressing of the concrete. Remove supports to permit the concrete to uniformly and gradually take the stress due to its own weight. Do not use high impact methods to remove supports.

D. Break back ties after concrete has cured sufficiently to maintain unbroken bond with steel rod.

3.6 REUSE OF FORMS

A. Any reused form for exposed concrete work shall be reconditioned to "like new" condition. Any reused form shall be cleaned, repaired, and recoated before each reuse.

3.7 BLOCK OUTS

A. Where pipes, castings, or conduits pass through the walls, place such pipes or castings in the forms before pouring the concrete, or in special cases, with the express consent of the Engineer or as specified, build accepted boxes in the forms to make cored openings for subsequent insertion of such pipes, castings or conduits. Provide boxes or cores with continuous keyways and water stop all the way around, and with slight flare to facilitate grouting and the escape of entrained air during grouting.

* * * END OF SECTION * * *

SECTION 03200

CONCRETE REINFORCEMENT

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Masonry Accessories: Section 04150
- B. Concrete Formwork: Section 03100

1.2 QUALITY ASSURANCE CONTROL

- A. Manual of Standard Practice for Detailing Reinforced Concrete Structures, ACI 315.
- B. Environmental Engineering Concrete Structures, ACI 350 R-01.
- C. Manual of Standard Practice, Concrete Reinforcing Steel Institute.

1.3 SUBMITTALS

- A. Placing drawings, bending and cutsheet schedules.
- B. Mill test reports for each shipment of reinforcement shall be submitted to the Engineer for review.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver reinforcement to project site in bundles marked to coordinate with placement drawings.
- B. Handle and store to prevent contamination from dirt, oil and other materials which will affect bond.
- C. Store a minimum of 6 inches above ground and in locations where the materials will not be subject to abuse.

2. PRODUCTS

2.1 MATERIALS

- A. Reinforcing Bars: Unless specified otherwise, deformed bars meeting requirements of ASTM A615, Grade 60. Supplementary Requirements SI shall apply.
- B. Welded Wire Fabric: Wire mesh shall meet requirements ASTM A185, "Welded Steel Wire Fabric for Concrete Reinforcement".
- C. Tie Wire: Steel, black annealed, 16-gauge minimum.
- D. Reinforcing Bar Supports: Per CRSI Manual Chapter 3, pre-galvanized or plastic coated.

3. EXECUTION

3.1 INSTALLATION

- A. Placement and Tolerances: Conform to CRSI "Manual of Standard Practice".
- B. Splices:
 1. Do not splice bars except at locations shown or noted on the drawings or as otherwise approved.
 2. Tie lap slices securely with wire to prevent displacement of splice during placement of concrete.
 3. Perform welded splices in accordance with ACI Building Code (ACI 318).
 4. Lap wire fabric one full mesh minimum and tie with wire.
- C. Cleaning: Remove dirt, grease, oil, loose mill scale, excessive rust, and foreign matter that may reduce bond with concrete.
- D. Protection during Concreting: Keep reinforcing in proper position during concrete placement.
- E. Concrete Cover: Maintain minimum concrete cover over reinforcement as specified in ACI 350 R-01 or as noted.

* * * END OF SECTION * * *

SECTION 03252

EXPANSION AND CONTRACTION JOINTS

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Concrete Formwork: Section 03100
- B. Cast-in-place Concrete: Section 03300

1.2 QUALITY ASSURANCE CONTROL

- A. Prepare and use in strict accordance with manufacturer's instructions. Discard materials after specified "shelf life".
- B. Deliver products in manufacturer labeled containers with complete preprinted instructions by manufacturer included.
- C. Installers experienced in use of products.

1.3 SUBMITTALS

- A. Sealant type and manufacturer.
- B. Pre-molded joint filler and backer rod samples.
- C. Certification of conformance to Specifications.

2. PRODUCTS

2.1 MATERIALS

- A. Pre-molded joint filler for expansion joints shall conform to AASHTO M213 Specification unless otherwise noted.
- B. Joint Sealant:
 - 1. Polyurethane material designated for bonding to concrete for sewage treatment plant service, which when cured, develops a high bond between surfaces and provides flexible watertight seal, non-sag, resistant to mild alkalis and acids, oils and meets all requirements for Federal Specifications TT-S-00230, Type II, Class A.
 - 2. Prior to ordering the sealant, submit to the Engineer for review, sufficient data to show experience record of sealant and general compliance with the Specification requirements.
 - 3. Joint primer supplied by the same manufacturer supplying the sealant.
- C. Backer Rod: Closed cell polyethylene backer rod shall be used in sealant joints. The backer rod shall be resilient and of a diameter at least 1/8 inch larger than the groove and shall be approved by the sealant manufacturer.

3. EXECUTION

3.1 INSTALLATION

- A. Joints constructed and located as shown on the drawings.
- B. Sealant Surfaces: Clean, free of oil, grease, residue and other foreign materials, prior to application of sealant in accordance with manufacturer's recommendations. Prime all joints with joint primer.
- C. Sealant Application:
 - 1. Tape or otherwise protect surfaces adjacent to joints not intended to receive sealants. The backer rod shall be accurately placed in the joint to provide the depth of sealant called for on the drawings.
 - 2. Neatly apply sealants to fill void required to level no sag surface. Maintain uniform application procedures to continuously apply sealant. Complete joint system without intermediate stops and starts.
 - 3. Sealant shall be applied according to manufacturer's recommendations in a manner so as to avoid entrainment of air in the joint. All sealant shall cure at least 7 days before the structure is filled with water.

4. Secure preformed board to surfaces with fasteners and procedures recommended by manufacturer.

* * * END OF SECTION * * *

SECTION 03300

CAST-IN-PLACE CONCRETE

1. GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Testing Laboratory Services: Section 01410
- B. Concrete Formwork: Section 03100
- C. Concrete Reinforcement: Section 03200

1.2 QUALITY ASSURANCE

- A. Delivery: Furnish a certificate with each truckload of concrete product delivered to the site, indicating the composition and quality of the mix. Include size and weight of each aggregate, amount of cement, amount of water and amount and kind of any additives included in the concrete, grout fill, or mortar.
- B. Standards: All current and applicable standards of the following:
 1. American Concrete Institute – ACI 318
 2. Concrete Reinforcing Steel Institute - CRSI
 3. IBC
 4. Other local codes or criteria noted on drawings.
- C. Concrete consistency:
 1. Test each truckload of concrete for slump. Calibrate each mixer or haul unit to be used by measuring slump near the beginning and near the end of the discharge cycle. Mix units determined by the Engineer to be deficient in mixing capability shall not be used in subsequent deliveries. Slump testing procedures shall be per ASTM C143.
 2. Consistency shall be per values below with tolerance of \pm 1 inch.
 - a. 3 inches maximum slump for structural elements 12 inches and greater in thickness.
 - b. 4 inches maximum slump for structural elements less than 12 inches in thickness and columns.
- D. Concrete test cylinders:
 1. Prepare a minimum of three test cylinders for each location (slab, wall, column, beam, etc.) for each day's placement or each 50 cu. yd., whichever is greater.
 2. Test set of 3 cylinders as follows:
 - a. One at 7 days.
 - b. Two at 28 days.
 3. Prepare and test cylinders per ASTM C31 and C39.
- E. Prior to placement, have available at placement location all tools, cylinder molds, slump cone, rod, curing containers and all other apparatus required for sampling and testing.
- F. Air-entrained: One test for each mix design.

1.3 SUBMITTALS

- A. Concrete mix design (for each concrete type used) by independent laboratory, including strength tests of 3 cylinders proportioned to mix design formula.
- B. Certification of quality of all concrete, mortar, and grout mix design ingredients including admixtures with supporting test data, mill quality control results and all information specified and requested by the Engineer.
- C. Qualifications of Quality Assurance Control personnel responsible for concrete consistency, strength, air content and all testing.
- D. Curing materials and methods proposed with certification statements of material's quality.

- E. Test results, in approved format, at specified intervals for all field sampling and specimens. (Provide a minimum of two copies to the Engineer.)
- F. Certification of quality and type of epoxy bonding materials.
- G. Trip tickets for each load of concrete, grout or mortar indicating weights of all materials and additives used in the batch.
- H. Location of construction joints not shown on the plans.

1.4 STORAGE OF MATERIALS

- A. Maintain in continuously clean environment and in manner required to maintain homogeneity.
- B. Cements, grouts, and mortar containerized and kept in dry humidity environment. Engineer shall reject materials which have hardened or show any evidence of initial hydration.

2. PRODUCTS

2.1 CONCRETE

- A. ASTM C94 and mix design approved by Engineer.
- B. Compression strength and water cement ratio: The minimum compressive strength and cement content of concrete shall be not less than that shown in the tabulation that follows. The Engineer may order the cement content for any class of concrete to be increased over the quantity specified in the tabulation if it is determined that such increase is necessary to attain the required strength. Such increased quantities of cement, if so ordered, shall be furnished by the Contractor at no additional cost to the Owner.

1. Class of concrete:

Minimum 28-day Compressive Strength (psi)	Type of Work	Aggregate, Max. Size (in)	Cement, Min. lbs per cu. yd.	Max. W/C Ratio
4,000	Walls, slabs and foundations	1	564	0.45
3,000	Cradles, thrust blocks, and all other uses	1½	517	0.50

- 2. Fly ash shall be used at the rate of 100 pounds per cubic yard.
- C. Cement ASTM C150:
 - 1. Type II for all wastewater holding or process structures.
 - 2. Type I or II for all other structures.
- D. Aggregates:
 - 1. Conform to ASTM C33.
 - 2. Maximum wear 50% at 500 revolutions, AASHTO T96.
- E. Water:
 - 1. Clear free from injurious amounts of oil, acid, salt, alkali, organic matter, or other deleterious substances.
- F. Fly Ash:
 - 1. In accordance with ASTM C618 and ASTM C311.
- G. Admixtures:
 - 1. Use only those specified in approved mix design.
 - 2. Air-entrain all concrete unless elsewhere excepted, with agent conforming to ASTM C260. Freshwater concrete air content shall be between 3% and 5% by volume.
 - 3. Apply in strict accordance with manufacturer's printed instructions.
 - 4. No chloride contents permitted.
 - 5. Compatible with coatings specified elsewhere.

6. Lamp black additives as necessary to match color of existing concrete.

2.2 AGGREGATE FOR MORTAR

- A. Conform to 2.1 except gradation as follows:

Sieve Size <u>By Weight</u>	Percent Passing <u>Square Opening</u>
95 - 100	No. 4
80 - 90	No. 8
55 - 97	No. 16
30 - 60	No. 30
12 - 30	No. 50
0 - 10	No. 100

2.3 GROUT

- A. For equipment and column bases and drilled-in anchors use no shrink, no staining, pre-mixed grout; Masterflow 713 by Master Builders or equivalent. Mix in accordance with the manufacturer's directions.
- B. For fill: Driest consistency practical composed of 1 part Portland cement and 3 parts sand (by volume). Aggregate proportions may be varied slightly to give the most workable mix.
- C. For placement at base of walls: one part fine aggregate and one part cement, in a thick cream consistency.
- D. Cure in accordance with manufacturer's recommendations.

2.4 CURING MATERIALS

- A. Polyethylene sheeting: 0.004 inch thick.
- B. Waterproof paper: Polyethylene-coated, Fed. Spec. UU-B-790 Type I, Grades A, B, C, Style 4. Define lap control lines clearly by printed markings.
- C. Masonry sand: ASTM C144 (maintained continually moist).

3. EXECUTION

3.1 MIXING AND TRANSPORTATION

- A. Ready-mixed concrete: Conform to ASTM C94 Alternate No. 3.

3.2 PLACING

- A. Concrete shall not be placed until the Engineer has observed the reinforcement for conformance with the plans and shop drawings.
- B. Deliver only in sufficient quantities required for specified time interval use and placement. Discard concrete having initial set before placement. No remixing with water or supplementing with other materials will be permitted once initial set has occurred. Initial set as evidenced by typical hydration characteristics to be determined by Engineer and Contractor quality assurance representative.
- C. Place as nearly as possible to final position to avoid segregation of the materials and displacement of reinforcement. Placement shall be completed within 30 minutes after water is first added to the mix. However, at the Engineer's discretion if climatic and temperature conditions are suitable and when the concrete is continually agitated, the time may be extended to 1-1/2 hours.
- D. Place no concrete in the absence of or without the permission of the Engineer.
- E. Do not change consistency (slump) for a given placement without the Engineer's written permission.
- F. Keep open trough and chutes of steel or steel lined, clean and free from coatings of hardened concrete.
- G. Do not drop concrete a distance of more than 5 feet unless approved in writing by the Engineer.

- H. Do not place concrete in horizontal members or sections until the concrete in the supporting vertical members or sections has been consolidated and a 2-hour period has elapsed since placement in the vertical member to permit shrinkage to occur.
- I. In walls containing door and window openings, hold up placements at the top and bottom of the openings. Stop other placements at levels to conform to drawing details.
- J. Layout and sequence of placing of concrete in monolithic structures shall be as shown on the drawings or approved by the Engineer.
- K. Within a placement, deposit concrete in horizontal layers not to exceed 18 inches in depth. Place at rate such that: (1) no concrete surface shall obtain initial set before additional concrete is placed on it and (2) yielding of forms is not so great as to cause the concrete surfaces to exceed the tolerances specified.
- L. Unless specified otherwise, place all slabs and finished floors to finish elevation in one continuous operation, except that the Contractor may place a separate finish topping if prior approval is received from the Engineer. Floor and roof slab sectional thicknesses shown are minimum thicknesses. Slopes on floors or roofs shall increase, rather than decrease, slab thicknesses.
- M. Where a separate finish topping is placed, increase structural slab thickness by the maximum thickness of the finish topping and maintain finished floor elevation as noted on the drawings.
- N. Construction joints:
 - 1. Locate construction joints as shown on the drawings or as approved by the Engineer.
 - 2. Locate construction joints so as not to impair the strength of the structure, and only at locations shown on the drawings or approved by the Engineer.
 - 3. Construct bulkheads to neatly fit reinforcement and water stops and prevent concrete leakage.
 - 4. Provide water stops or sealants in construction joints where required.
 - 5. Unless shown otherwise, key all construction joints.
 - 6. Continue reinforcement through construction joint unless otherwise shown or noted.
 - 7. Before placing concrete against previously placed concrete, thoroughly roughen and clean by wet sandblasting or green cutting with an air water jet.
 - a. Use air water cutting at the proper time after the initial set. Use a high pressure air water jet to expose clean, sound aggregate without undercutting the edges of the larger aggregate. Protect adjacent subgrade when cutting is used on slab edges.
 - b. After cutting or sandblasting, rinse the surface until wash water contains no cloudiness. Dispose of wastes from cutting, washing and rinsing so they do not stain or abrade exposed surfaces.
 - 8. Place concrete continuously to a predetermined construction joint.
- O. Care shall be taken in placing concrete through reinforcement so that no segregation of the coarse aggregate occurs. On the bottom of beams and slabs where the congestion of steel near the forms makes placing difficult, a layer of mortar, of the same strength as used in concrete, shall first be deposited in the forms, followed immediately by the concrete. The thickness and use of this mortar layer shall be as approved by the Engineer.
- P. Special care shall be taken to prevent splashing forms or reinforcement with concrete. Any hardened concrete or partially hardened concrete on the forms or reinforcements above the level of the concrete already in place shall be removed before proceeding with the work.
- Q. Cold weather placement:

1. Concrete shall be placed only when the temperature is at least 40°F. and rising, unless permission to pour is obtained from the Engineer.
2. Material shall be heated and otherwise prepared so that batching and mixing can proceed in full accord with the provisions of this Specification.
3. Suitable means shall be provided for maintaining the concrete at a temperature of at least 50°F for a period of at least the first 5 days and at a temperature above freezing for the remainder of the specified curing period, except that where high-early strength cement is used, this period may be reduced to 72 hours. The methods proposed for heating the materials and protecting the concrete shall be approved by the Engineer.
4. Salt, chemicals, or other materials shall not be mixed with the concrete for the purpose of preventing freezing. Accelerating agents shall not be used.

R. Hot weather placement:

1. The temperature of fresh concrete at the time of placement during hot weather shall be a maximum of 90°F to prevent an accelerated setting of the concrete.
2. A retarding densifier admixture shall be used when the high expected atmospheric temperature for the day is 85°F or above. Admixture shall be used in accordance with the manufacturer's recommendations.

S. Placing concrete against earth:

1. Unless otherwise called for on the drawings, earth cuts shall not be used as forms for vertical surfaces without the prior approval of the Engineer.
2. Concrete placed on or against earth shall be placed only upon or against firm, damp surfaces free from frost, ice and standing or running water. Concrete shall not be placed upon mud or upon fills until the required compaction has been obtained.

T. Placing concrete slabs:

1. Smooth subgrade surface irregularity with thin film of masonry sand prior to placing vapor barrier.
2. Place vapor barrier on subgrade in maximum widths commercially available. Longitudinal laps: 6 inch minimum. End laps: 2 feet minimum.
3. Edge and side laps must be in continuous contact. Place materials to maintain tight lap contact.
4. Repair any tears in the material.
5. Place concrete without displacing vapor barrier.

3.3 COMPACTING

- A. Compact all concrete with high frequency internal vibrators immediately after placing.
- B. Use external vibrators for compacting concrete where the concrete is inaccessible for adequate compaction by internal vibrators; construct forms sufficiently rigid to resist displacement or damage from external vibration.
- C. Penetrate concrete with a sufficient number of vibrations immediately after it is deposited. Move vibrator throughout the mass so as to thoroughly work the concrete around reinforcement and embedded fixtures and into corners and form recesses. Vibrate the minimum time required to compact the concrete in place and not cause separation of the materials. Concrete shall be compacted to maximum density as determined by tests for yield. Select vibrator size to efficiently accommodate reinforcement clearances.

3.4 CURING AND PROTECTION

- A. General:

1. Maintain at site ready to install, before actual concrete placing begins, all equipment and materials needed for optimum concrete curing and protection; maintain extra vibrators on standby in case of malfunction of any unit.
2. Protect finished surfaces or edges from stains, abrasions and breakage during the entire construction period.
3. Protect all concrete from accelerated drying and excessive heat at all times. Close all galleries, conduits and other formed openings through the concrete during the entire curing period and as long thereafter as practicable to prevent drying of concrete by air circulation.
4. Install slab curing covers immediately after initial set or as soon as free water has disappeared from the surface of the concrete after finishing or surfacing.

3.5 REPAIRING CONCRETE

- A. Immediately after removal of forms, break back all form ties and inspect concrete surfaces for defects. Complete repair of defects within 48 hours after removal of forms. No repairs shall be made until the defects have been reviewed and method of repair approved by the Engineer.
- B. Remove all defective or damaged concrete, including honeycombed, sand streaked or fractured material from the area to be repaired. Chip out areas to one inch minimum depth. Edge shall be squared with the surface to eliminate feather edges.
- C. Before placing the repair material obtain Engineer inspection. Clean area free of chipping dust, dried mortar, and all other foreign materials.
- D. Keep surfaces to be repaired continuously wet for at least three hours prior to placing new concrete or mortar. No free water on the surface when the repair material is placed.
- E. Apply a bonding agent to the area to be repaired before placing repair material. Apply the bonding agent per manufacturer's published instructions attached to container.
- F. For all repair surfaces permanently exposed to atmosphere use white cement in proportions found by trial to be effective in producing a color that, in the hardened patch, will match the surrounding concrete surface.
- G. Make repairs or patch form tie holes by (1) dry packing, (2) filling with concrete, or (3) plastering with mortar or a combination of all 3 in conformance with the following:
 1. Use the dry pack method for holes at least one inch deep where the depth is equal to, or greater than the smallest surface dimension of the defect, such as cone bolt or form tie holes, and for narrow slots cut for the repair of cracks. Do not use the dry pack method where lateral restraint cannot be obtained. Place and pack dry pack mortar in layers having a compacted thickness of approximately 3/8 inch. Solidly compact each layer over its entire surface by use of a hardwood stick and hammer. Do not use metal tools for compacting. Compact surface just flush with adjacent area. Do not use steel finishing tools or water to facilitate finishing.
 2. Use concrete replacement for (1) holes extending entirely through concrete sections; (2) for holes larger than one square foot and deeper than four inches in which no reinforcement is encountered; (3) for holes larger than 1/2 of one square foot where reinforcement is exposed. Concrete used for replacement shall be of the same strength and mixture as used in the structure except for color matching as specified above.
 3. Use mortar replacement for holes too wide to dry pack and too shallow for concrete replacement and when approved by the Engineer for other conditions not covered above.
- H. Cure all repairs with the same methods as new concrete.

3.6 CONCRETE FINISHES AND TOLERANCE

A. General finish:

1. Finish concrete surfaces to conform to the following table unless otherwise noted on the drawings.
2. Formed surfaces

	<u>System</u>
a. Exterior - exposed and one foot below	F4
b. Exterior - below grade	F2
c. Interior	F4
3. Slabs

a. Tops of exterior footings in contact with soil or backfill	U2
b. Exterior - except as otherwise noted	U5
c. Interior - walking surface except as otherwise noted (with hardener)	U4
d. Interior - tank and channels	U4
e. Exterior and interior walks on or over structures including interior clarifier slab to receive swept in grout fill	U1

B. Formed surfaces: Finishes for formed surfaces shall be as designated below:

1. Finishing for F1 and F2 finishes consists of concrete repairing only, which is to be completed within 48 hours after forms are removed.
2. Finishing for F3 and F4 finishes shall immediately follow concrete repairing and be completed within 96 hours after the forms are removed. Except where forms are left in place for the duration of the curing period, finishing shall be done during the curing period, keeping the interruptions to the curing process as short as possible. Where forms left on prevent finishing during the curing period, finishing shall be completed within 48 hours after forms are removed. All finishes shall receive a minimum of 24 hours of curing after completion of the finish. Curing shall be carefully done so as not to disturb or remove any of the mortar.
3. Finish F1: Rough formed surface with defective concrete repaired and form tie holes and other holes over 1/2 inch deep filled. Forms may be built with a minimum of refinement and form sheathing may be any material that will not leak mortar or yield beyond specified tolerances when the concrete is vibrated.
4. Finish F2: Smooth, formed concrete surface with all fins, projections and loose material removed and defective concrete and form tie holes and other holes over 1/2 inch deep, repaired and filled. Forms in contact with concrete shall be plywood or steel.
5. Finish F3: Smooth, formed concrete surface with all fins, projections and loose material removed, and defective concrete, form tie holes, air bubble holes, surface pits, holes from defective forms, nail head holes and similar surface defects, repaired and filled. Forms in contact with concrete shall be plywood or steel. Form construction shall be planned so that if any pattern from the forms is left in the concrete surface it will harmonize with the structure or building. All joints shall be horizontal or vertical.
6. Finish F4: Exceptionally smooth, formed concrete surface with all fins, joint marks, bulges, projections and loose material removed. Sandblast to expose air bubble holes, surface pits and similar minor surface defects. Defective concrete, form tie holes, holes from defective forms, and other holes too large to fill by "sack rubbing" shall be repaired and filled. Finish with sack rubbing as follows:
 - a. Thoroughly wet the surface and begin treatment while the concrete is still damp. Use 1 part cement, 2 parts (by volume) of sand which will pass a No. 16 screen, and enough water so that mortar consistency will be that of thick cream. Rub mortar thoroughly over the area with clean burlap or a cork or sponge rubber float to fill all pits, surface holes and air bubble holes. While the mortar in the pits is still plastic, rub the surface with a dry mix of mortar.

This dry rub shall remove all excess mortar and place enough dry material in the pits to stiffen and solidify the mortar flush with the surface. No material shall remain on the surface except that within the pits. When the ambient temperature is 85°F or higher, keep the mortar continuously damp by means of a fog spray for 24 hours during the setting period. Take care that the fog spray does not remove any of the mortar. Break finish for any area only at natural breaks in the finished surface.

- b. Rub all surfaces that are to be finish painted with a carborundum stone to provide a smooth texture and to remove any latent material on the surface. Pre-blast walls to remove any residual form oils prior to finishing when walls are to be finish painted.
- c. Form requirements shall be the same as Finish F-3.

C. Unformed surfaces:

1. Working on unformed surfaces in various finishing operations shall be held to the minimum required to produce the desired finish. Use of any finishing tool in areas where water has accumulated will not be allowed. Work in these areas shall be delayed until the water has been absorbed, has evaporated, or has been removed by draining, mopping, dragging off with a loop of hose, or by other means. In no case, shall cement or mixture of cement and sand be spread on the surface to absorb excess moisture nor shall such materials or water be added to facilitate trowelling. Joints and edges, unless specified otherwise, shall be carefully finished with edging tools.
2. Finishes for unformed surfaces shall be as designated below:
 - a. Finish U1: Even, uniform finish. Consolidate level and screed concrete to obtain an even, uniform surface. Surplus concrete shall be removed immediately after consolidation by striking it off with a sawing motion of the straight edge or template across wood or metal strips that have been set as guides. When the surface is curbed use screed strips at approved intervals. For long, narrow stretches of curved surfaces such as on invert paving, a heavy slip form may be used. In the case of extensive flat paving, a paving and finishing machine is preferred.
 - b. Finish U2: A wood float finish. Follow treatment specified for finish U1 by floating either by hand, or by power driven equipment. Floating to be started after some stiffening has taken place in the surface concrete and the moisture or "shine" has disappeared. Work the concrete no more than necessary to produce a surface known as "wood float finish" which is uniform in texture and free of screed marks. Do any necessary cutting and filling during the floating operations.
 - c. Finish U3: A steel troweled finish. Follow the treatment specified for the finish U2, except leave a small amount of mortar without excess water at the surface to permit effective trowelling. Start steel trowelling after the moisture film or "shine" has disappeared from the float surface and after the concrete has hardened enough to prevent an excess of fine material and water from being worked to the surface. Trowel with firm pressure that will flatten the sand surface left by the floating and produce a dense, uniform surface free of blemishes, ripples and trowel marks.
 - d. Finish U4: A hard, steel troweled finish burnished. Follow the treatment specified for finish U3 with additional steel trowelling after the surface has nearly hardened, using firm pressure and trowelling until the surface has a burnished appearance.
 - e. Finish U5: Broom finish. Follow the treatment specified for finish U3 by roughening the surface immediately after toweling with a fiber bristle broom in

a direction perpendicular to the direction of traffic. Broom grooves not more than 1/16 inch deep. After brooming, neatly tool all joints and edges to configuration.

- f. Finish U6: Anti-slip finish. Follow the treatment specified for finish U3 and immediately after trowelling, dust 30 to 40 lbs. or regular non-slip aluminum oxide 14/36 grit abrasive grain uniformly over each 100 sq. ft. of area. Trowel the grit into the surface and after trowelling, brush with a fiber bristle broom in a direction perpendicular to the direction of traffic. Broom grooves not more than 1/16" deep. After brooming neatly tool all joints and edges to configuration.

D. Tolerances:

1. Unless otherwise required, allowable tolerances for concrete surfaces shall be in accordance with those shown in the table below. Surface irregularities are classified as either "abrupt" or "gradual". Offsets caused by displaced or misplaced form sheathing, lining, or form section or by defective form lumber shall be considered as abrupt irregularities. All others are classed as gradual irregularities. Gradual irregularities shall be measured with a template consisting of a straight edge for plane surfaces and its equivalent for curved surfaces.
2. The length of the template for testing formed surfaces shall be 5 feet. The length of the template for unformed surfaces shall be 10 feet. Maintain a 5 foot length and 10 foot length steel template on the job site.
3. Maximum allowable irregularities in concrete:

Finish Designation	Irregularity in Inches Gradual	Abrupt
F1	1	1/2
F2	1/2	1/4
F3	1/4	3/16
F4	3/16	3/16
U1 thru U6	1/8	1/8

3.7 TESTING AND REPAIRING CONCRETE STRUCTURES

A. Testing:

1. Separately test each individual chamber that will contain liquid by filling to the overflow with water after the 28-day design strength of the concrete has been obtained. Repair any visible leakage. Damp spots that do not run may be acceptable if below ground or not on walls common with pump rooms or passageways.
2. Allowable leakage not to exceed 0.1% of the volume contained in the chamber in a 24-hour period. Leakage in excess of the allowable amount requires repair to reduce leakage and will be considered to lack water tightness.

B. Repairs:

1. In the event that the structure is not watertight, outline a procedure for repair prior to proceeding with the repair work. Complete any repairs to new work as per specifications at Contractor expense.
2. Approved repairs can include, but not necessarily be limited to, one or a combination of the repairs listed below. Use of these techniques is not to be construed as a warranty by the Engineer that the methods outlined will satisfy leakage repair requirements:
 - a. Replace defective concrete.
 - b. Grout the joint by drilling grout holes to the center of the structural unit and forcing grout into the joint under pressure.

- c. Cut a bevel groove on the pressure side of the joint. Groove: 1/2 to 3/4 inch in width and depth, caulked with epoxy joint sealer in accordance with the manufacturer's instructions.

3.8 UNSATISFACTORY CONCRETE

- A. Any concrete placed which fails to meet or exceed the specified strength requirements as determined from molded cylinders or cores, or to meet the density or surface requirements, or which has been frozen during placing or curing, shall be removed and replaced with satisfactory materials at the Contractor's expense.
- B. Method of determining unsatisfactory concrete: Visual appearance characteristic of rain or freeze damage to concrete which is apparent to the Engineer.

* * * END OF SECTION * * *